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Democratising access to healthcare through Point of Care Testing.

Pūrongo Whakamutunga

(Final report)

Gavin Hooper-Newton

Te Kaiwhakaako mo nga Hangarau a meake nei
(Master of Technological Futures)

Gen21 MTF Final Report 2024

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Abstract

Hepatitis C Virus (HCV) infection is a prevalent global community concern in response to which, recently developed Direct Acting Antiviral Drugs (DAA's) offer significant opportunity for not only cure of individuals, but elimination of HCV as a global public health threat.

In regard to this, one hundred and ninety-four countries have become signatories to the World Health Organisation (WHO) strategy for elimination of HCV by 2030. Nine countries are on track to this goal.

People who inject drugs (PWID) represent both the priority population most at risk of HCV infection and due to the illegal nature of injecting illicit drugs, a highly stigmatised and vulnerable population that is extremely hard to reach in terms of providing health care, including diagnosis and treatment of HCV.

A key resource to facilitate HCV treatment of PWID involves harnessing the peer workforce of those with lived and living experience of injecting. Peers, in this definition, have the advantage of being understood and accepted as frontline workers by PWID.

Universal Health Care, over **fifty percent** (50%) of the **global population** are **solely reliant** on **limited essential health** assistance, often medically non-qualified community-based assistance where available. Over **ten percent** (10%) of the global population have **no access to health.**

A key resource to population wide HCV treatment is enabling decentralized community-based practice, care of community by community.

(in a nutshell – finding people who are infected is REALLY DIFFICULT!!?)

To **increase efficacy of HCV elimination**, it is proposed to **research** and **explore** the following question:

*How can we improve efficacy of an informally qualified community of testers and facilitate their structured inclusion in established systems through leveraging Emerging Disruptive Technology (EDT) and associated technologies**?***

This research **intended impact** is to contribute to development of solutions to facilitate;

1) formalisation, recognition and transparency of skill or qualification
2) allowing kaiawhina / peers to be supported in maintaining contact and relationships with wai ora, to navigate them through their treatment and continuation of care
3) kaiawhina / peers being supportively engaged in enhancing predominately under resourced, under financed and over committed primary and secondary medical care systems

The **successful implementation** of the proposed **solutions** would contribute to **financial benefits**, **accessibility**, and **viability of widespread general population testing** towards global **2030 elimination goals**.

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Acknowledgment

Kia ora

Kia ora koutou. Health Network Collective acknowledge Māori as tangata whenua and Treaty of Waitangi partners in Aotearoa. Health Network Collective pay respects to the mana whenua of this land.

I acknowledge the whanaungatanga (ethic of belonging), and thank all who gifted their time and expertise to this projects puawaitanga (the best possible return).

I would like to particularly acknowledge AcademyEx who supported development of the proposal and kotahitanga (shared sense of unity and belonging). And the academic advisory provided by Kriv Naicker (BTech); the research knowledge sharing of Dr Geoff Noller PhD, medical anthropologist, independent researcher and current Research Fellow at the Dunedin School of Medicine, Aotearoa New Zealand; and the preceptive support of William (Bill) Remak, BSc, BPH, MS, MT

The Logo

Our logo, reflecting hapuri (community) and te aronga o te whanau (family centred approach).

Our chosen model for development is based on Te Whare Tapa Whā. A holistic model of health that describes health as a wharenui/meeting house with four walls representing taha wairua (spiritual wellbeing), taha hinengaro (mental and emotional wellbeing), taha tinana (physical wellbeing) and taha whānau (family and social wellbeing).

Citation

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Note: Whilst this proposal is based on hepatitis C and in particular the ***Global health sector strategy on viral hepatitis 2016-2021*** (WHO, 2016); the proposed solution is scalable and adaptable. This is in consideration of maintaining a fluid dynamic build to accommodate future inclusion of other Sexually Transmitted and Blood Borne (STBBI) conditions, Diabetes, and other community prevalent conditions.

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Mauri oho

Karakia Tmatanga

(for beginning, starting, opening)

Mauri oho

Mauri tū

Mauri ora

ki a tātou

Haumi e, Hui e

Tāiki e!

Life force awaken

Life force stand tall

Life force all wellness, good health for all

Join together, unite, the group is ready to progress for the

purpose of coming together

(Brothers&SistersCollective, 2023)

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My Personal Statement & Journey Narrative

I am, Gavin Hooper-Newton, born in Te Waipounamu Aotearoa and of Ngāti Tūmatauenga.

In the late 1980's as a 16-year-old I became a very efficient skilled soldier, by early 2000's I was in over half a dozen international conflicts in contract roles; eventually as a humanitarian. I thought I understood oppression, inaccessibility of communities to essential life needs, and scale of death from actions generated by a few for the sake of religion greed politics and other inexcusable unhumanitarian actions. My disillusion in the world for not respecting "Lest we forget" by forgetting and repeating increases as I get more experienced and handsome with passing time. I also learnt & lived addiction, and becoming what I despised.

I believe humanitarian actions should leave community in as good if not better positioning than before interventions were required. The sudden withdrawal of aid that has often generated aid-dependency; can easily create the opposite effect. A common career thread has been community enablement, strengthening resilience and empowering communities to support the marginalized and impoverished towards equitable and sustainable outcomes.

In my recent national health role, I recognised community reliance on institutionalised systems that often demonstrate organisational hesitancy in the face of change with limited adaptation to our changing environment and population status. In COVID response we engaged and mobilised communities achieving incredible results with our non-regulated workforce. We then appeared to forget and returned to the same statist systems of before; bureaucracy, institutional fear of change and indecision in the face of technology, equity and common sense hindered success in equitable community-based outcomes and national health reform benefit realizations.

Through this master's journey I have grown to realise if we could action and implement only a fraction of the high-level strategy statements made by governments and global organisations; we could, as a collective global community, effect a high level of positive innovative sustainable change.

The Internet of Things (IoT) is presenting an incredible opportunity on a global scale for us to effect positive change in our world. I want to, and will be part of, effecting positive change in creating a better world. I want my children, and theirs, to keep safely smiling.

My master's research has evidenced that global strategy statements are published, the problems clearly identified researched and evidenced, and the opportunity for implementation enabling positive change through innovative sustainable engagement is now.

This project is the outcome of all of this; and my personal drive to achieve and exceed the expectations derived at the onset of my last consultancy role. The elimination of Hepatitis C (HCV) as a public health threat. First in Aotearoa, then globally.

Kua roa rawa matou ki te korero ki nga tangata koinei te mea e hiahia ana koe, kaua e patai me pehea e awhina ai koe.

We have spent too long telling people this is what you need, instead of asking how can we help you

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Glossary

Term	Definition
AcademyEX	A higher education institute designed to meet evolving industry needs Return to my personal statement
Acute	Present or experienced to a severe or intense degree. Return to The condition, Hepatitis C
Asymptomatic	A condition or person affected by a condition but producing or showing no symptoms of it. Return to summary, evidencing the problem
Business as Usual (BAU)	The term refers to the usual operations of a business. Return to Economic contribution, Painting a basic conservative hypothetical picture
Centralized	(of an activity or organization) controlled by a single authority or managed in one place. Return to *Stating the obvious? Decentralised or centralised*
Chronic	Having an illness lasting a long time, possibly without signs or symptoms, or reoccurring. Return to The condition, Hepatitis C
Chronic Hepatitis C (HCC)	See also Hepatocellular Carcinoma (HCC). Primary liver cancer that starts in the liver. The sixth most common cancer globally.
Cirrhosis	A type of liver disease that happens when scarring builds up on your liver through continuous damage from but not limited to hepatitis C. Return to summary, evidencing the problem
Consumer Price Index (CPI)	A measure of the average change overtime in the prices paid by urban consumers for a market basket of consumer goods and services. Return to Economic contribution, Painting a basic conservative hypothetical picture
COVID	A disease caused by the coronavirus SARS-CoV2. Return to my personal statement
Decentralized	(of an activity or organization) controlled by several local offices or authorities rather than one single one. Return to *Stating the obvious? Decentralised or centralised*
Direct Acting Antiviral (DAA)	Those that specifically inhibit viral enzymes that are needed for virus replication. Return to Abstract Return to Treatment
Emerging Disruptive Technology (EDT)	Technologies such as big data, artificial intelligence (AI), autonomous systems and quantum technologies. Return to Abstract
Genotype	The genetic constitution of an individual organism. Return to Treatment
Glecaprevir	A hepatitis C virus non-structural protein 3/4A protease inhibitor used for the treatment of hepatitis C. Return to Treatment
Gross Domestic Product (GDP)	Gross domestic product is the monetary value of all finished goods and services made within a country during a specific period Return to Economic contribution, Painting a basic conservative hypothetical picture
Health Literacy	The ability of individuals to gain access to, understand and use information in ways which promote and maintain good health for themselves, their families and their communities"; and that "health literacy not be framed as the sole responsibility of individuals, but that equal attention be given to ensure that governments and health systems present clear, accurate, appropriate and accessible information for diverse audiences. Return to Literature summary and findings To Health Literacy
Haemodialysis	A procedure where a dialysis machine and a special filter called an artificial kidney, or a dialyzer, are used to clean your blood Return to Transmission and prevalence

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Haemophilia	A medical condition in which the ability of the blood to clot is severely reduced, caused by a hereditary lack of a coagulation factor, most often factor VIII. Return to Transmission and prevalence
Hepatitis	A medical term for inflammation of your liver. Hepatitis A, B and C being the most common types. Return to The condition, Hepatitis C
Hepatitis C Virus (HCV)	The hepatitis C virus is a bloodborne virus, and most infections occur through exposure to blood from unsafe injection practices, unsafe health care, unscreened blood transfusions, injection drug use and sexual practices that lead to exposure to blood. Return to Abstract Return to The condition, Hepatitis C
Hepatocellular Carcinoma (HCC)	Primary liver cancer that starts in the liver. The sixth most common cancer globally. Return to Economic contribution, Painting a basic conservative hypothetical picture
Hepatology	The branch of medicine that incorporates the study of the liver, gallbladder, biliary tree, and pancreas as well as management of their disorders. Return to The immediate challenges
Human Immunodeficiency Virus (HIV)	A virus that attacks the body's immune system. Return to Transmission and prevalence
Internet of Things (IoT)	The integration of people, processes and technology with connectable devices and sensors to enable remote monitoring, status, manipulation and evaluation of trends of such devices Return to Internet of Things (IoT)
Kaiawhina	A taonga (treasure) that embodies the core essence and nature of an essential workforce that is passionate, resilient, diverse, skilled and committed to supporting hauora (holistic wellbeing) From Aotearoa (New Zealand) Māori Return to Abstract
Key Performance Indicators (KPI)	Type of performance measurement.
Maviret / Mavyret	An antiviral medicine used to treat HCV containing glecaprevir and pibrentasvir. Return to Treatment
Micro Credential	Small, stand-alone awards with set learning outcomes. Return to my personal statement
Minimum Viable Product (MVP)	A version of a product with just enough features to be usable by early customers. Return to my personal statement
Needle Exchange Services (NEX)	A social service allowing people who inject drugs to obtain clean and unused hypodermic needles and associated paraphernalia at little or no cost. Return to Social Perspectives
Ngāti Tūmatauenga	The guardians of the nation protecting it day and night. The youngest iwi, established in 1994 with the blessing of 28th Māori Battalion veterans, the Māori Queen and iwi surrounding Waiouru. Return to my personal statement
Non-Governmental Organisation (NGO)	An organization which is not run by the government. Return to my personal statement
Non-regulated workforce	Health professionals not regulated under the Health Practitioners Competence Assurance Act. Return to my personal statement
Perinatal Transmission	Vertical transmission, Maternal or mother to child transmission during pregnancy, birth or breastfeeding. Return to Transmission and prevalence
Parenteral	Administered or occurring elsewhere in the body than the mouth and alimentary canal Return to Transmission and prevalence
Patient Management Systems (PMS)	Software that is regulated as a medical device. It is used to acquire medical information from a medical device to be used in the treatment or diagnosis of a patient. Return to **Taha wairua** (spiritual wellbeing).
Peer worker	A peer worker provides emotional and social support to others with whom they share a common experience. They focus on building a mutual relationship that fosters hope and optimism. Return to Abstract

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People Who Inject Drugs (PWID)	People who inject (illicit) drugs. Return to Abstract
Pibrentasvir	A NS5A inhibitor antiviral agent used for the treatment of hepatitis C. Return to Treatment
Point Of Care Testing (POCT)	In vitro diagnostic devices used to provide medical test results quickly at the point or location of care. Return to Testing
Political, Economic, Social, Technological, Environmental and Legal (PESTEL)	An analysis model that examines the Political, Economic, Social, Technological, Environmental and Legal factors in the external environment.
Polymerase Chain Reaction (PCR)	A test that looks for the genetic material of the virus in a swab sample taken from a person's nose or throat. Return to Testing
Rapid Diagnostic Test (RDT)	A medical diagnostic test that is quick and easy to perform. Return to Testing
Return on Investment (ROI)	Return on investment (ROI) is a performance measure used to evaluate the efficiency of an investment or compare the efficiency of several investments. Return to Financial synopses of 2030 HCV elimination
Ribonucleic Acid (RNA)	A nucleic acid present in all living cells that principal role is to act as a messenger carrying instructions from DNA for controlling the synthesis of proteins (although in some viruses, RNS rather than DNA carries the genetic information). Return to Testing
Scalability	Or 'scaling up', the ability to continue to function well when changed in size or volume in order to meet a user need. Typically, the rescaling is to a larger size or volume. Return to Scalability
Sexually Transmitted and Blood Borne Infection (STBBI)	An infection (bacteria, parasite, or virus) that passes from one person to another through sexual contact or specific activities involving blood. Return to Acknowledgement
Soulbound Token (SBT)	Non-transferrable Non-Fungible Tokens (NFTs -unique digital identifier) that represents a person's identity.
SQN (Semantic Query Network)	A knowledge base that represents semantic relations between concepts in a network.
SQS (Simple Queue Service)	System that enables web service applications to queue messages in the application.
Strength, Weakness', Opportunities and Threats (SWOT)	A strategic planning and management analysis technique used to help identify Strengths, Weakness', Opportunities and Threats.
United Nations (UN)	An organization which most countries belong to. Its role is to encourage international peace, co-operation, and friendship. Return to my personal statement
Universal Health Care	A system in which all individuals have access to healthcare, everywhere. Return to Abstract
Virtual Private Network (VPC)	An encrypted connection over the internet from a device to a network.
Wai ora	Health or soundness, those seeking health. From Aotearoa (New Zealand) Māori. Return to Abstract
World Health Organisation (WHO)	An organization within the United Nations that is responsible for helping governments to improve their health services. Return to Abstract

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Introduction

The Condition, Hepatitis C

Over 350 million people live with viral hepatitis (A, B and C) worldwide, a disease that causes over 1 million deaths per year. Viral hepatitis is preventable and treatable. Together, we can end it, and this is our mission. (The Hepatitis Fund, 2023)

Hepatitis C is a liver infection caused by the blood borne hepatitis C virus (HCV). Hepatitis C can range from a mild illness lasting a few weeks to a serious, long-term illness. Hepatitis C is often described as "acute," meaning a new infection within six months of exposure, or "chronic," meaning long-term infection that **may be undetected for lifetime** causing liver damage, cancers and even death. (CDC, 2020c)

Transmission and prevalence

HCV is predominantly **transmitted by parenteral routes** (Villena, 2006), of which **blood transfusion** and intravenous drug use in **People Who Inject Drugs (PWID)** populations are primary means of transmission. Prior to 1992 when donor screening started in most of the world for transfusion products, transfusion was a significant risk for transmission. Low socio-economic countries possibly still today have significant transfusion exposure risk relevant to local level of medical practice and availability of reliable accessible testing facilities. Globally twenty three percent of new HCV infections are from injecting drug users (Health et al., 2021), an estimate now likely to be an underestimate due to safer blood product and transfusion standards in most developing countries. In the United State estimates are as high as, and reflecting global trends, **fifty three percent of PWID's have HCV infection** (Zelenev et al., 2021).

> It is my opinion that **global trends** in illicit use of **methamphetamine and Fentanyl**, and the mental health and addiction issues related to the illicit drugs, **compounds accessibility to accurate data** and its collation.

Other **potential routes of HCV** transmission may include, however are not exclusive to;

- Accidental puncture with contaminated needles or sharps
- Perinatal transmission
- Haemophilia and Haemodialysis
- Transplants prior to 1992
- Human Immunodeficiency Virus (HIV): approximately 21% of adults with HIV tested positive for HCV. That increased to 62 to 82% in PWID HIV positive individuals; contributed to sharing of blood relative to behaviours. (Spradling et al., 2010)

Less common potential routes of HCV transmission may include, however not exclusive to;

- Tattoos, subjective and possibly dependant on size, quantity and sites of tattoos
- Intranasal cocaine use (sharing inhalation means)
- Shared shaving equipment
- Sexual activity
- Health worker transmission to patients

Return to Design - Micro-credential considerations summary

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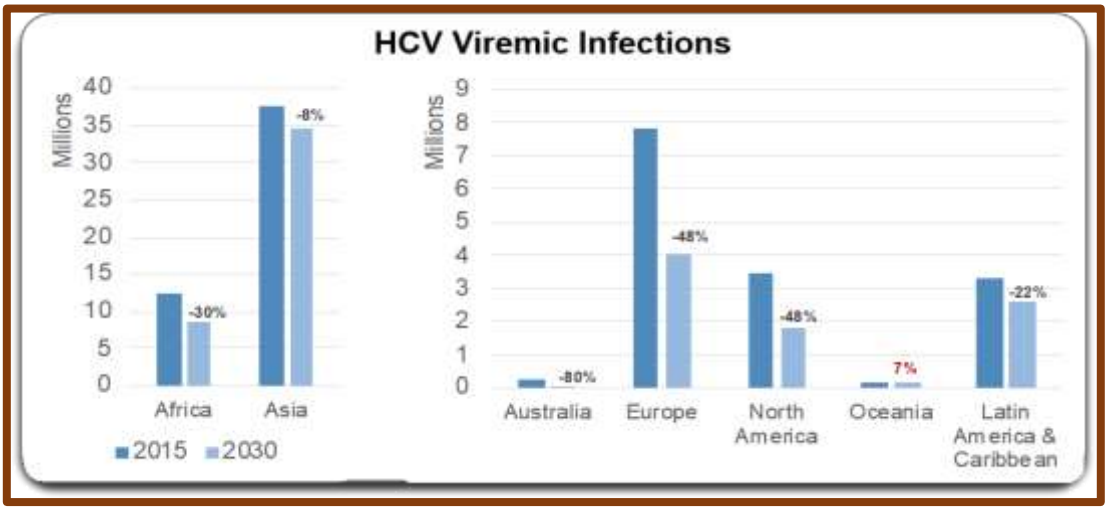
Evidencing the problem

A glimpse into my **personal lived experience** in defining exposure risk. 1990's - **tattoos** in Asia with questionable sterilisation. Gross **blood contamination** from military and civilian incidents. **Needle Stick Injury** (NSI) during medical procedure(s). In 2015 I witnessed **reusing of infusion sets** amongst patients in a government hospital in South Sudan, this would have been the nearest facility in case of medical requirements for myself at the time. Learnings from my recent government role working with **PWID** in that an individual's experimental or adopted behaviours not only places themselves at risk but also their families from incidental transmission. **My HCV tests' have been negative.**

Global Status

At the time of writing, over **seventy million individuals globally have an HCV infection**. Of these approximately **four hundred thousand people will die each year** from causes related to HCV, in many cases with no diagnosis of HCV whilst cirrhosis and other effects of the infection are apparent and eventual cause of death. As of 2017, only **twenty percent of those infected have been diagnosed**, and based on current data, only an average **two percent** of total infected patients have been **treated yearly** for the disease. **Eleven of the one hundred and ninety-four countries** who adopted the World Health Organisation (WHO) HCV elimination goals (WHO, 2016) are **on track to reach targets by 2030**. (CDAF, 2023). **Aotearoa (New Zealand) will be the only country to increase HCV over this tim**e.

Global HCV Burden 2015 – 2030 (EASL, 2022)



The **WHO** *Global Health Sector* ***Strategy on Viral Hepatitis*** *2016–2021* (WHO, 2016) was published in 2016. **A central theme** and objective of the publication is the **elimination of viral hepatitis** as a public health threat by 2030. This has been defined in the publication as achieving a **ninety percent reduction in new chronic infections** and a **sixty-five percent reduction in mortality** globally. And "*a world where viral hepatitis transmission is halted and everyone living with viral hepatitis has access to safe, affordable and effective prevention, care and treatment services*". (WHO, 2016)

Treatment

The arrival of **Maviret**, a **Direct Acting Antiviral (DAA)**, to the market was the first time a highly efficient **cure for HCV** had been available. And as the HCV DAA was efficient across all types of HCV infection, with limited contra indications and limited side effects, the testing regime was able to be reduced greatly. (Abbvie Inc., 2021).

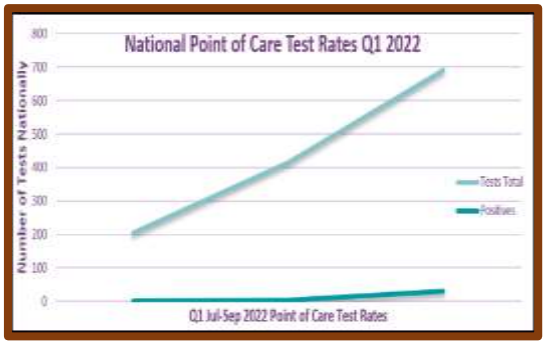
On the 03rd August **2017** the U.S. Food and Drug Administration **approved Mavyret** (spelling for US market was Mavyret due to Maviret being previously trademarked) (glecaprevir and pibrentasvir) for the treatment of HCV (FDA, 2017), the European Medicines Agency approving Maviret 17th August 2017 (EMA, 2017), followed by global roll out and approvals for treatment. By **2019** all HCV genotypes and a **reduction of treatment** from twelve to eight weeks had been further approved globally.

Screening

A single sample of blood can be tested for indication of HCV in the following (CDC, 2020b), both examples can be considered POCT in the appropriate setting and are the predominate testing methodologies:

- **HCV antibody testing**, an invitro POCT normally conducted as a "finger prick" Rapid Diagnostic Test (RDT) with a **drop of blood** placed on a **reactive cassette** where reagents show **positive or negative** results. This type of test indicates HCV antibodies presence that may be from historic exposure or current infection. A positive test will require Ribonucleic Acid (RNA) Polymerase Chain Reaction (PCR) testing as described below. Test kits can start from USD$3.49 (Jae Young Jang5, 2022) per unit and can be conducted anywhere with minimal training. WHO has several prequalified **finger prick RDT** options in theory available at scale from USD$0.80 per unit.

During my recent national program manager role implementing the HCV elimination strategy I was able to **increase**, through informal kaiawhina training trials, **POCT rates by two hundred and fifty percent** over a three-month period, with an associated increase in positive results.



- **Nucleic Acid Test (NAT)**, requires a **blood sample** and machine-based testing to see if the HCV virus is present in the sample. More commonly called **RNA PCR testing**, it reveals presence and viral load. This type of test can cost from USD$147.33 per test (Jae Young Jang5, 2022), not inclusive of associated costs. This test is also considered as a **prerequisite for HCV treatment**. It is worth noting the machines required are expensive and have a reasonable technical level of use, support, and regular calibration(s). A majority of these machines are static laboratory based.

The same Korean study (Jae Young Jang5, 2022) is one of many suggesting, and as recommended by WHO, that general **HCV antibody screening** of a population is effective in both **identifying HCV** in the population and in **overall cost savings**. Especially in reducing RNA PCR test requirements, and long-term management expenses of untreated chronic HCV complications.

In my recent role the **impact** of **limited budget** availability to purchase required assets for RNA-PCR testing proved **prohibitive** compounded by **resourcing** issues for the **qualified requirements** to conduct testing on a general population basis. This resulted on reliance on laboratory-based service, creating issues on getting wai ora to appropriate settings to conduct such testing. Specifically in view of stigmas and hesitancy within PWID populations.

Following a Korean HCV general screening and treatment program, the cohort lifetime costs-offsets associated with the avoidance of end stage liver disease complications ranged from $51.47 to $57.48 million USD (Kim et al., 2016).

Social Perspectives

HCV infection can become complex in terms of identification, acknowledgement, and access to care. In the **PWID population a distrust of authority** and in particular healthcare services can become a **barrier** to appropriate cares. A New York based study (Muncan et al., 2020) found that of the respondents interviewed over seventy eight percent reported enacted occurrence of **stigma** with healthcare services and over fifty-nine percent described anticipated stigma. The same study found over sixty-two described positive experiences at peer led Needle Exchange Services (NEX). Another study conducted in California (Paquette et al., 2018) found PWID interacting with pharmacy and hospital based NEX services reported significant stigmatisation with denials for service and delays in medical care or treatments common.

Perceived and enacted stigma with reluctance in trust of healthcare workers and systems amongst marginalised populations, such as PWID, mental health affected persons and low socio-economic populations (to a degree), **creates disparity** in access to health care for these populations. A 2016 study and research trial (L. Lazarus et al., 2016) **using a community** and peer led approach to POCT HIV testing demonstrated a **high uptake of testing**; specifically, amongst those who had not previously accessed testing. This proved invaluable towards modelling for upscale of general population testing, although the author has not identified further documentation supporting such initiatives occurring to scale.

The afore mentioned study relied on peer **handover** of positive cases to **traditional** primary and secondary care **health services** with **no continuation** of kaiawhina / peer led **support in navigating treatment**. In my opinion, this may have **contributed** to the study's finding of **low uptakes of follow up and treatment** post testing, quite possibly with the then-current state of, and access to, technology being prohibitive.

From unpublished media research conducted by Te Hiringa Hauora, The Health Promotion Agency of Aotearoa (VMLY&R, 2022) has shown in cohorts whose exposure risk behaviour was as much as thirty – forty years previously, a significant number had a **fear of disclosure** or testing due to the **perceived stigma, discrimination, and judgement of HCV** with injected drug use. Of this cohort as much as **fifty percent will remain undiagnosed** and unaware of associated risk, of that fifty percent twenty to twenty-five percent will develop cirrhosis and three to **five percent will progress to liver cancer and liver failure**. (hepatitisfoundation, n.d.) Return to Design - Micro-credential considerations summary

Summary

A challenge in **reducing the burden of care on health systems** with progression of HCV infection to chronic conditions, in view of the asymptomatic nature of HCV infection, is **standardised screening and testing**, to scale. And **accessibility** to testing and screening by prevalent and at-risk populations. Especially in respecting and attaining WHO goals of elimination as a public health threat by 2030.

To quote from a 2017 study "*Elimination of HCV as a public health concern among people who inject drugs by 2030 – What will it take to get there*" (Grebely et al., 2017)

"Conclusions: The ambitious targets for HCV elimination set by WHO are achievable in many countries, but will require researchers, healthcare providers, policy makers, affected communities, advocates, the pharmaceutical and diagnostics industries, and governments around the world to work together to make this happen."

Reiterating a previous personal narrative of **impact**. Informal trials with training Kaiawhina / peers in POCT and testing, **over a three-month period** during my recent national HCV program manager role, demonstrated an **increase in national POCT rates by two hundred and fifty percent**. With an increase in positive results as a result of the trialled POCT testing.

The significant **barriers** to formalising the initiative, including however not limited to:

- **Micro-credential** creation, application and sovereign credential management
- Organisation **technology** requirements to **support** such initiatives
- General **organisational hesitancy** in regards **technology** and clinical **change**

Problem Statement

The Problem, overview

In this problem statement I have reviewed my personal statement and supporting evidence in view of the impact(s) I wish to achieve. As a colleague succinctly & anecdotally described:
"In a nutshell – finding people who are infected is REALLY DIFFICULT!!?"

WHO has instigated a global effort towards the **elimination of HCV** as a public health threat by 2030, one hundred and ninety-four countries have become signatories to the effort, only eleven of the signatory countries are on track to achieve this goal.

The WHO report *"Tracking Universal Health Coverage: 2023 Global Monitoring Report"* (WHO, 2023c)states some eight hundred to **eight hundred and forty million persons globally no longer have access to health care** with evidence-based estimates that **over 50% of the global population are not fully covered by essential health services**. A dramatic increase from previous global surveys in 2013 indicating some four hundred million persons had limited access to essential health services (World Bank, 2015).

In my opinion the issue of access to health care is well supported by consistent global media statements of national health systems being under resourced, underfunded, and overwhelmed. My personal emotive context is the frequency friends and family recall their respective national health care systems inability in providing timely appropriate care(s). Including with serious life-threatening disease and condition diagnosis in what are predominately considered first world nations. Their recall rarely reflects cause, more their perceived effect.

Research and data have shown, (as evident in this documents introduction), that with as much as **fifty percent or more persons infected with HCV remaining asymptomatic** and not developing cirrhosis, cancers, or liver failures until later stages of life, the **burden placed on health care** systems is immense. Not only **resources are affected**, the **financial implications** and **long term spend** in relation to care is **significant**.

Mass widespread whole of population testing, screening and treatment has been **proven to be not only effective** in reducing the prevalence of HCV infection in populations, it has also been demonstrated to have great **financial realisations** in terms of reductions of chronic conditions and end of life care for HCV related issues. Not to mention health and **life expectancy benefits** for the population. A recent example of this (Schwander et al., 2022) was conducted in Egypt as a concerted effort from 2014 to 2020, with continuation today. Egypt had a unique HCV rate due to national accepted use of re-usable needles with poor sterilisation techniques leading to widespread transmission. Conducted in three waves, the third wave commencing 2018 became cost effective with availability of WHO-prequalified finger RDT and new treatment, Maviret. As a **generalised perspective** the emergent

technologies and treatments made mass screening **significantly cost-effective compared to** the HCV potential **health consequences**. Schwander's study of the Egypt HCV elimination program concluded that:

> *"Use of the community-applied, WHO-prequalified RDT was the most dominant approach to cost-effectiveness. These results provide rationale for worldwide scalability of similar HCV elimination programs."* (Schwander et al., 2022)

Whilst Egypt's program is an ideal, this level of program is **not feasible for many nations** and localities where **funding, accessibility and resourcing is not viable** towards such initiatives. Widespread **RNA PCR testing** giving qualitative and quantitative results are **not financially viable** on a global scale for whole of population testing. As shown in Egypt, antibody **POCT RDT testing has a greater financial, resource and location viability** as an initial screening tool for mass testing. Many countries still **rely on qualified workforce** for conducting POCT RDT antibody testing **draining valuable resources** from **essential health** services.

General context of problem and early evidence reviews

Current testing requirements are predominantly **reliant on expensive RNA type tests**. RNA testing requires **formal qualification** level for conducting such tests, with limitations on access when combined with financial **constraints on equipment** and physical **testing cost** considerations. This financial consideration has a physical limitation in location and quantity of sites, often impacted by resourcing of **suitably qualified persons** to facilitate such testing.

Whilst there appears to be a **general recognition globally** of various iterations of **kaiawhina / peer** and **non-regulated persons** networks supporting marginalised wai ora, the often-**informal qualifications** of these persons are **questionable** in terms of **acceptance** by orthodox "Statist" medical, and other official, structures.

These established networks of **kaiawhina / peer are the recognised faces of support** for many marginalised persons, and their respective relationships generated over time and consistent interaction often the only access for wai ora to health cares. The relevance of these relationships has been evidenced, as noted in this proposal, as **extremely important** in facilitating **successful treatment pathways** and more importantly, **accessibility** for whole of population widespread testing.

Reduction in requirements for marginalised persons **exposure** to traditional **authority** and medical structures may significantly **mitigate stigma** and hesitations existing within some communities. This may also have a **benefit realisation** of continuation and reinforcement of kaiawhina and peer-based relationships for **navigating long term cares**. And importantly encourage **improved access to health** care for these populations.

Globally, the instances of adopting **kaiawhina / peer based RDT approach** to wide spread testing, with referral of positive RDT wai ora for RNA testing, **has proven successful** across all aspects of screening and treatment. In instances where RDT testing was researched as a means of engaging and supporting kaiawhina / peer in widespread testing, the available

documentation and papers are **suggestive of a breakdown in continuation of process from the initial RDT test.** This is the stage at which 'handover' has occurred from the positive result to traditional structures for RNA testing, treatment, and continuation of care. And potentially a stage that may have **adverse effect on the relationships** established and trust formed.

Overview of the problem

- WHO has instigated a **global effort** towards the **elimination of HCV** as a public health threat **by 2030**, one hundred and ninety-four countries have become signatories to the effort, **only eleven of the signatory countries are on track** to achieve this goal.
- The **questionable acceptance of kaiawhina / peer and non-regulated persons** informal qualifications by orthodox "Statist" medical, and other official structures.
- **Lack of formal supported inclusion** of kaiawhina / peer and non-regulated workforce into widespread HCV testing, and **supported engagement in continuation of cares**.

Project phase, part one outcomes in summary

Research summary & consolidated response(s)

Respondents demonstrated **overwhelming support** for **leveraging Emergent Disruptive Technologies** (EDT) and associated technologies to ***improve efficacy of an informally qualified community of testers and their structured inclusion in established systems.*** With strong indications ***of design considerations for how this can be achieved***.

Of particular interest, and providing a succinct summary, specific **action points** from the WHO **Global hepatitis report 2024** and alignment of this project to those action points.

Application *of key WHO* **Global hepatitis report 2024** ***action points*** *relevant to this project*:

This Health Network Collective project, with subsequent implementation and delivery, will **expand testing** (*action 1, testing*) with **implementation** (*action 2, Treatment: shift from policies to implementation for equitable access to viral hepatitis treatment and care*) as a **decentralised model** (*action 4, Service delivery: simplify and decentralize the delivery of viral hepatitis services through a public health approach*) encouraging **local productivity** (*action 5, local production*). This will **generate data** (*action 8, data for action*) from **community engagement** (*action 9, Community engagement: engage affected populations and civil society in the viral hepatitis response for advocacy and service delivery*) with this innovation **laying the foundation** for expansion to other **community prevalent conditions** (*action 10, innovation*). (appendices 1.5.1.)

Based on my **problem statement**, **intended impacts** & **benefits** with evidence and findings from **research analysis**, subsequent **thematic analysis** has **defined** and **validated themes** to inform **planning** and **development** of **a viable** solution(s).

Consolidated analytical response

This project research and analysis have evidenced that:

By leveraging of EDT and associated technologies *to* ***formalise qualification*** *and provide a* ***systemised supported framework*** *for facilitating* ***HCV care navigation*** *by* ***kaiawhina and peers****; we can* ***contribute to financial, health and community benefits*** *with* ***improved destigmatised health care access*** *and* ***lessened burdens on existing health systems***

Detailed analysis at appendices 1.3 *and* appendices 1.4. *Consolidated analysis* appendices 1.8.

Design - Navigation to care pathways; Micro-credential

Health Network Collective
linking to care

Consolidated thematic response(s)

Theme derivations from the main question (appendices 1.3.7), respective sub-questions (appendices 1.4) and analytical summary of EDT (appendices 1.5.9) have been analysed to form three (3) consolidated themes complimenting the consolidated analytical response. These themes further support development of Minimum Viable Product through thematic design, as indicated in '*Phasing and Design Thinking'* (appendices 9), contributing to realisation of the project '*SMART goal statement'* (appendices 15). (*Consolidated analysis and themes see* appendices 1.8)

Design; Develop self-managed equitable solution(s) for patient centred, decentralised, management of navigation of (HCV) care: within a **systemised framework** built on **neutrality** and **universal principles** that can **assimilate into users' mode of life**.

Delivery; The delivery system will need **widely and freely available accessibility** with a **clear, simple, transparent** and **moderated** user tiered access; ensuring '***Single source of truth***' accessibility to **core information** and **community resource**, based on research of **training needs** and analysis of identified **best practice,** integrated **and** applied using **Health Literacy** principles.

Development; IoT and associated technologies will need to be **robust** and meet international **data and security standards** with **technology horizon scanning** ensuring equitable **durability** and **longevity** of the product for **future development** opportunity(s).

Design - Navigation to care pathways; Micro-credential

Delivery – summary of MVP concepts for delivery development

Intended impact & benefits of this research

- The **successful implementation** of the proposed solutions **contributing** to **financial benefits, accessibility, and viability** of widespread general population testing towards global **2030 elimination** goals.

- **Empowering communities**, community **resilience** and further **respecting humanity** and **humanitarian rights** globally, with **improved health** outcomes for **wai ora**.

- **Cost effective expansion** of testing and screening **health services** to facilitate **improved access** to essential health care, **enhancing existing health care** services and systems.

Delivery & Development - supporting solution delivery Design - Navigation to care pathways; Micro-credential

Delivery – summary of solution concepts for delivery development

Project phase; part two outcome and final report

> ***"Universal access to health coverage means all people should have access to the full range of quality services they need – irrespective of who they are, where they are born, or the nature of their health condition."*** (Marshall et al., 2024)

Design- Micro-credential considerations summary

Analysis of research to Taha Wairua (spiritual wellbeing) (appendices 1.4.1) and Taha Hinengaro (mental and emotional wellbeing) (appendices 1.4.2) identified a potential for emotive response in clinical outcome over legislative, regulatory, medical ethics, procedure and medical in confidence matters. This was suggestive of a requirement for building on, and consolidation of, basic humanitarian principles discussed previously, with an incremental addition of knowledge and specific understandings required for safe self-managed Point of Care Testing (POCT) in a community setting. An important specific relevance to self-management and the spirit of Te Whare Tapa Whā is developing understanding(s) of stigma, mental health, People who Inject (illicit) Drugs (PWID); and the communication requirements (note appendices 1.4.3 Taha tinana (physical wellbeing)) that come with the social responsibilities of Point of Care Testing (POCT) in a self-managed community setting.

Indicative considerations included;

- Incremental lesson-by-lesson increase in content, duration and required learning as a **self-paced online Learning Management System (LMS) based course**.
- Following (where-ever possible) **Explain, Demonstrate, Imitate, Practice** (EDIP) principles incorporating '**Teach Back**' elements, with supporting material, to facilitate **community orientated display and education**. This community education may be via direct conversation or incidental via visual media display.
- Opportunity for **extended self-learning** and furthering understanding where students have an interest; via links to further information in the lesson content.
- All content will be **adapted from** peer reviewed **published articles** and or reliable **international lead organisations,** with established **best practice**.

With early indications for course structure of;

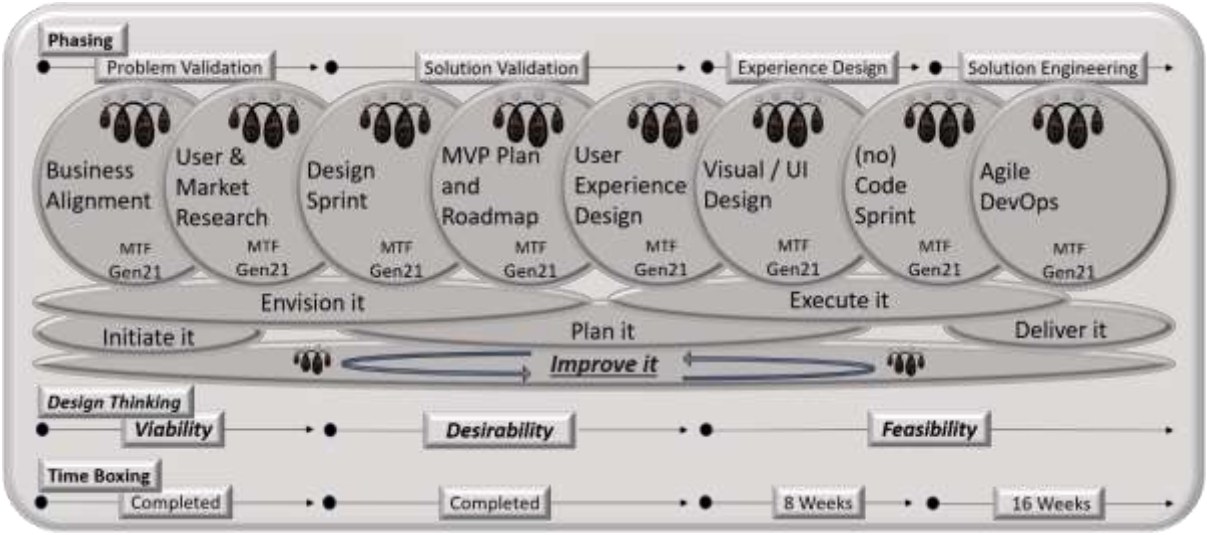
- **Overview, learning agreement:** *Course overview with introduction to working guidelines, obligations, networking and the students' journey of learning and beyond.*
- **People centred practice and personal safety:** *Medical in Confidence and ethics, behaviour expectations, personal safety, and 'it is ok to ask for help' (mental health).*
- **Hepatitis C (HCV):** *What is it, transmission, PWID, what does the liver do, reducing risk, screening and testing, treatment, life after treatment.*
- **Basic hygiene:** *5 moments for hygiene, hand washing, sanitizers, contamination, masks, gloves, PPE disposal.*
- **Rapid Diagnostic Test (RDT):** *Settings & environment, equipment preparation and process, patient informing and follow up actions, disposals.*
- **Administration:** *communications, re-certification, recommended courses, access, equipment orders, support, misc.*

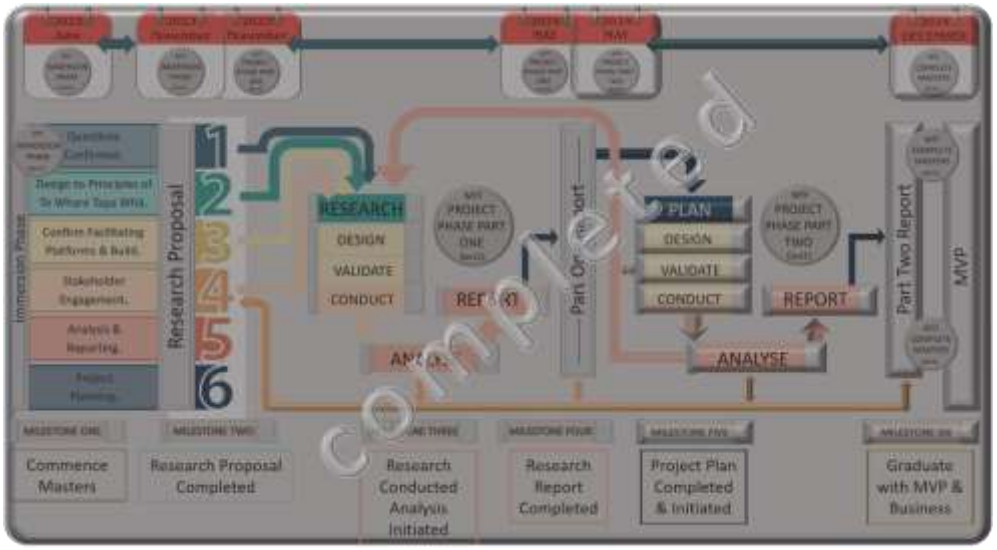
Delivery – summary of solution concepts for delivery development

Based on thematic informing developed from research, and this projects intended impacts, the **conceptual** system **framework** aimed to provide a **supportive, innovative, collaborative, and coordinated** development environment for **equitable** deployment and **continuity** in community **application** for information, **education**, **testing**, **linking to care**, **navigation of care** and beyond.

This was further supported with technical architecture and business development design, from application of thematic analysis, to incorporate findings and evidence from '*Internet of Things (IoT)*' (appendices 1.5.8.3.) suggesting mobile technologies efficiency for accessibility within prevalent populations.

The addition of Phasing and Design Thinking (appendices 9), and below, became a very important and valued component of process for this, and the consecutive, project phase part two. This model will be retained for future research and development: notably in support of and complimentary of the now completed timeline (appendices 8).





Project phase; part two outcome and final report.

Having met agreed outcomes for my Master in Technological Futures immersion phase and part one research phase (see Research summary & consolidated responses; complete part one research report at appendices 1): the following sections, complimented and informed by previous sections and research, meet the requirements (appendices 18) as summarised below for my masters project part two and final report.

1. Final Part 2 report will include evidence-based design, validation, and conduct of project planning to enable a community focused solution in the form of learning management system micro-credential materials and incorporating EDT and associated technologies.
2. Final Part 2 solution micro-credential construct and delivery framework and associated plans; including documentation, draft operation website, and validation(s).

All research and related activities, including development and planning, have been conducted and funded (with exception of a course fee's scholarship from AcademyEx) by myself; meeting and adhering to AcademyEx ethics approval MTF.8888.190 (appendices 19) and agreed to by all involved as per the project Research participant disclosure agreement (appendices 20).

This project's iterative framework and development planning, based on thematic response from analysis of ongoing research, is ensuring sustainable ability to capture and facilitate innovation(s) while meeting project objectives.

Maintaining a focus on global changes in the HCV environment has, and is, crucial.

A collaborative, equitable, people centred approach to enhancing existing coordinated frameworks is being maintained. And if such framework or coordination does not exist for any future reason, we will contribute to encouraging the formation of such.

Design- Navigation to care pathways; Micro-credential

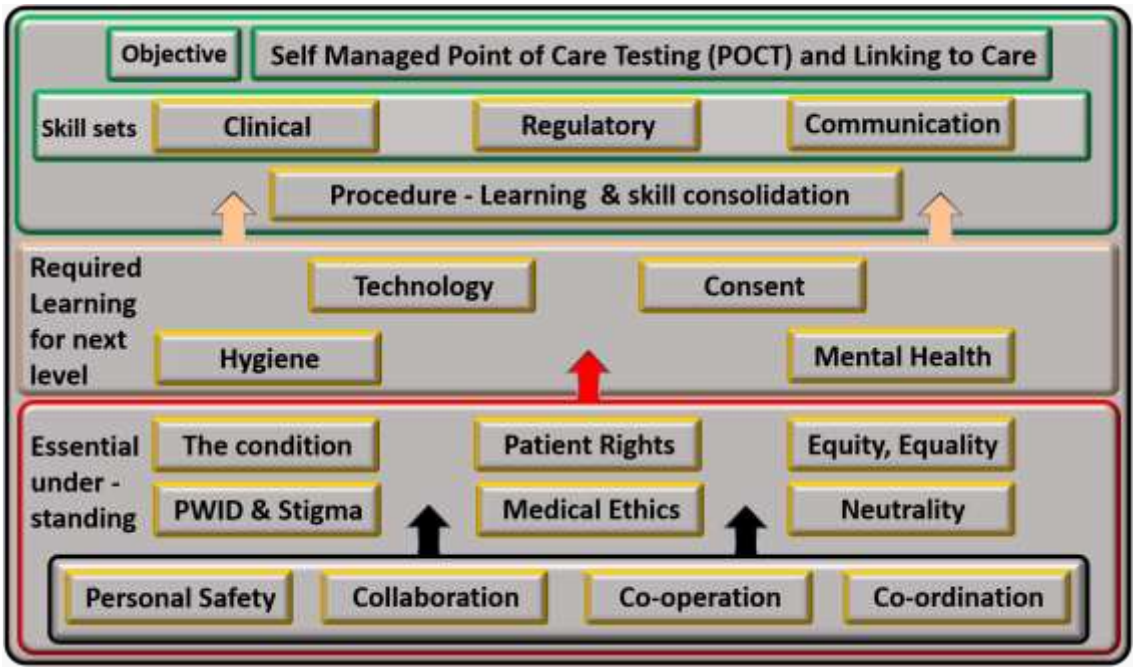
Various calls for action, such as the Ottawa Charter 1986 (WHO, 1986) and the Shanghai Declaration on Promoting Health 2016 (WHO, 2017) provide and facilitate sustainable frameworks for addressing equity and equality in the intended spirit of this project; the strategies derived from such are too complex for the intended project audience when the concept of Health Literacy is applied in this context. The United Nations Anti-Harassment Statements (UN, 2024b), and the principles of the Universal Declaration of Human Rights (UN, 2024a) form a suitable basis to meet project thematic derivations; and establish a baseline of understanding for the micro-credential in the spirit of Te Whare Tapa Whā. For both design and end user experience considerations.

AGAIN! ***"Universal access to health coverage means all people should have access to the full range of quality services they need – irrespective of who they are, where they are born, or the nature of their health condition."*** (Marshall et al., 2024)

Health Network Collective
linking to care

This **micro-credential** (appendices 21) content and design is **informed by** the **thematic analysis** derived from the **research** (and appendices 1; research) discussed in this document, **primarily for** markets who may not have conducted **online self-paced learning** previously.

In view of Project phase, part one outcomes in summary, including consolidated analytical response, consolidated thematic response(s), and the overall objective of the micro-credential to achieve self-managed Point of Care Testing towards the projects intended impacts and benefits: the below diagram represents the process of incremental tiered learning and structured introduction of learning materials.



Designed to meet New Zealand Qualification Authority (NZQA) micro-credential standards (NZQA, 2022); with incremental lesson-by-lesson increase in content, duration and required learning as a **self-paced online Learning Management System (LMS) based course**. The course follows (where-ever possible) **Explain, Demonstrate, Imitate, Practice** (EDIP) principles incorporating '**Teach Back**' elements, with supporting material, to facilitate **community orientated display and education**; via direct conversation or incidental via downloadable visual media display. The content incorporates opportunity for **extended self-learning** and furthering understanding where students have an interest; via links to further information in the lesson content.

All content has been **copied** or **adapted from** peer reviewed **published articles** and or reliable **international lead organisations,** with established **best practice**. References in bibliography, course lesson plan available as a stand-alone document.

Consisting of **six (6) sections**, **forty-one (41) lessons** and **six (6) quizzes**; with each lesson requiring completion and qualification of the respective sections quiz, (eighty (80) percent correct within three (3) attempts), before progression to the next lesson or section.

See appendices 21, *Micro-credential* for detailed information

Micro-credential course structure; an important factor in design, delivery and development has been the apparent emotive drive in application of cares by non-medical trained individuals - as evidenced in research.

Hence, an '*objective back* to *start*' approach in design to maximise understanding of appropriate '*why's*' and relevant knowledge for each tier of learning.

- **Overview, learning agreement:** *Course overview with introduction to working guidelines, obligations, networking and the students' journey of learning and beyond.*

- **People centred practice and personal safety:** *Medical in Confidence and ethics, behaviour expectations, personal safety, and 'it is ok to ask for help' (mental health).*

- **Hepatitis C (HCV):** *What is it, transmission, PWID, what does the liver do, reducing risk, screening and testing, treatment, life after treatment.*

- **Basic hygiene:** *5 moments for hygiene, hand washing, sanitizers, contamination, masks, gloves, PPE disposal.*

- **Rapid Diagnostic Test (RDT):** *Settings & environment, equipment preparation and process, patient informing and follow up actions, disposals.*

- **Administration:** *communications, re-certification, recommended courses, access, equipment orders, support, misc.*

See appendices 21, *Micro-credential* for the complete lesson plan.

See Https://HealthNetworkCollective.com for the operational website.

See appendices 25, Letters of support for Micro-credential clinical validation letter from Te Whatu Ora -Ta Manaawa Taki Regional Hepatitis C Program Manager Jo de Lisle. RN.

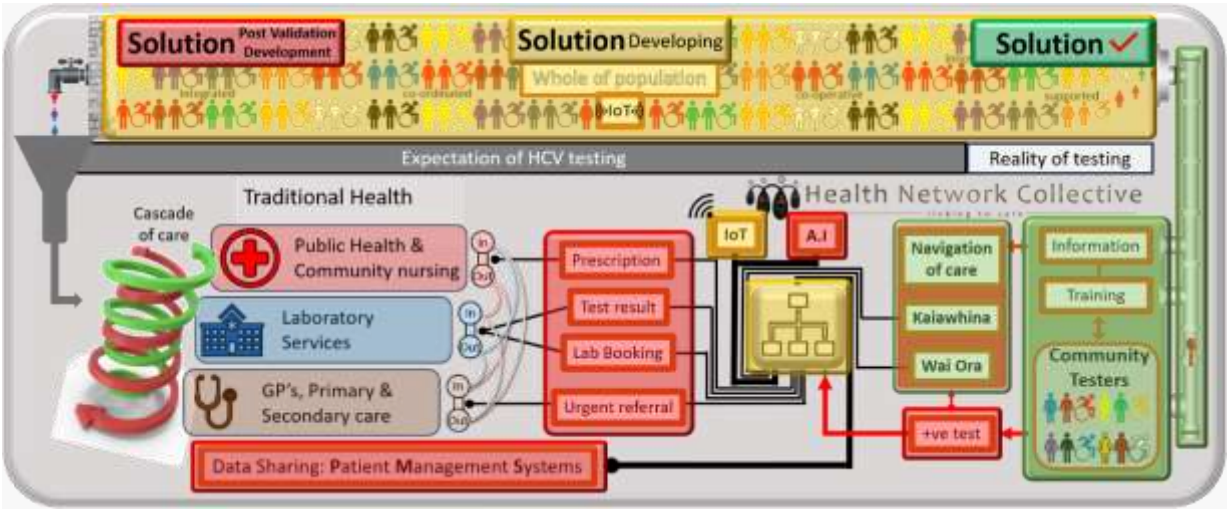
Delivery & Development – supporting solution delivery

System framework

Based on thematic informing developed from this research, and this projects intended impacts, the **designed** system **framework** does provide a **supportive, innovative, collaborative, and coordinated** development environment for **equitable** deployment and **continuity** in community **application** for information, **education**, **testing**, **linking to care**, **navigation of care** and beyond.

The below diagram indicates **progress to date** in simplified form;

- **Green**: Memberships, information and training developed, enabled and accessible.
- **Orange**: Partially developed with enablement subject to further research and development.
- **Red**: Requires development and or further research and development for enablement.



Return to Conclusion of thematic design

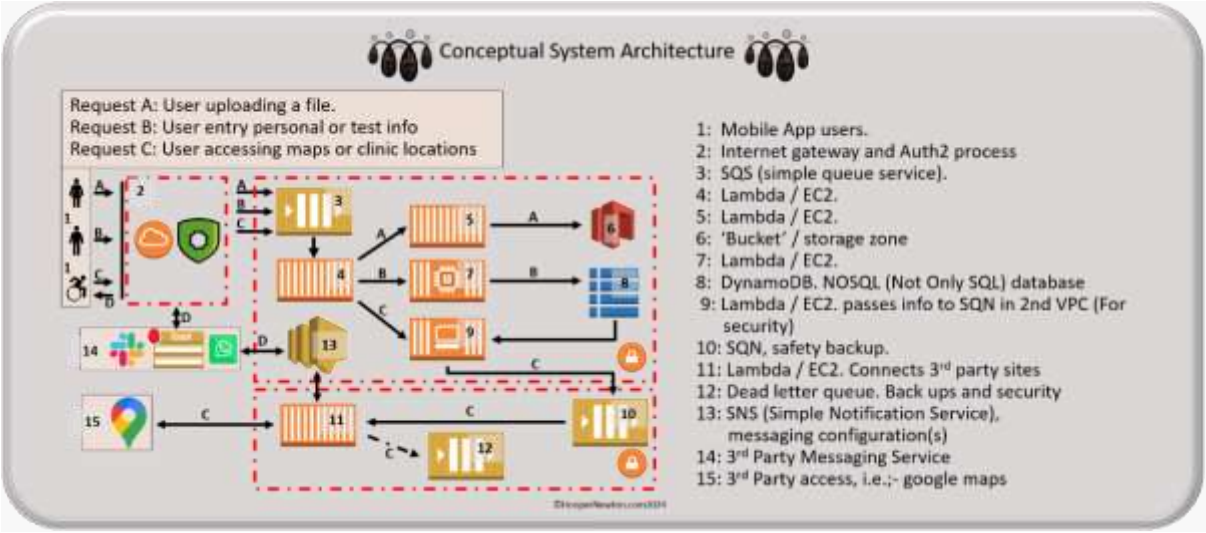
Delivery methodology

The Minimum Viable Product (MVP) micro-credential is hosted on https://HealthNetworkCollective.com and facilitated for delivery by '*Lifter*' Learning Management System (LMS). The LMS incorporates a membership function with capability for tiered membership role and function. This will enable future development of mobile and autonomously capable applications (offline synchronisation) for remote use.

System framework and technical architecture as developed and designed from application of thematic analysis, with incorporation of findings and evidence from '*Internet of Things (IoT)*' (appendices 1.5.8.3.) suggests mobile technologies efficiency for accessibility within prevalent populations. Cost prohibitive for Minimum Viable Product (MVP) delivery, mobile application development is intended following post masters research to validate Health Network Collective concepts, MVP and product. The MVP is available and accessible as an online product across all platforms, with a 'fit for research' development of testing and data management components as online accessible components underway.

System architecture

Review of '*Health literacy'* (appendices 1.5.4.), '*Emergent Disruptive Technologies (EDT) and Associated Technologies*' (appendices 1.5.8.), suggests system architecture based on existing technology pathways for integration and accessibility, inclusive of IoT and future innovation development; with conformity and compliance to relevant legislation, regulations and standards in consideration.



Challenges, a project management review

Review of the project *PESTAL analysis* has no changes (appendices 12 & 13), with ongoing project challenges including, however not limited to:

- **Legal and ethical data considerations**, especially variations globally in national standards and legislation.
- Ensuring the product is **not utilised for nefarious means**, such as individuals taking opportunity monetise the products offerings, or inappropriate use of the data generated.
- Technology, **consumer access to emergent technologies** and technical support.

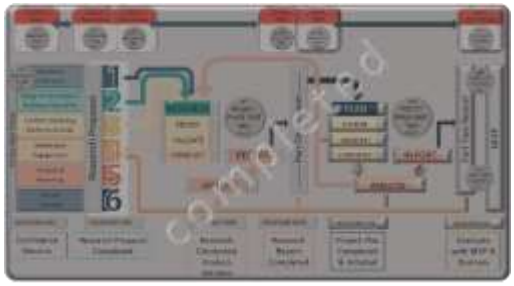
With the addition of the following from *SWOT analysis* updates (appendices 10 & 11), and risk review:

- Ensuring continuation of research and development based on analytical response(s) and thematic informing; with formalisation of memberships (appendices 25), partnerships and contracted services for supply of expertise.
- The second is development of networks and networking through social media strategy (appendices 22) and engagement.

These challenges are largely based around knowledge, detail, and data and can be **mitigated with strong stakeholder identification, planning, and engagement** of **appropriate resource** with **continuing development** of the project.

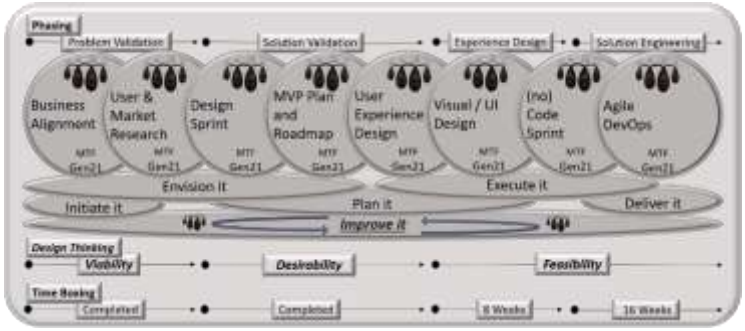
Project plan and timeline

This **research**, analysis, thematic analysis and **report** produced an **evidence-base** to **inform** a well-developed **business case** reflecting a **worthwhile** and **viable** project and **product solution** for an **identified problem** in a **current market**.



The **timeline,** (appendices 8), contributed to **viable and worthwhile project foundations**. **Milestones** have been respected with no significant risk. This **timeline captured** and **supported** the **iterative nature of the project** facilitating clear pathways for development. An iteration of this timeline will be developed for further development and research.

The addition of Phasing and Design Thinking process, (appendices 9), enabled refined project design elements enhancing MVP development; and will be retained as design methodology for ongoing project development and planning.



Design orientation has been maintained as **worthwhile and viable** by keeping the project within the established *scope of works* (appendices 14) with *milestones* (appendices 8), benefiting from Te Whare Tapa Whā modelling; assisting in facilitating the pragmatic, iterative, agile framework and triple diamond approach adopted. This model will be retained as it facilitates a level of emotive input for research and development focus while accommodating clinical, structural and system applications. Emotive responses are important in maintaining foundations of appropriate design for community and population project outcome expectations and solutions.

Risk and Mitigation, a retrospective summary

In applying for ethics board research approvals, vulnerability within an intended research cohort(s) was identified as a potential risk. These risks included perceived professional risk at being outspoken, and some from issues developed with social, addiction and mental health factors from their respective environments.

The identified potential risk of hesitancy and triggers from issues developed with social, addiction and mental health factors from their respective environments actually produced an opposing result. I believe my life experience, work history and lived experience contributed to my ability to enter into meaningful discussion gaining important insight into issues and problems around PWID, substance abusers and marginalised population behaviours and actions.
During research for this project, I have found the international Hepatitis C subject matter experts highly supportive and engaging, with the merits of this project securing membership rights in several international HCV and health related entities. A contrast to many of Aotearoa subject matter experts' apparent reluctance for sustained engagement in this project due their perceived professional reputational risk in view of current health political and organisational climates.
'*Stakeholder mapping and development*' (appendices 6 and appendices 7) have been updated accordingly following risk realisation of disengagement by some stakeholders.

Financial summary

The *indicative finance* summarised at appendices 17, is conservatively based on actual expenditure for solution(s) and a 'fit for research product' for market release. The calculations used for time and expense will be retained for future funding challenges.

Success of the project and plan

Four (4) **principal strategies** were indicated in previous reports for evaluation. Milestones, completion of Minimum Viable Product (MVP) and peer evaluation, field trials, and final reporting.

Reporting against milestones has been met as indicated within this, and previous, reporting. And as further validated by submission and subsequent grading of reporting as required for this academic program. See timeline (appendices 8) and learning agreement summary (appendices 18).

Desktop peer review from colleagues external to this academic program has been supportive, see example letter of support (appendices 24), with an overall agreement to framework(s), developed micro-credential content, intention for dissemination and marketisation.

Note; *With exception of my academic advisor, support and requested feedback (as invited to request) from both academic cohort and academia, has had challenges with minimal measurable returns of or for evaluation; exception as stated, grading of reporting as required for this academic program.*

Subject to further **post masters** research confirmation; **formalising of relationship** with a national PWID charitable entity for **ongoing research** via trial is progressing. This will be a cooperative trial **incorporating new EDT**, a lateral flow triple test medical device, **validating** the **new technology** and Health Network Collective **system and framework**.

Use of AI, ML and ChatGPT with this research.

Throughout this master's journey I have attempted to use Artificial Intelligence (AI), Machine Learning (ML) and Chat Generative Pre-Trained Transformer (ChatGPT) architecture(s). I have found consistently below average results with frequent incorrect information; including referencing of non-subject related studies and opinions.

In my opinion, supported by desktop review, this is most likely effect from the limit of available subject specific academic material, and broader nature of the more generic information aimed at lay person educational and informational level available online. This would indicate AL, ML and ChatGPT learning; as in the case of my experience, has been relatively non-academic with what is available based on identification of partial key words; such as Hepatitis, not Hepatitis C.

Consensus (Consensus, 2024) produced the more accurate materials for research, and did prove of value, however with the specific nature of my research I was able to source literature as accurately and fast via internet search. This will change as AI, ML, ChatGPT and emergent AI 'ingest' more information. As with Consensus and the improvements I noted over the course of my study.

Note; Hepatitis C was discovered in 1989, mass screening in reaction to the recognised scale of global infection began early 2010's, WHO elimination goals formalised 2016, effective treatment was discovered 2017 with limited international elimination efforts (and respective limited national programs) initiating from 2017 (ish). Therefore, a significant amount of research is either recently published or due for publication, and our AI ingestion and knowledge base expansion for Hepatitis C and related matters will expand.

Note; In September 2024 I purchased a new Advanced Micro Devices (AMD) Ryzan Neural Processing Unit (NPU) CoPilot laptop, the integrations and ease of use is fantastic, and address' many of the issues noted above with the advanced integration.

Conclusion, the evidence

This project research and analysis have evidenced that:

By leveraging of EDT and associated technologies *to* ***formalise qualification*** *and provide a* ***systemised supported framework*** *for facilitating* ***HCV care navigation*** *by* ***kaiawhina and peers****; we can* ***contribute to financial, health and community benefits*** *with* ***improved destigmatised health care access*** *and* ***lessened burdens on existing health systems***

HCV infection is a prevalent global community concern that recently developed DAA's offer significant opportunity for not only cure of individuals, but elimination of HCV as a global public health threat. One hundred and ninety-four countries have become signatories to the WHO strategy for elimination of HCV by 2030. Nine countries are on track to this goal, we have an impetus to find, test and treat people. Globally.

Aotearoa is the only country globally likely to increase HCV rates by 2030 (CDAF, 2023)**.**

People who inject drugs (PWID) represent both the priority population most at risk of HCV infection and due to the illegal nature of injecting illicit drugs, a highly stigmatised and vulnerable population that is extremely hard to reach in terms of providing health care, including diagnosis and treatment of HCV. A **key resource to facilitate HCV treatment of PWID involves harnessing the workforce of those with lived and living experience of injecting. Peers, in this definition, have the advantage of being understood and accepted as frontline workers by PWID.**

In addition to PWID, over **fifty percent** (50%) of the **global population** are **solely reliant** on **limited essential health** assistance. More than **ten percent** (10%) of the global population have **no access to health.** A **key resource** to **population wide** HCV treatment is enabling **decentralized community-based practice, care of community by community.**

(in a nutshell – finding people who are infected is REALLY DIFFICULT!!?)

The **successful implementation** of the proposed **solutions** will contribute to facilitating;

- **formalisation**, **recognition** and **transparency** of skill or **qualification**
- kaiawhina / peers being **supported in maintaining contact and relationships** with wai ora, to navigate them through their treatment and **continuation of care**
- kaiawhina / peers being **supportively engaged in enhancing** predominately under resourced, under financed and over committed primary and secondary medical care systems contributing to **financial benefits**, **accessibility**, and **viability of widespread general population testing** towards global **2030 elimination goals**.

Health Network Collective
linking to care

Conclusion, my personal journey

(*Reiterating 'My Personal Statement & Journey Narrative'*)

Everyone has their respective stories histories and narratives. This is mine. In the late 1980's as a 16-year-old I became a very efficient and highly skilled soldier, my parents signed waivers for my operational duties as a juvenile. From the mid 1990's to early 2000's I worked in various international roles in over half a dozen conflicts as a humanitarian. I thought I understood oppression, inaccessibility of communities to essential life needs, and scale of death from actions generated by a few for the sake of religion greed politics and other inexcusable unhumanitarian actions. I believed that our international humanitarian interventions should always leave the effected community in as good if not improved standing from before our interventions. I left after seeing time and time again international withdrawal of aid and support in an instant, no resilience consideration for lost generational essential skills and survival means. The brief good done often leaving communities worse off than before from creating humanitarian aid dependency then cutting it off.

My disillusion in the world for not respecting "Lest we forget" by forgetting and repeating; increases as I get more experienced and handsome with passing time. I also learnt & lived addiction, and becoming what I despised.

Decades later as a National Program Manager in health, I recognised community reliance on institutionalised systems that often demonstrate organisational hesitancy in the face of change with limited adaptation to our changing environment and population status. In COVID response we engaged and mobilised communities achieving incredible results with our non-regulated workforce. We then appeared to forget and returned to the same institutionalised systems of before.

Through this master's journey I have grown to realise if we could action and implement only a fraction of the high-level strategy statements made by governments and global organisations; we could, as a collective global community, effect an incredible level of positive innovative sustainable change.

The Internet of Things (IoT) is presenting an incredible opportunity on a global scale for us to effect positive change in our world. I want to, and will be part of, effecting positive change in creating a better world. I want my children, and theirs, to keep safely smiling.

My master's research has evidenced that global strategy statements are published, the problems clearly identified researched and evidenced, and the opportunity for implementation enabling positive change through innovative sustainable engagement is now. Just saying… out loud… if even only one person listens and acts as a result… our world can be a better place.

Return to My Why

Development, research continuation & implementation

Growing and retaining science, technology & EDT capability

Each stage of **this project** will **produce data and evidence** from practice that is of value for research for the **wider community**. To accommodate utilization of such data and evidence considerations in **design is crucial**, in particular collation and dissemination whilst **respecting medical in confidence and data protection**. This approach will compliment focus on IoT delivery **ensuring compatibilities and furthering accessibilities**.

With current advances in POCT technologies, emergent AI, medical technology applications, developing IoT capabilities and more; **technology horizon scans** will be extremely **important** for **longevity** and **sustainability** of the solutions.

MVP validation, field trials; Part two and three

Subject to further **post masters** research confirmation; **formalising of relationship** with a national PWID charitable entity for **ongoing research** via trial is progressing. This will be a cooperative trial **incorporating new EDT**, a lateral flow triple test medical device, **validating** the **new technology** and Health Network Collective **system and framework**.

Current **political and financial climate**(s) **within Aotearoa** may produce **challenges** in **engagement**.

Proposed activities; Part two

Researching the viability of developing and deploying a systemised supported framework for facilitating Hepatitis C (HCV) care navigation by non-regulated workforce, kaiawhina and peers.

Detailed Part two proposal available from mailto:Hello@HealthNetworkCollective.com

Undertaking of part two, activation for part three

Researching the viability of developing and deploying a Minimum Viable Product (MVP) package, as indicated below, to produce qualification facilitating test to treat in place with navigation of care(s) within a systemised structured framework;

Design; **refinement of developed self-managed equitable solution(**s) for patient centred, decentralised, management of navigation of (HCV) care: within a systemised framework built on neutrality and universal principles **that can assimilate into users' mode of life**.

Delivery; **implementation of widely and freely available accessible solutions** with clear, simple, transparent and moderated user tiered access; ensuring 'Single source of truth' accessibility to core information and community resource, based on research of training needs and analysis of identified best practice, integrated and applied using Health Literacy principles.

Development; of **robust IoT and associated technologies** meeting international data and security standards incorporating technology horizon scanning to ensure equitable durability and product longevity for future development opportunity(s).

Further exploration, and due diligence for assessment of Emergent Disruptive Technology (EDT). **Specifically**, an emergent invitro lateral flow medical device capable of triple screening, as opposed to the current single test technology, enabling Hepatitis C (HCV), Human Immunodeficiency Virus (HIV) and Hepatitis B (HBV) Rapid Diagnostic Test (RDT) Point of Care Testing (POCT). This is an exempt class of medical device for the purposes of the Medicines (Database of Medical Devices) Act and regulations.

Current protocols for antibody RDT POCT predominately utilise World Health Organisation (WHO) pre-approved single lateral flow test kits.

Proposed activities; Part three

Part three will contribute to research around the efficacy of outcomes of test to treat in place. With contribution to provision of a sustainable mechanism for collation of epidemiological data enabling further research and improved understanding of prevalent community conditions.

A detailed plan is in development, in collaboration with, and support or advisory of;

- **Doctor Geoff Noller,** *PhD. Investigator and advisor.* Dr Geoff Noller is a medical anthropologist and independent researcher. He is also a current Research Fellow at the Dunedin School of Medicine, Aotearoa New Zealand.
- **Doctor Craig Hilton**, *PhD, MSc, MFA. Advisor.* Dr Craig Hilton is the current academic advisor at AcademyEx. Former roles include research fellowships internationally, paediatric oncology and immunology, and notable art-science collaborations with Billy Apple.
- **William (Bill) Remak** *MSc, BSPH. Advisor.* Bill is a three-time cancer survivor with HCV and liver transplant success stories. A current MPH and PhD student's preceptor with University of San Francisco School of Nursing and Health Professions, founder, board member and member of several clinical and patient advocacy boards.
- **Professor Ed Gane,** *MBChB, MD, FRACP, MNZM | AME. Supporter.* Professor of Medicine University of Auckland, and Chief Hepatologist, Transplant Physician and Deputy Director NZ Liver Transplant Unit. Professor Ed Gane was instrumental in developing the cure for Hepatitis C, an achievement with future global impact compared to a similar scale of Jonas Salk's Polio vaccine developed 1955.

Contribution to equity and indigenous populations

Kia ora koutou. Health Network Collective acknowledge Māori as tangata whenua and Treaty of Waitangi partners in Aotearoa. Health Network Collective pay respects to the mana whenua of this land.

Māori are disproportionately affected by HCV and impacted by limited equitable resourcing, a key advantage is process where Māori can test within their community. Hence micro-credential and system framework viability.

Our **vulnerable and marginalised populations**, in particular our PWID populations, **have a community focus** of sorts, albeit inward facing however there is a focus. My research evidenced or referenced **benefits of navigation of care by friendly faces from familiar places** and the importance **of care for community by community** in actively promoting wai ora to seek health. These populations are generally localised groups of like-minded persons often cared for by those with lived experience or some form of **localised relationship**.

For **structured efficient care of community by community** we need **implementation and operationalization of actions** with provision of **supported frameworks**. Community knows their communities, and by asking '**how can we help you**' many of the 'really difficult to find' persons **may become wai ora seeking health, and helping themselves**.

In developing a systemised supported framework for facilitating HCV care navigation by kaiawhina and peers, with leveraging of EDT and associated technologies to formalise qualification, we will contribute to financial, health and community benefits with improved destigmatised health care access and lessened burdens on existing health systems.

See appendices 1.9.2 *Community focus*

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Appendices

1. Part One Research, analysis and report(s)

Introduction; Methodology

From the main research question "***How can we improve efficacy of an informally qualified community of testers and their structured inclusion in established systems through leveraging* EDT *and associated technologies*?"** four (4) sub questions were developed, representative of the four (4) components of Te Whare Tapa Whā. Further extrapolation from applying *considerations* formed thirty-three (33) survey questions. With complexities of multiple factors on research, questions were also based on a series of assumptions (appendices 1.2) and the 'intended impacts and benefits of this research'.

From anonymised online survey, responses representative of **wide global geographical placement**, medical and non-medical **roles**, and varied levels of **interest in community health;** were collated into .csv format with automated data sorting for analysis towards subsequent findings and thematic analysis.

Respondents demonstrated **overwhelming support** for **leveraging Emergent Disruptive Technologies** (EDT) and associated technologies to ***improve efficacy of an informally qualified community of testers and their structured inclusion in established systems.*** With strong indications ***of design considerations for how this can be achieved***.

Supporting secondary research and literature review drew from one hundred and seven (107) reference samples (appendices 1.5) with desktop review of primary research findings against '*considerations*' (appendices 1.1), comparative review of *'pre-survey assumptions'* (appendices 1.2) with further narrative from my **personal perspectives** and **lived experience**. This indicated **shifts in global thinking** aligning to the **community engagement concepts, principles'** and intended **outcome(s)** of this project**.** Of particular interest, and providing a succinct summary, specific **action points** from the WHO **Global hepatitis report 2024** and alignment of this project to those action points.

***Application** of key WHO **Global hepatitis report 2024** **action points** relevant to this project*:

This Health Network Collective project, with subsequent implementation and delivery, will **expand testing** (*action 1, testing*) with **implementation** (*action 2, Treatment: shift from policies to implementation for equitable access to viral hepatitis treatment and care*) as a **decentralised model** (*action 4, Service delivery: simplify and decentralize the delivery of viral hepatitis services through a public health approach*) encouraging **local productivity** (*action 5, local production*). This will **generate data** (*action 8, data for action*) from **community engagement** (*action 9, Community engagement: engage affected populations and civil society in the viral hepatitis response for advocacy and service delivery*) with this innovation **laying the foundation** for expansion to other **community prevalent conditions** (*action 10, innovation*). (appendices 1.5.1.)

Based on my **problem statement**, **intended impacts** & **benefits** with evidence and findings from **research analysis**, subsequent **thematic analysis** has **defined** and **validated themes** to inform **planning** and **development** of **Minimum Viable Product** (MVP) solution(s).

Validations of Sub-questions &... Project phase; part two outcome and... Design - Navigation to...

1.1. Survey question designs, considerations to Te Whare Tapa Whā, with results

Return to Introduction, methodology Return to Secondary research, literary review and desktop analysis

1.1.1. EDT applications

Question: How can we improve efficacy of an informally qualified community of testers and their structured inclusion in established systems through leveraging EDT and associated technologies?	
Consideration: Emergent Disruptive Technology and applications	
1 - taha wairua (spiritual wellbeing)	• With care management by kaiawhina, peers, friendly faces from familiar places, would wai ora benefit from such spiritual connection in their own spiritual wellbeing?
	○ **Yes**: 84% **No**: 2% **I have no opinion**: 14%
2 - taha hinengaro (mental and emotional wellbeing)	• would the ability to engage with treatment providers and have up to date visibility of data related to the respective wai ora condition and pathways improve mental and emotional wellbeing in better understanding their journey?
	○ **Yes**: 86% **No**: 2% **I have no opinion**: 12%
3 - taha tinana (physical wellbeing)	• would wai ora health status and treatment needs being visible to them (e.g., via an app) encourage their participation in their own health improvement pathways?
	○ **Yes**: 82% **No**: 6% **I have no opinion**: 12%
4 - taha whānau (family and social wellbeing)	• would wai ora being able to share their treatment journey and related information (such as condition & treatment information) with whanau, encourage whanau to start their own journey of health status discovery?
	○ **Yes**: 86% **No**: 2% **I have no opinion**: 12%

1.1.2. Formalisation / recognition of qualification

Question: How can we improve efficacy of an informally qualified community of testers and their structured inclusion in established systems through leveraging EDT and associated technologies?	
Consideration: Formalisation / recognition of qualification	
1 - taha wairua (spiritual wellbeing)	• would having a formal and transparent qualification of required clinical procedures, whilst having ability to conduct in a manner appropriate to social, cultural, or ethnic environment, improve or contribute to spiritual wellbeing for kaiawhina?
	○ **Yes**: 84% **No**: 6% **I have no opinion**: 10%
	• for wai ora?
	○ **Yes**: 80% **No**: 8% **I have no opinion**: 12%
2 - taha hinengaro (mental and emotional wellbeing)	• with assurance of formal qualification in clinical procedure backed by technological tools for applying such procedures, do you feel this will enhance mental and emotional wellbeing, & confidence for kaiawhina / peer / care giver?
	○ **Yes**: 92% **No**: 6% **I have no opinion**: 2%
	• for wai ora?
	○ **Yes**: 88% **No**: 4% **I have no opinion**: 8%
3 - taha tinana (physical wellbeing)	• would the ability to show, & demonstrate, formal qualification & skill contribute to reduced risk of confrontation or risk?
	○ **Yes**: 74% **No**: 10% **I have no opinion**: 16%
4 - taha whānau (family and social wellbeing)	• could the casual exchange of information with whanau and friends from self-paced remote learning towards qualification further information sharing and awareness of community health issues?
	○ **Yes**: 84% **No**: 2% **I have no opinion**: 14%

1.1.3. Rangatiratanga Raraunga (Data *sovereignty)*

Question: How can we improve efficacy of an informally qualified community of testers and their structured inclusion in established systems through leveraging EDT and associated technologies?	
Consideration: Rangatiratanga Raraunga (Data sovereignty)	
1 - taha wairua (spiritual wellbeing)	• Rangatiratanga Raraunga, Māori data sovereignty. Our data is a living essence; whakapapa. Has this ever been a consideration of yours in regards to health technology and data storage of health information?
	○ **Yes**: 62% **No**: 24% **I have no opinion**: 14%
2 - taha hinengaro (mental and emotional wellbeing)	• He whenua hou, Te Ao Raraunga Te Ao Raraunga, He whenua hou (Our Data, Our Sovereignty, Our Future). Would, in knowing through evidence this is respected, contribute to mental and emotional wellbeing?
	○ **Yes**: 74% **No**: 6% **I have no opinion**: 20%
3 - taha tinana (physical wellbeing)	• Would evidence of compliance with, or audit by, an organisation such as Te Mana Raraunga (Māori Data Sovereignty Network) give you assurance of the physical security and safety of your or wai ora data?
	○ **Yes**: 64% **No**: 14% **I have no opinion**: 22%
4 - taha whānau (family and social wellbeing)	• Do you support wai ora having the capability to, in view of their ownership of their data, share access under their approval and control of their respective data with whanau, kaiawhina, peers or caregivers. In the context of assurance of respecting treatment pathways and their health journey?
	○ **Yes**: 86% **No**: 6% **I have no opinion**: 8%

1.1.4. Management of test products, tākoha? (e.g., Blood samples)

Question: How can we improve efficacy of an informally qualified community of testers and their structured inclusion in established systems through leveraging EDT and associated technologies?	
Consideration: Management of test by products, tākoha? (e.g., Blood samples)	
1 - taha wairua (spiritual wellbeing)	• All genetic material is tapu in Māori tikanga. Do you consider samples following testing tākoha?
	○ **Yes**: 58% **No**: 20% **I have no opinion**: 22%
	• Is this something you discuss with wai ora?
	○ **Yes**: 64% **No**: 20% **I have no opinion**: 16%
	• Is disposal of the drop of blood of concern to you?
	○ **Yes**: 50% **No**: 40% **I have no opinion**: 10%
2 - taha hinengaro (mental and emotional wellbeing)	• Do you feel a level of cultural and spiritual awareness, for test by product management, in training would benefit kaiawhina, peers or care givers. Notably in terms of contribution to wai ora mental and emotional wellbeing with their testing and screening experience?
	○ **Yes**: 80% **No**: 6% **I have no opinion**: 14%
3 - taha tinana (physical wellbeing)	• Do you consider it safe practice for wai ora to self-manage their samples post testing, if that is their preference?
	○ **Yes**: 60% **No**: 30% **I have no opinion**: 10%
4 - taha whānau (family and social wellbeing)	• Attending family of wai ora request to take left over and used samples post testing, when the wai ora has declined. Do you let the family take the samples?
	○ **Yes**: 30% **No**: 42% **I have no opinion**: 28%

1.1.5. Religious, ethnic and cultural impacts on testing

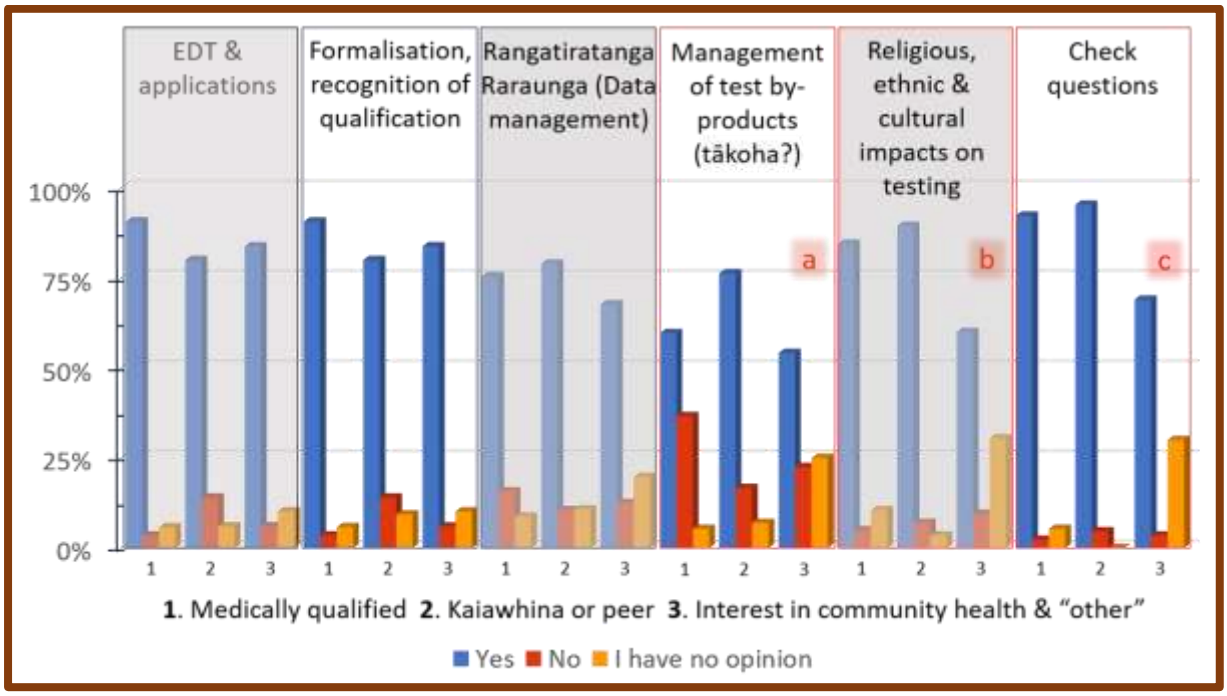
Question: How can we improve efficacy of an informally qualified community of testers and their structured inclusion in established systems through leveraging EDT and associated technologies?	
Consideration: Religious, ethnic and cultural impacts on testing	
1 - taha wairua (spiritual wellbeing)	• Would self-managed formalisation of qualification and use of technology improve access to health care for religious groups?
	○ **Yes**: 56% **No**: 10% **I have no opinion**: 34%
2 - taha hinengaro (mental and emotional wellbeing)	• Would wai ora with strong religious or cultural beliefs be more likely to access health care when it is provided by someone from their community?
	○ **Yes**: 78% **No**: 4% **I have no opinion**: 18%
3 - taha tinana (physical wellbeing)	• Are we offering improved physical wellbeing to kaiawhina, peers and care givers by allowing communities to offer formalisation of qualification, health access technologies and systems to their own people, for their own people (Gangs, PWID populations...)?
	○ **Yes**: 70% **No**: 12% **I have no opinion**: 18%
4 - taha whānau (family and social wellbeing)	• Is it of benefit to have people from the community assisting and being involved in their communities wai ora treatment and care pathways, as opposed to reliance on external providers availability?
	○ **Yes**: 88% **No**: 2% **I have no opinion**: 10%

1.1.6. Specific questions for medically qualified individuals and organisations

Question: How can we improve efficacy of an informally qualified community of testers and their structured inclusion in established systems through leveraging EDT and associated technologies?	
Consideration: Could formal recognition and formalisation of qualification, with a systemised approach to Kaiawhina, peer and care worker HCV antibody testing in general population settings;-	
1 - taha wairua (spiritual wellbeing)	• contribute to improved outcomes in view of the longevity and continuity of relationships?
	○ **Yes**: 80% **No**: 18% **I have no opinion**: 2 %
2 - taha hinengaro (mental and emotional wellbeing)	• lead to greater stability and emotional wellbeing of wai ora in view of stigma associations with 'statist' authorities?
	○ **Yes**: 70% **No**: 10% **I have no opinion**: 20%
3 - taha tinana (physical wellbeing)	• improve wide spread testing (potentially possible with realisation of this concept) and encourage improved long term outcomes, hence financial benefits?
	○ **Yes**: 82% **No**: 0% **I have no opinion**: 18%
	• contribution to reducing long-term primary and secondary needs and prolonging life expectancy?
	○ **Yes**: 76% **No**: 4% **I have no opinion**: 20%
4 - taha whānau (family and social wellbeing)	• Further facilitate open conversations around health and lifestyle in marginalised and vulnerable communities?
	○ **Yes**: 84% **No**: 2% **I have no opinion**: 14%
	• facilitate whanau based health interventions and connections as opposed to system based services, promoting improved health outcomes and reducing pressure on often under-resourced existing health systems?
	○ **Yes**: 80% **No**: 2% **I have no opinion**: 18%

1.2. Pre-survey assumptions with analysis outcomes

The below table shows response overview by survey question **"*areas of concern*"** groups contributing to sub questions and the main question*: "How can we improve efficacy of an informally qualified community of testers and their structured inclusion in established systems through leveraging EDT and associated technologies"*?



1.2.1. Assumption 1, Clinical legislative, regulatory, health & safety standards

Clinical legislative, regulatory, and health and safety standards need to be established, respected and reflected in development and planning of this project research, design and application.

1.2.2. Summary of research analysis outcome of assumption 1.

Based on analysis of primary research, with ongoing secondary literature and desktop review findings, and as indicated by areas highlighted in red as *a*, *b* and *c* in the above table: disparity in understanding or application of clinical legislative, regulatory and health and safety standards, with possible interpretation or understanding of medical ethics, by non-regulated and non-medically qualified respondents *"I have no opinion"* is apparent. This is suggestive of not simply establishing these standards, also educating in the basics of the standards and implications or impacts of such standards on practice. This is also most likely reflective of emotive response in the absence of medical knowledge.

1.2.3. Assumption 2, Māori Kaupapa principles

Māori Kaupapa principles applied in this project have **appropriate application** to a majority of **global ethnic and cultural matters** in regards to this project. (Inclusion of the consideration '*Religious, ethnic and cultural impacts on testing*' may assist mitigating the risk of poor assumption in this case)

1.2.4. Summary of research analysis outcome of assumption 2.

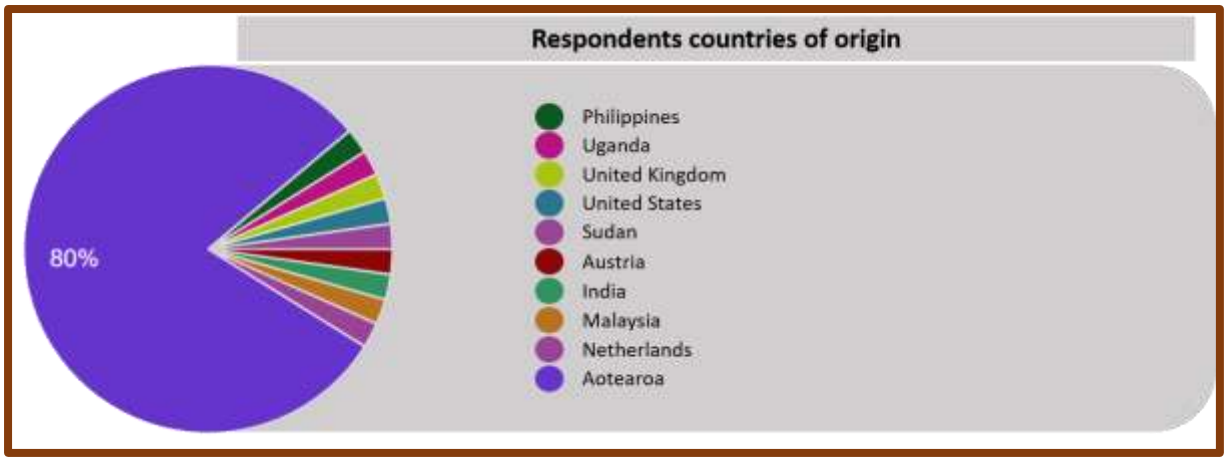
Based on analysis of primary research, with ongoing secondary literature and desktop review findings: Māori Kaupapa principles meet, and in some areas exceed appropriate application in a global context. Cultural impact findings on project design have had two significant results. The first that some cultural understandings in a practical sense can lead to inadvertent breach of medical ethics and legal obligations. This impact on design is inclusion of such ethical and legal subjects with consideration of acceptable practice to accommodate those cultural considerations. The second finding contradicts the first, an apparent lack of awareness and potential disregard for culture in practice as evident in medically qualified response in area '*a*', highlighted in red in the above table.

1.2.5. Assumption 3, global population representation

The survey will have a **wide global population representation** in respondents.

1.2.6. Summary of research analysis outcome of assumption 3.

Twenty (20%) percent of respondents indicated they were from countries other than New Zealand, giving a broad geographical representation. I do not consider this conclusive in the original intention of wide global representation across disciplines. Unfortunately, this was not defined accurately prior to survey.

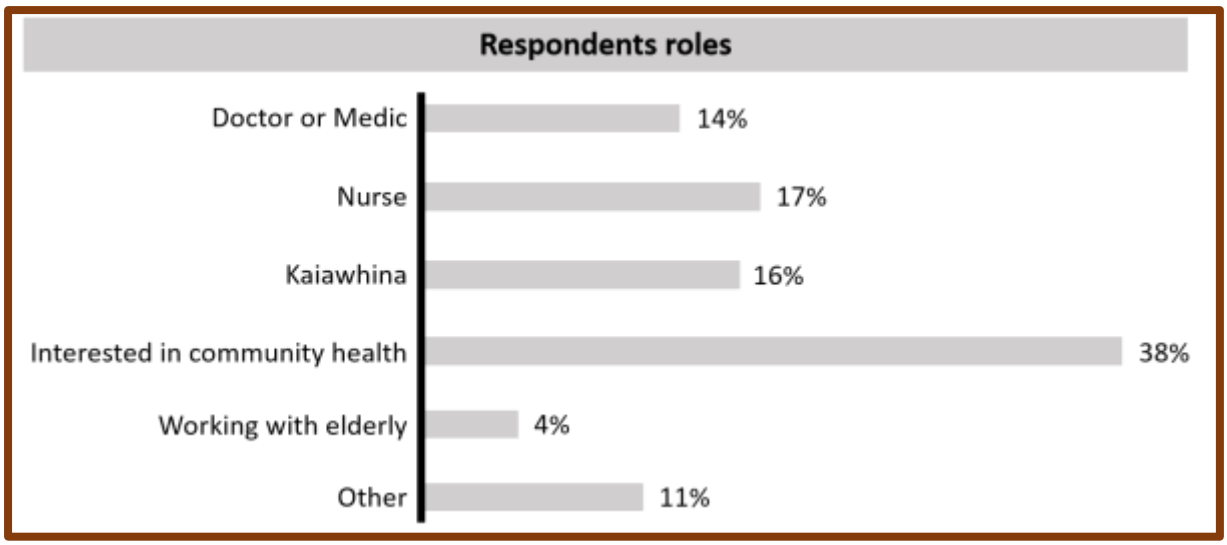


1.2.7. Assumption 4, wide range of disciplines

The survey will have respondent's representative of a **wide range of disciplines and community**. (Hence the initial survey question of profession or interest relevant to HCV).

1.2.8. Summary of research analysis outcome of assumption 4.

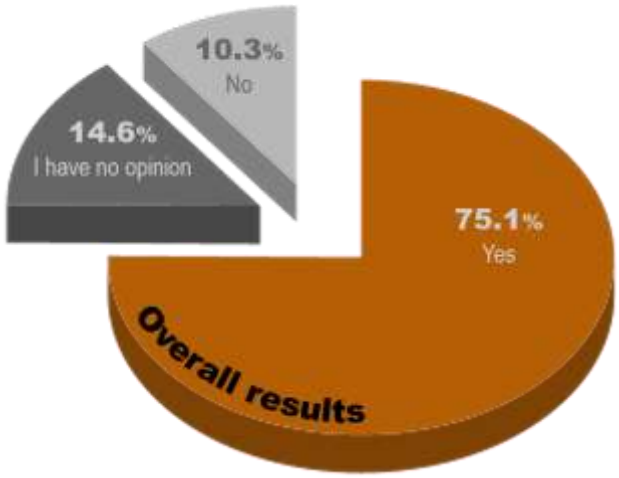
Just over thirty one percent **(31%)** of respondents indicated their respective roles in health were "**statist**" **traditional roles requiring degree or higher qualification**. A further twenty percent (**20%**) **indicated roles in health as kaiawhina or peer** across PWID, elderly and 'other' health roles. The remaining respondents, over forty nine percent (**49%), indicated an interest in community health** or had **"other" non-medical** roles (with possibly no interest in community health). **This range of respondents is favourable** as developing understanding of non-medically qualified and non-regulated workforce is pivotal for MVP design considerations.



Return to Introduction, methodology

1.3. Validations of 'considerations' & theme derivations; main question response

In view of the research main question design summarising core elements of intended research, and derivation of sub questions from this question for intended critical analysis and evidencing themes; the analytical response for this question is based on primary research grouped to areas of considerations, as discussed in validations of 'considerations'... This facilitates a research intention of conveying emotive elements through sub-questions developed then modelled on Te Whare Tapa Whā. Allowing a clear conclusive evidence based high level summary for this main question.



Question: How can we improve efficacy of an informally qualified community of testers and their structured inclusion in established systems through leveraging EDT and associated technologies?

Analytical response: ***By leveraging of EDT and associated technologies*** *(EDT & associated technologies; yes 84.5%, no 3%, I have no opinion 12.5%)* ***to formalise qualification*** *(Formalisation / recognition of qualification; yes 83.6%, no 6%, I have no opinion 10.3%)* ***and provide a systemised supported framework*** *(Rangatiratanga Raraunga, data sovereignty; yes 71.5%, no 12.5%, I have no opinion 16%)* ***for facilitating HCV care navigation*** *by* ***kaiawhina and peers*** *(Management of test by-products; yes 57%, no 26.3%, I have no*

*opinion 16.6**%); we can contribute to financial, health and community benefits with improved destigmatised health care access** (Religious, ethnic and cultural impacts on testing; yes 73%, no 7%, I have no opinion 20%) **and lessened burdens on existing health systems** (Specific questions for medically qualified; yes 78.6%, no 6%, I have no opinion 15.3%).*

Return to Consolidated analytical response

Validation of analytical response formed from considerations:

1.3.1. Emergent Disruptive Technologies (EDT) and associated technologies

- Navigation and management of care by friendly faces from familiar places (kaiawhina), with treatment provider data sharing, visibility and engagement via EDT would improve mental, emotional and spiritual wellbeing (85%)
- Wai ora having visibility of their health status and treatment needs would encourage their participation in health improvement pathways (82%) and ability to share that data with whanau would encourage whanau in their own respective health discovery journeys (84%)

1.3.2. Formalisation / recognition of qualification

- Self managed formally qualified kaiawhina with clinical and cultural training would improve spiritual wellbing (84%), for Kaiawhina (84%) and wai ora (80%), with further enhancement by assurance of formal qualification of Kaiawhina, for Kaiawhina (92%) and wai ora (88%).
- Evidence of Kaiawhina formal qualification and demonstration of learned skill may reduce risk and risk of confrontation (74%).

1.3.3. Rangatiratanga Raraunga (Data sovereignty)

- Data sovereignty and storage is of greater concern for Kaiawhina and non-medical persons (67% vs 58% medically qualified). Mental and emotional wellbeing would benefit from data visibility by all parties involved in navigating care (86%), with evidence of data security contributing to such benefit (74%). Data visibility by wai ora will encourage participation in their health improvement pathways (82%)
- Access to data and navigation to care information by wai ora could enable conversation encouraging others to seek health (86%), with kaiawhina sharing of self-paced HCV learnings enabling wider awareness of community health issues (84%). Such data sharing ability for enabling conversation and awareness is supported widely (86%).

1.3.4. Management of test by products, tākoha? (e.g., Blood samples)

- The highest reponse to test by-product's being considered tapu were Kaiawhina (86%), medically qualified (72%) and non-medical (43%); non medical respondents had the highest "I have no opinion" (36%). Medically qualified person were more likely to discuss this status with wai ora (79%) followed by nonmedical (59%) and Kaiawhina (57%); 25% of non-medical had no opinion. More Kaiawhina had concerns over by-product disposal (86%) where more medically qualified persons had no concerns (64%) and non-medical had greatest no concern or 'no opinion' (38%). A 'cultural training' lens over by-product

waste management would have positive impact (80%) as would cultural awareness for improving interaction by community for community (78%).

- Self-management of by-products by wai ora when requested for cultural reasons, was supported as a safe practice by Kaiawhina (86%), non-medical persons (69%) with medically qualified persons split for (50%) and against (50%). *Management of test by-product and release of such to wider requesting family when wai ora have declined* returned; medically qualified persons approving (29%) and not approving (57%) with kaiawhina split 50/50 (43% and 43%). A 'cultural training' lens over by-product waste management would have positive impact (80%) as would cultural awareness for improving interaction by community for community (78%).

1.3.5. Religious, ethnic and cultural impacts on testing

- Overall support for self managed formalisation of qualification and technology improving access for religious groups was 56% (medically qualified (64%) and Kaiawhina (72%)), however 46% of non medical persons had no opinion.
- Community care by community for community would improve access for wai ora with strong religious or cultural beliefs (and or affiliations such as gangs) (74%) benefitting health access within community as opposed to reliance on external providers (88%)

1.3.6. Formal recognition and formalisation of qualification…

Could formal recognition and formalisation of qualification, with a systemised approach to Kaiawhina, peer and care worker HCV antibody testing in general population settings;

- contribute to improved outcomes for longevity and continuity of relationships (80%).; and reduced stigma associations with traditional medical systems; improving stability of mental and emotional wellbeing by kaiawhina navigation of care (70%). With care navigation by community for community (70%) contribute to improved widespread general population testing and financial benefits (82%), while reducing long term primary and secondary care needs, prolonging life expectancies (76%).
- promote care for community by community, as opposed to reliance on external providers availability (88%); the process to enable this model of care facilitating open health and lifestyle conversation (84%) and reducing burden on existing health systems (80%)

1.3.7. Theme derivation main question

This analytical response is formed as the evidenced based high-level summary of research finding. Exploration of the below sub questions and validation of the sub questions against secondary research will inform critical thematic analysis and subsequent themes.

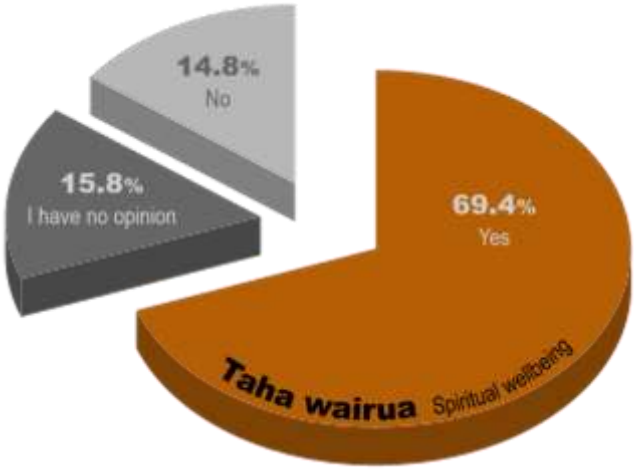
Return to Consolidated analysis and themes

Return to Consolidated thematic response(s)

1.4. Validations of Sub-questions & theme derivations; Te Whare Tapa Whā

Derived from application of **Te Whare Tapa Whā** to the main research question with further extrapolation to 'considerations' forming 33 survey questions. Post survey regrouped for analysis under the questions respective Te Whare Tapa Whā grouping.

1.4.1. Taha wairua (spiritual wellbeing).



Question: Through leveraging EDT and associated Technologies, can we contribute to improving the spiritual wellbeing of kaiawhina / peers, wai ora, whanau and the relationships?

Analytical response: **Through *leveraging of EDT and associated technologies*** *for* ***care management*** *of their respective communities by* ***self-managed formally qualified kaiawhina*** *or peers, within a* ***supported systemised framework****, will contribute to* ***improved health access*** *and outcomes****, longevity of relationships*** *and* ***spiritual wellbeing*** *for the community.*

Validation of analytical response: Self-managed formally qualified kaiawhina with clinical and cultural training would improve spiritual wellbeing (84%), for Kaiawhina (84%) and wai ora (80%). Data sovereignty and storage is of greater concern for Kaiawhina and non-medical persons (67% vs 58% medically qualified). The highest response to test by-product's being considered tapu were Kaiawhina (86%), medically qualified (72%) and non-medical (43%); non-medical had 36% with "I have no opinion". Medically qualified persons were more likely to discuss this status with wai ora (79%) followed by nonmedical (59%) then Kaiawhina (57%); 25% of non-medical had "no opinion". More Kaiawhina had concerns over by-product disposal (86%) where more medically qualified persons had no concerns (64%) and non-medical had greatest "no opinion" (38%). Overall support for self-managed formalisation of qualification and technology improving access for religious groups was 56% (medically qualified (64%) and Kaiawhina (72%)), however 46% of non-medical persons had "no opinion". Contribution to improved outcomes for longevity and continuity of relationships were positive overall (80%).

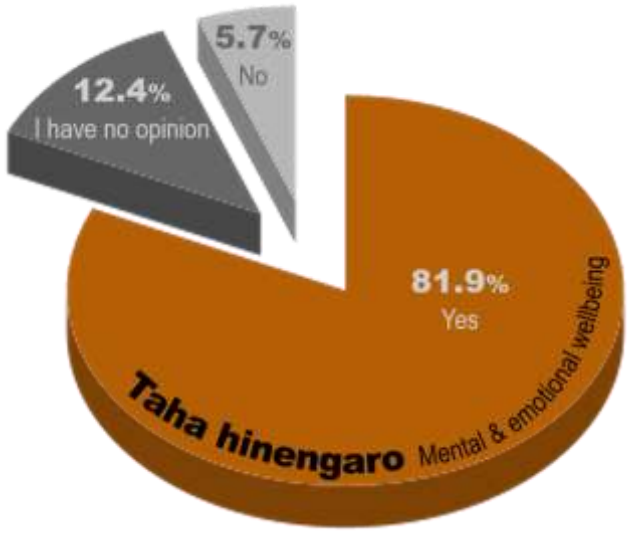
Theme derivation: Formal, **self-managed training** to qualification within a systemised framework encompassing appropriate clinical and cultural content is a delivery task. A component of getting to that delivery is design, of which several key themes are prominent. In the above validation section, the variation in concern around data sovereignty may be an indication of those who are medically qualified and their confidence with medical in

confidence and Patient Management Systems (PMS), as opposed to simply not knowing. Further disparity in response between medically qualified, kaiawhina and non-medical regarding by-product disposal and management may be suggestive of **training needs analysis** to identify subject matter that needs inclusion to generate fit for purpose training. In this instance 'disposal' needs an understanding of medical ethics, medical & patient in confidence, hygiene and procedures, clinical knowledge and more. **Systemised framework** development inclusive of compliance for data, medical in confidence, and user requirements will contribute to evidenced based physical and visual data security.

"*Self-managed*" in combination with "*technology improving access*", particularly in **equitable context**, is suggestive that any delivery system and technologies will need to **assimilate into the mode of life** of the end user and their respective cultural and ethnic situation. Content and delivery systems will benefit from adoption of **neutrality** and principles of the **universal declaration of human rights** in development of **solution(s)** to assist with universal ease of assimilation.

Return to Design - Micro-credential considerations summary

1.4.2. Taha hinengaro (mental and emotional wellbeing)



Question: In enabling enduring relationships and continuity of care through treatment and beyond with leveraging EDT and associated Technologies, can we contribute to improved mental and emotional wellbeing?

Analytical response: **In** ***leveraging EDT and associated technologies*** *with* ***visibility of data*** *and* ***care pathways****, training to* ***qualification****, and user applications, we can* ***improve mental and emotional wellbeing****,* ***destigmatisation*** *and* ***access to health care*** *provided by community for their community.*

Validation of analytical response: Mental and emotional wellbeing would benefit from data visibility by all parties involved in navigating care (86%) and further enhanced with assurance of formal qualification of Kaiawhina, for Kaiawhina (92%) and wai ora (88%). Evidence of data security would also contribute (74%). A 'cultural training' lens over by-product waste management would have positive impact (80%) as would cultural awareness for improving interaction by community for community (78%). Stigma associations with traditional medical

system could be reduced with greater stability of mental and emotional wellbeing by navigation of care by Kaiawhina (70%).

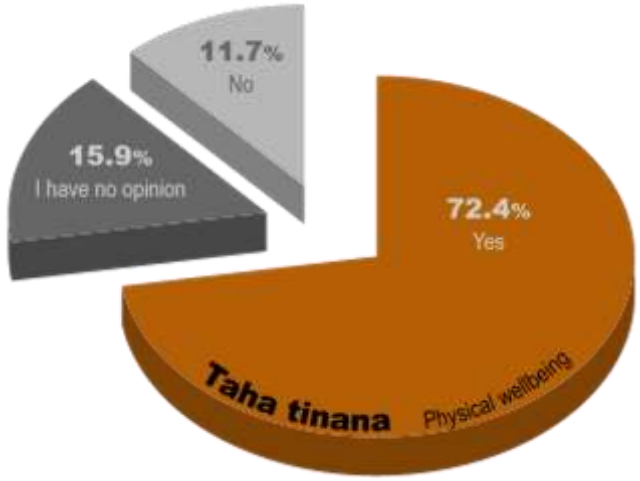
Theme derivation: Patient centred decentralised management of navigation of care within a **systemised framework** will require data sharing; hence data security meeting international standards of **medical in confidence** and **data management**.

In addressing knowledge gaps between medical and non-medical trained individuals, and in ensuring **assimilation into users' mode of life**, conduct **training needs analysis** to ensure users have developed understanding of medical ethical, legal and patient rights in navigating care.

In actively enabling users to promote and live destigmatising ways of being, stigma will need to be well understood. **Stigma** is a complex beast and will need the addition of education and awareness around **PWID**, **mental health**, **self-management**, **social responsibilities** and interactions with **social networking**.

Return to Design - Micro-credential considerations summary

1.4.3. Taha tinana (physical wellbeing)



Question: Will access from leveraging EDT and associated Technologies for widespread testing improve long term outcomes, reduce primary and secondary care needs, realise financial benefits, and prolong life expectancies of HCV affected wai ora?

Analytical response: ***Leveraging EDT and associated technologies*** *by communities,* **will** ***encourage widespread testing*** *with* ***greater physical security and safety*** *within those communities; whilst* ***reducing health burdens*** *on existing systems contributing to* ***financial and long-term health outcome benefits****.*

Validation of analytical response: Data visibility by wai ora will encourage participation in their health improvement pathways (82%) with demonstration of Kaiawhina formal qualification and skill reducing risk of confrontation (74%). Evidence of data physical security would give assurance (64%). Self-management of by-products by wai ora when requested for cultural reasons, was supported as a safe practice by Kaiawhina (86%), non-medical persons (69%) with medically qualified persons split for (50%) and against (50%). Care navigation by community for community had overall support (70%) with improved widespread general

population testing and financial benefits (82%). This would contribute to reducing long term primary and secondary care needs while prolonging life expectancies (76%).

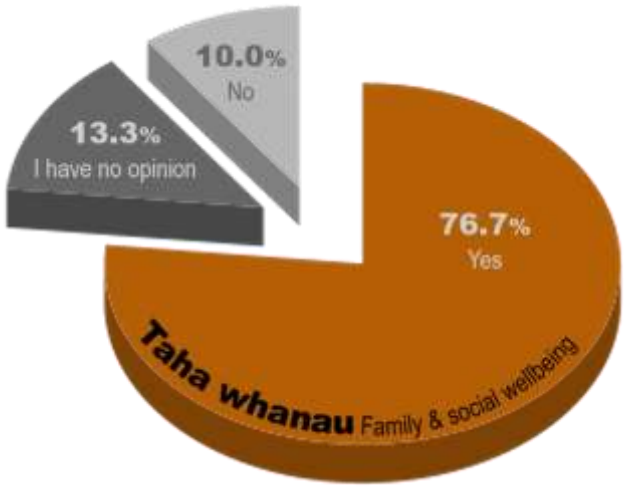
Theme derivation: In order for data visibility to be of value in self-promoting users' active participation in their health improvement pathways that data visualisation needs to be in a language that can be understood; basic principles of **Health Literacy** will need to be applied to design inclusive of considerations for user experience.

Health Literacy will also add to enhancement of "*friendly faces from friendly places*" security and community benefits in ensuring a commonality of language and understanding furthering destigmatization and longevity of relationships.

IoT and associated technologies will need to be **robust** and meet various **international data standards** to permit information exchange needs and contribute to lessening burden on existing systems while realising the potential financial benefits. IoT solutions will need development in view of future **technology horizon scanning** relevant to the project intended scope of works, such as future inclusion of medical devices into the system framework. Such forward thinking in design also warrants incorporation of considerations for ensuring **durability** and **longevity** of the product for **future development** opportunity(s).

Return to Design - Micro-credential considerations summary

1.4.4. Taha whanau (family and social wellbeing)



Question: Can leveraging EDT and associated technologies improve whanau, kaiawhina / peer and wai ora relationships, access to health, whanau-based health interventions and conversations around health & lifestyle?

Analytical response: ***Leveraging EDT and associated technologies*** *for care of community by community* **can** *actively* ***promote whanau awareness*** *and* ***destigmatisation****, initiate* ***conversation*** *increasing* ***willingness to access health****, and lessen burdens on existing health systems.*

Validation of analytical response: Access to data and navigation to care information by wai ora could enable conversation encouraging others to seek health (86%), with sharing of self-

paced HCV learnings to qualification further enabling awareness amongst others of community health issues (84%). Such data sharing ability for enabling conversation and awareness is supported widely (86%). Management of test by-product and release of such to wider requesting family when wai ora have declined; returned medically qualified persons approving (29%) and not approving (57%) with kaiawhina split 50/50 (43% and 43%). Community care for community by community, as opposed to reliance on external providers availability, is supported (88%) with the process to enable this model of care facilitating open health and lifestyle conversation (84%) and reducing burden on existing health systems (80%)

Theme derivation: In view of core clinical functionality, and the wider community orientated outcome expectations of this project, the **system framework** will need **wide and freely available accessibility** with a **clear, simple, transparent** and **moderated** tiered user access system; ensuring '***single source of truth***' accessibility to **core information** and consistent community resource for conversation and wider discussions.

Return to Literature review summary and findings

Return to Consolidated analysis and themes

Return to Consolidated analytical response

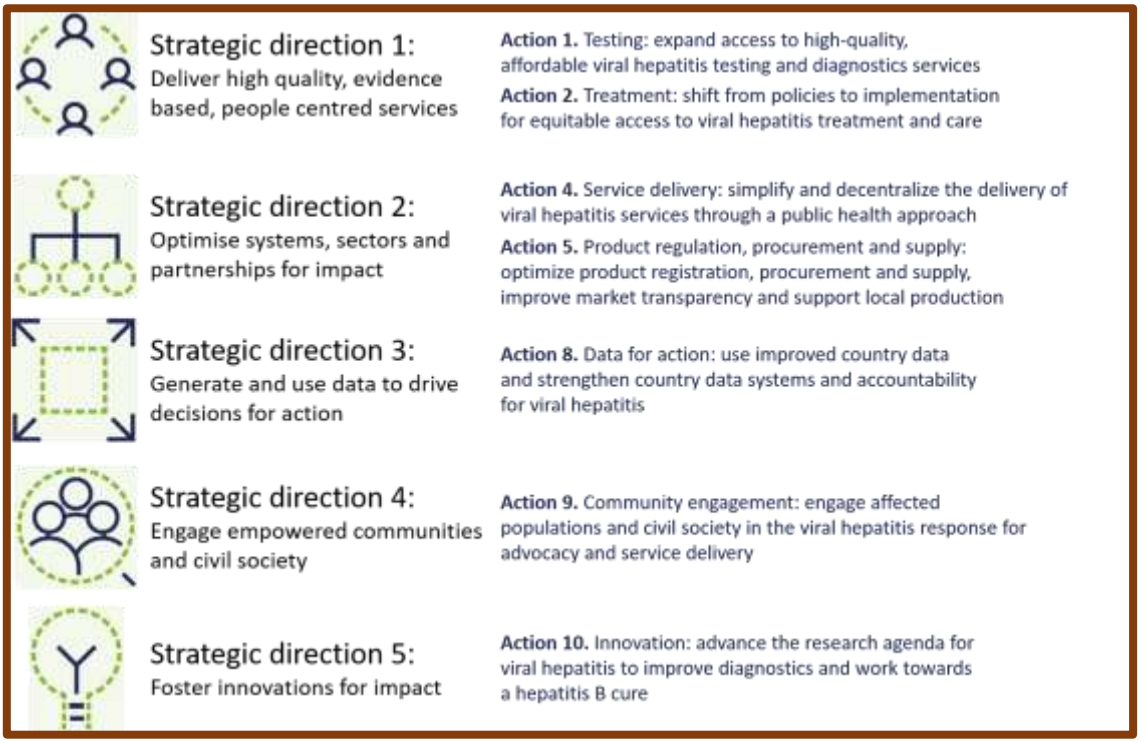
Return to Consolidated thematic response(s)

1.5. Secondary research, literary review and desktop analysis

The research proposal literature review drew from twenty-nine (29) reference samples, and **secondary research** from **one hundred and seven (107) references**, with further narrative from my **personal perspectives** and **lived experience.**

1.5.1. Recent Hepatitis C strategy release and reports

The **recent release** of the World Health Organisation (**WHO**) Global hepatitis report 2024: action for access in low- and middle-income countries (WHO, 2024a) produced significant **expansion on previous years** reports with **strategic directions and action points**. Of particular relevance to the context to this research and project intentions are:



This Health Network Collective project, with subsequent implementation and delivery, will **expand testing** (*action 1*) with **implementation** (*action 2*) as a **decentralised model** (*action 4*) encouraging **local productivity** (*action 5*). This will **generate data** (*action 8*) from **community engagement** (*action 9*) with this innovation **laying the foundation** for expansion to other **community prevalent conditions** (*action 10*).

This WHO report release coincides with, or encouraged, **many global lead** organisations core 2024 strategic statements. These global statements appear to **not have operationalised elements** or considerations and are **broad high-level statements**.

A statement made in summary of findings from a recent study, Direct-acting antiviral therapies for hepatitis C infection: global registration, reimbursement, and restrictions, (Marshall et al., 2024) sums up the WHO report intentions nicely;

"***Universal access to health coverage means all people should have access to the full range of quality services they need – irrespective of who they are, where they are born, or the nature of their health condition***." (Marshall et al., 2024)

Return to Literature review summary and findings Return to Research summary & consolidated response(s)

Return to Consolidated thematic analysis

1.5.2. Comparative research and supporting studies

1.5.2.1. A statement on current Global status

From the first global study reflecting values based on actual hepatitis data; (130 countries validated by respective national health entities, 70 validated by 'partners' provided data); Global reporting of progress towards elimination of hepatitis B and hepatitis C (Cui et al., 2023) the following excerpts give some overview of the global status.

- **57·8 million** people living with **HCV** infection (*WHO estimates 2024 ≥70 million*)
- **79% of HCV infections remain undiagnosed**, and 87% of HCV infections have not been treated, **13% of HCV infections have been treated** (of the 21% diagnosed)
- The **13%** coverage needs to **increase another five and a half times** in the next decade to **reach the 2030 target** (72%) for elimination
- Large **inequities in access** between countries or regions… Screening costs and testing inefficiencies need to be reduced radically and **access simplified**… And accelerated global strategy to **improve treatment coverage** is needed, which requires **national action plans** and financial support
- The study estimated prevalence, incidence, and mortality, but **did not estimate cirrhosis and cancers caused by viral hepatitis** and did not study the natural history of viral hepatitis

Viral hepatitis is the **seventh leading cause of mortality** worldwide and is the only communicable disease where **mortality is increasing**. Viral hepatitis cause **at least as many, if not more, deaths annually than TB, AIDS or malaria combined**. (WHO, 2024b)

1.5.2.2. A community study for treat in place

A study published in November 2023, Integrated test stage treat study (ITTREAT study) linked **People Who Inject Drugs (PWID) to 'one-stop, stay in place'** service of care. Although not a community kaiawhina or peer-based study the recruited individuals and subsequent innovative linking to care(s) were centred on or at their respective peer support locations. The study **demonstrated greatly increased uptake and completion of treatment** following initial diagnosis, with **lowered reinfection and mortality** rates over a two (2) year period with one-stop, stay in place care. (O'Sullivan et al., 2024)

Return to Literature review summary and findings

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1.5.3. Financial synopses of 2030 HCV elimination

Although published 2020, the estimates and assumptions around finance and hepatitis C elimination are still valid today. A model of the economic benefits of global hepatitis C elimination: an investment case (Scott et al., 2020). Accounting for the investment in HCV elimination, within ten (10) years a net global benefit of USD$22.7 billion could be realised by 2030.

The WHO Global progress report on HIV, viral hepatitis and sexually transmitted infections, 2021 (World Health Organization, 2021) suggests **HCV elimination** would lead to a gain of **26.4 million healthy years** and **productivity increases valued at USD$46.1 billion**.

A **consistency in my research** has been estimates of **return on investment** in HCV elimination, including the limited localised studies such as the **cost effectiveness study** from Egypt's **successful elimination** program (Schwander et al., 2022) show **rapid and sustained return** on investment **ranging from 150% to over 300%.**

***$1 invested** in HCV **returns up to $3.42**; HCV* (Rode, 2022)

Further in this document, as an example of economic contribution, I explore a hypothetical cost analysis of an elimination programme in country "A" with cost based scenario's and basic ROI's.

Return to Conclusion of thematic design

1.5.3.1. Economic contribution, Painting a basic conservative hypothetical picture.

Scenario: A national HCV 2030 elimination program in country "A" (Based on factual data). The program is supported by local NGO volunteers screening by questionnaire for indications of previous at-risk activity as pre-requisite for testing.

Developing country "A" has a **population of 241,500,000** with an **annual growth rate of 1.98%.** Life expectancy 66.10 years (*Population by **2030** 271,648,418*)

8% of the population have access to testing and full primary health care. **50% have no access** to basic primary health care. **42% have no access to health care**. (Saroop Ijaz, 2024). **Assumption:** Of the **50% with no access to basic health care** 50% can access hospital, GP or laboratory-based test services for HCV testing given the national upscale. (This is a poor assumption, however suitable for this broad example)

Current **global prevalence of HCV is 1.8%** (*low 1.4% general population to high 7.1% parts of Africa, study data from 70 countries with over 280,000 samples*). **85% will develop into asymptomatic chronic HCV infection**. (Salari et al., 2022)

Country "A" has; 4,347,000 HCV infected persons, 625,050 will present as acute HCV infections. Leaving **3,964,950 chronic HCV infections** (By *2030 **4,156,220***)

Country "A" is representative of many developing countries, effectively 92% of the population have no or limited access to health, and it is doubtful full diagnostic capability or capacity exists to establish clear baseline data, hence this **hypothetical scenario based on best available research and statistics**. Following the below summary of potential costs to diagnosis I will explore a summary of regained healthy years, again hypothesised based on available research. That research is predominately based on developed regions data; the only source available. **An important note on community driven initiatives is the data collection that can greatly aid with health resource placement, efficiency and impact.**

POCT diagnostic costs to meet 2030 elimination (Excluding hospital, GP, laboratory testing, and acute cases, all considered Business As Usual (BAU))

- **POCT RNA test** nominal value UDS$88.50 (Range USD$30 – 147)

- add 25% logistics, resources in consideration of vehicles, qualified staff, etc; per test cost of **USD$110.63** (2022 Korea study USD$147.33 (Jae Young Jang5, 2022))
- **National Program USD$20,135,151,197.20** whole of population **(USD$ 4,027,030,239.44** based on only testing those who qualify on pre-requisite, @ 20% of population)
  - 4154 RNA machines 24/7 for 1,825 days @30 minutes per test

- **POCT antibody test** nominal value USD$4.79 (Range USD$1.58 to 8)
  - add 10% logistics, resources, lesser cost; per test cost of **USD$5.30** (2022 Korea study USD$3.49 (Jae Young Jang5, 2022))
  - **National Program USD$1,505,617,834.73** whole of population **including RNA PCR tests** for antibody positives.
    (USD$733,919,009.13 if only testing those who qualify on pre-requisite, @ 20% of population, including RNA PCR for antibody positives.)
    - 2,770 testers 12/7 for 1,825 days @ 20 minutes per test.

Based on the Egypt program negotiated consumables and supply chain inclusive *(volume based)* **rates** (Waked et al., 2020) and **whole of population** testing. With *2019 to 2024 global Consumer Price Index (CPI) based average for inflation adjustment of 1.24 applied (total global average inflation 23.68%).*

- **POCT RNA** testing *@ USD$4.80 inflation adjusted* = 2024 USD$5.95
  - **USD$1,082,926,418.00**
- **POCT antibody** testing *@ USD$0.58 inflation adjusted* = 2024 USD$0.72
  - **USD$160,139,422.70** *including PCR RNA tests on positives @ USD$5.95*

Financial return on investment: A 2021 study (Lim et al., 2021) suited to this scenario suggests achieving a 2030 elimination target of 80% aligned to WHO goals will be **cost-saving by 2031 and having a net economic benefit of USD$6.54 to 11.99 billion by 2050**. Return On Investment (ROI) for the whole of population antibody POCT program (excluding treatment) presented in **this scenario could be in the range of USD$2.3 to 4.5 billion.**

Mortality within the ***4,156,220*** whom the test program **diagnosed by 2030:**

- Liver related deaths, 1,818,346 (436,403 of these exacerbated by alcohol abuse)
- Drug abuse and related morbidities related deaths, 881,119
- Leaving a hypothetical cohort of **3,218,993 individuals** whose early diagnosis will potentially **avert early death and illness** from HCV infection.

Healthy Years given back: Based on country "A" life expectancy of 66.10 years and accounting for HCV mortality rate estimates within the cohort diagnosed by this testing program (see below); 3,218,993 individuals could produce **32 – 64 million healthy years**.

Mortality data is variable and subjective. Drawn from (Neal, 2007) within a cohort of chronic HCV infected persons we could expect mortality **rates 300% higher than general** population. **41% will die from liver disease** & HCC (of that 41%, **24% will have chronic alcoholism**), **18% will die from drug** related issues, 28% unrelated medical causes, with the remaining suicide and other causes. Deaths from suicide and unrelated medical events in the

cohort were close to that expected in general population. A 2023 study (Hamill et al., 2023) based on mortality in 'interferon free' treatment individuals, is suggestive of comparable rates with **46.5% Liver related and 24.4% drug related deaths**. Average onset from suspected infection 12 – 20 years across all the studies I reviewed.

In an interesting dichotomy, that I fully agree with, a conclusion to a 2018 study (Innes et al., 2018) is very important when we look at any condition's mortality data; **"*At least half the excess mortality risk for individuals with CHC (Chronic Hepatitis C) in the US may be due to HRBs (Health Risk Behaviours) rather than CHC. The remedial response to hepatitis C must not neglect action on HRBs if it is to fully resolve the high mortality problem in this population*."** Targeted response can be invalidated if other societal influential factors and behaviours are allowed to continue.

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1.5.4. Health Literacy

Early iterations described health literacy as *"the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions."* (Nutbeam, 1986)

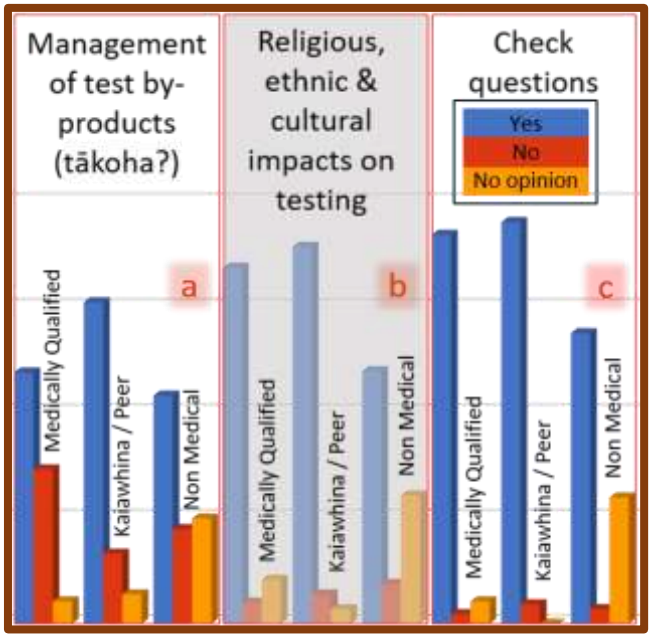
Following extensive research and the international recognition of the importance in application of health literacy beyond the individuals responsibility, the Office of Disease Prevention and Health Promotion drafted 2 new definitions, now endorsed and adopted globally; (OASH, 2020)

- **Personal health literacy** is the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others.
- **Organizational health literacy** is the degree to which organizations equitably enable individuals to find, understand, and use information and services to inform health-related decisions and actions for themselves and others.

Understanding the literal translation of these definitions into Phasing and Design Thinking is critical to successful development of a fit for purpose product that achieves intended outcomes reflecting thematic analysis derived from this research.

The critical component is understanding the knowledge pathways of information dissemination in practice prior to design. In particular *user and market research, user experience design, visual UI design* with a design thinking focus on *desirability* and *feasibility*.

My research analysis demonstrated notable difference in understanding and response that could be contributed to medical versus non-medical understanding; institutional or knowledge based versus emotive. Examples of this can be seen visually in the table to the right, where the questions impacted by medical ethics, regulation or legislation showed difference in informed or emotive response. An example is management of test by products, allowing family to take test samples when the wai ora has declined. Medical ethics and patient rights state we have to respect the patient's right to decline. Some cultural or emotive implications are that whanau or families wishes should be respected and, in some religious and cultural context, could override the wai ora opinion.



In understanding health literacy, in regards to design and the implications of design on all levels of organisational and individual practice, a level of education is required that protects the wai ora or those seeking health, the individuals conducting the testing, and all parties that have any level of involvement in the navigation of care, treatment and ongoing interactions. Whilst respecting culture custom and tradition where ever possible.

Simply teaching Point of Care Testing (POCT) may not be conducive to establishing a level of community practice that ensures safety while respecting individual rights, medical ethics and confidentiality factors.

Understanding and respecting health literacy may contribute to longevity in the generation of new levels of community practice and engagement, with potential for expansion into many aspects of community prevalent conditions and improved health access.

Trends show the **poorest** and **most excluded** populations share the **higher rates of disease**, those **least able to endure** the multifaceted cost of disease are those **most likely to endure** them. **Health literacy efforts can greatly reduce these inequities**.

[Return to Literature review summary and findings]

[Return to Consolidated thematic analysis]

[Return to System architecture]

1.5.5. Mental health and stigma

A recent publication Social Networks, Stigma, and Hepatitis C Care Among Women Who Inject Drugs: Findings from A Community Recruited Sample (Jones et al., 2023) explored social networks, stigma and care in a community sample of women who inject drugs. The studies result suggested complexities in the role of social networks and stigma on HCV care, with the studies cohort demonstrating higher uptakes in care when available within their respective social networks.

The former mentioned Jones et al study is important. Conceptualising hepatitis C stigma: A thematic synthesis of qualitative research (Harris et al., 2021) concluded the tendency for qualitative empirical research to focus on individuals risk behaviours as opposed to risk contexts and socio-structural change(s). We need to look to social process and how stigma is embedded into, and normalised, in institutional operating process.

I just never wanted them to feel uncomfortable' – Barriers to pharmacy-based identification and treatment of hepatitis C in Victoria, Canada (Selfridge et al., 2024) reviewed pharmacy-based community HCV testing innovation in Canada. In the conclusion the authors succinctly stated;

"*Increased training of pharmacy staff related to stigma around drug use and HCV is required both before and ongoing for successful integration of pharmacy-led HCV testing and treatment in Canada*".

This study also highlighted that *non-targeted testing, such as not questioning or establishing previous at-risk behaviors*, could contribute to normalizing testing and reducing stigmas around HCV and care. This would, in my opinion, greatly reduce stigma association with what can be perceived as socially unacceptable and criminalized behaviors.

For the purpose of my research, I wanted to explore the relationship of mental health issues amongst HCV prevalent populations with stigma and care. This research did help me develop an understanding that some important social aspects of stigma may not have had the level of research from that social aspect, with a lens across institutionalized contributions to those stigmas, that I sought. My research did reveal what I consider a possibly overlooked component of HCV recognition in view of the latent longevity and slow degrative progression of the condition. Mental health.

Return to Design - Micro-credential considerations summary

Neurological and psychiatric effects of hepatitis C virus infection (Faccioli et al., 2021) is a 2021 publication that had many significant findings regarding mental health aspects of HCV infection. Of particular note:

"*Up to 50% of patients with chronic HCV infection has neuropsychiatric symptoms, "brain fog", fatigue and impaired quality of life, regardless of the severity of liver disease. These alterations can interfere with daily activities and with the ability to maintain independence*.

While it is possible that psychiatric symptoms can contribute to cognitive decline in these patients, it appears unlikely that psychiatric symptoms alone can fully explain the cognitive deficits.

A more likely scenario is that both psychiatric symptoms and cognitive impairments are part of the neuropsychiatric syndrome found in patients with chronic HCV infection".

When we look at this finding it has several implications on community-based care initiatives and the implementation of such community-based innovations, these include

- Health literacy becomes very important in both carer and wai ora understandings, especially in view of potential cognitive and mental health issues with HCV.
- Perceived mental health issues may be indicators of HCV infection.
- Care pathways may be compounded by mental health issues with the addition of stigmas and social circumstance.
- Mental health is a complex issue in populations where other factors, such as long-term substance abuse, have created multiple co-morbidities and health problems.

In summary, and in my opinion; the limited available relevant research on stigma identified for this document's literature review is suggestive that "one-stop stay in place care" for HCV is beneficial. However limited research into social process around stigma was identified.

Training in stigma and mental health management is very much required for community-based HCV care innovations. Training in, and understanding, stigma and mental health is as important as general HCV training and understanding.

Normalization of HCV testing by non-targeted, nonjudgemental care pathways is of importance, however if or when these conversations arise the careers need the education and training to adequately listen and link to appropriate resource.

Return to Consolidated thematic analysis

Return to Conclusion of thematic design

1.5.6. Comparable current programs, and courses

1.5.6.1. A generalisation

At the time of authoring, I was unable to locate or identify any program or evidence of operationalisation of actions from strategy to scale that reflected the intended outcomes of my research and project proposal, with the exception of components of the Egyptian elimination program.

There is an international focus on finance and effort placement into research and screening programs based on RNA PCR type testing as a definitive means of testing, as discussed earlier in this document, with the caveats of expense, resource availability and qualifications required across most aspects of conduct. Where finance is viable, this is successful and preferred.

Could this have an association with current available 'statist' systems and structures? An example of "*we do what we do because that's how we have always done it*" Is setting this programming as the expected standard of delivery impacting on program implementation and delivery amongst some populations, even countries.

The global call for implementation of innovative practice creating equitable impact has started with the WHO Global hepatitis report 2024: action for access in low- and middle-income countries (WHO, 2024a)

1.5.6.2. Available courses

In Aotearoa our kaiawhina do have education pathways developed as formal pathways, see appendices 15, Kaiawhina Workforce Plan Summary(Ora, 2022). These pathways are based on existing formal New Zealand Qualifications Authority (NZQA) pathways to diploma and degree level qualification, with no options that could enable formal community-based HCV POCT practice without significant training in a specialist field such as nursing. Various ad-hoc informal trainings may be available at local community services, though I cannot find evidence to support this.

Many HCV specific courses are available online and in person, however at the time of writing I was **unable to identify any opportunity for non-regulated training in HCV POCT** and linking to care. Training is available for peer support; this training did not include clinical components aside from condition awareness and referral based on local resources.

An example of available training can be found at the International Network on Health and Hepatitis in Substance Users (INHSU) website. They offer fourteen (14) country specific bespoke online courses in HCV education, again these are targeted at, and are for, health professionals. The courses are developed by working groups and institutions from the country the respective courses are designed for.

1.5.6.3. The countries on track to WHO 2030 HCV elimination goals

The **World Health Organisation** (WHO) 2030 **HCV elimination targets** are: 90% diagnosed, 80% of the eligible population treated, 65% reduction in mortality, and 80% incidence reduction.

The Polaris Observatory, an initiative of the CDA Foundation is, in my opinion, the single most important source of truth for data and representation of global HCV elimination and modelling information. The foundation fund and are involved in projects spanning the globe.
The Coalition for Global Hepatitis Elimination, (CGHE or Globalhep) an initiative of The Task Force for Global Health, has further in depth information, including Polaris Observatory summaries and reports.
World Hepatitis Alliance are the source for hepatitis advocacy, campaigns and programs globally.
And off course World Health Organization (WHO) for regulation legislation guidelines and more.

Recent data, and presentations of that data to international conferences, suggests that **eleven (11) of the** one hundred and ninety-four (**194**) signatory **countries** to the WHO *Global Health Sector Strategy on Viral Hepatitis and elimination goals* (WHO, 2016) and subsequent publications, **are on track to 2030 elimination goals**. These countries are Australia, Canada, Denmark, Egypt, Finland, France, Georgia, Japan, Norway, Spain, and the United Kingdom.

An additional 24 countries are on track to reach their HCV targets between 2031 and 2050.

Country	Legatum Prosperity Index		Health system and HCV program
	Average	Health	
Denmark	84.55	81.07	Universal public health system paid largely from taxation in the same way as other Scandinavian countries, with local municipalities delivering health care services
HCV: In the absence of a national elimination strategy, a local action plan, the C-Free-South Project (Dröse et al., 2022) has been developed, aiming for regional WHO elimination targets by 2025.			

Country	Legatum Prosperity Index		Health system and HCV program
	Average	Health	
Norway	83.59	82.98	Universal public health system paid largely from taxation in the same way as other Scandinavian countries
HCV: With a one of the highest illicit drug use rates in Scandinavia, Norway has many innovative PWID initiatives and programs in place. However, no specific strategy. A recent study showing HCV prevalence decrease in 2021 of 14.2% from 26.3% in 2018 (Opheim et al., 2024). With 2023 goals not met new initiatives are being trailed with positive results, such as Peer support in small towns: A decentralized mobile Hepatitis C virus clinic for people who inject drugs (Midgard et al., 2022).			
Finland	83.47	81.19	Public medical services at clinics and hospitals are run by the municipalities (local government) and are funded 76% by taxation, 20% by patients through access charges, and 4% by others
Finland's hepatitis C strategy 2017–2019 (Social and health ministry, 2019) has guided successful national program(s) with some innovative work to accommodate remote communities and populations such as Expanding access to hepatitis C treatment by improving linkage to care: Establishing a cascade of care and active linkage program for the South Karelia region in Finland (Kemppinen et al., 2020)			
UK	79.95	78.31	National Health Service (NHS) that provides public healthcare to all UK permanent residents; originally designed to be free at the point of need and paid for from general taxation.
The United Kingdom has strategies including sub-national plans towards elimination. A summary can be found at the official UK Government Hepatitis C in England website. Many significant studies and trails leading to innovative implementations' have, and are, taking place.			

Country	Legatum Prosperity Index		Health system and HCV program
	Average	Health	
Canada	79.62	78.88	Social Union Framework Agreement that they are committed to health care that has "comprehensiveness, universality, portability, public administration and accessibility. Territory & provincial governments run their respective '*autonomous*' medical services to the principles of this agreement.
The Government of Canada's sexually transmitted and blood-borne infections (STBBI) action plan 2024-2030 (Canada, 2024)strategy, further supported by the Blueprint to inform hepatitis C elimination efforts in Canada (Canada, 2019) are the Canadian Federal elimination program guiding documents. Provinces and territories had responsibility for developing and implementing local plans. A report Progress toward viral hepatitis elimination in Canada 2023 (AHC, 2023) suggests 3 of 10 provinces are **not on track for 2030 elimination**, these include the most populous provinces. Canada has many world leading innovative and informing PWID, equity and health access studies and programs.			
Australia	79.38	80.23	Medicare (Government universal care for permanent residents and citizens) levy is 2% of taxable income, with a Medicare levy surcharge for those on high income who do not have appropriate private patient hospital cover. there is a separate Pharmaceutical Benefits Scheme.
Australia has recently released their 6th National Hepatitis C Strategy, 2023-2030 (DHAC, 2005) for consultation. Australia has Federal level guidance with consistent effective state programs and equitable approaches. The UNSW Kirby Institute and The Burnet Institute have developed world leading innovations, initiatives and programming towards successful elimination. However, a 2023 joint statement in the report Australia's progress towards hepatitis C elimination Annual Report 2023 (Burnet Institute and Kirby Institute, 2019) warned "*the goal to eliminate hepatitis C as a public health threat by 2030 is at risk following a sharp decline in testing and treatment*"			

Country	Legatum Prosperity Index		Health system and HCV program
	Average	Health	
Japan	78. 22	86.50	All residents required by law to have health insurance coverage. People without insurance from employers can participate in a national health insurance programme, administered by local governments. Patients are free to select physicians or facilities of their choice and cannot be denied coverage. Hospitals, by law, must be non-profit and managed by physicians.
The Japan Act No. 97 of December 4, 2009, *Basic Act on Hepatitis Control*, ensured equitable provision of HCV detection, treatment, and research with one of the world's only unrestricted free public access to DAA treatment. A 2021 study Epidemiology of viral hepatitis C: Road to elimination in Japan (Ko et al., 2021) summarises Japan's success. However; another 2021 study ((INES), 2021) suggests accelerated measures may be needed in view of declining testing rates to reach the benefits of 2030 elimination.			
France	76.73	80.46	Consistently ranked as one of the best in the world, health care is largely financed by government through a system of national health insurance with 70% of initial GP care covered and anywhere between 35% and 100% of prescription medication covered.
The French National Strategy on Sexual Health (2017-2030) (Ministère des affaires sociales et de la santé, 2017) and the National public health plan 2018 -2022 (France, 2018) are the foundation documents for the French HCV program(s). France ensured free widespread access to treatments from as early as 2016, and have many PWID, correctional inmate, and marginalised population initiatives. France is often highlighted as an example of universal access and direct treatment access for PWID.			
Spain	76.03	79.66	A universal health care system for all citizens, reputed as the most efficient health system in Europe, and ranking at the top worldwide along with Hong Kong, Japan and Singapore.
Spain published the strategy Estratégico para el Abordaje de la Hepatitis C en el Sistema Nacional de Salud (PEAHC) (Ministerio de sanidad igualdad y asuntos sociales, 2015) with updates in 2020, supported by strategic plans to address chronic hepatitis C.(Línea Estratégica, 2017). From 2015 Spain achieved the highest treatment rates in Europe based on highly equitable programs with unrestricted access to DAA treatment since 2017. This is across Spain's 17 autonomous communities or regions (J. V. Lazarus et al., 2021). As with other countries, a 2024 study (Calleja et al., 2024) suggests scaling up may be required to meet 2030 elimination.			

Country	Legatum Prosperity Index		Health system and HCV program
	Average	Health	
Georgia	62.28	70.64	Healthcare in Georgia is provided by a universal health care system under which the state funds medical treatment in a mainly privatized system of medical facilities. Georgia has not achieved universal healthcare
Through a CDC weekly update Georgia announced the launch of the then unprecedented Nationwide Hepatitis C Elimination Program (CDC, 2015) and the release of the Strategic plan for the elimination of hepatitis C virus in Georgia, 2016-2020 (MoLSHA et al., 2020). DAA treatment sponsorship was from Gilead Sciences, with support of an international technical advisory group. By 2021 serosurvey showed a 67% reduction in HCV infection since 2015 as a result of the program(s). The National Center for Disease Control and Public Health (NCDC) in Georgia has , in 2023, been designated as the WHO Collaborating Center on Viral Hepatitis Elimination.			
Egypt	48.57	60.55	Egypt has a pluralistic healthcare system, comprising public and private providers. The government ensures universal healthcare coverage.
H.E President Abdel Fattah El-Sisi is credited for the "*100 million Seha*" or "*100 million Healthy Life's*" program; **testing 60 million** people with over **4 million treatments**, taking Egypt from a **10% 2016** HCV prevalence to **≤1% in 2019**. Egypt continues with supply of 100 injection kits per PWID per year, diagnosis of ≥80% of people living with HCV through continued screening and sentinel surveillance for HCV sequelae including liver cancer. **Importantly, negotiations led to, inclusive of consumables, logistics and supply chain, antibody HCV POCT kit costs of USD$0.58c and RNA PCR test cost of USD$4.80** (Waked et al., 2020)**.** An extensive list of references and studies can be found at the CGHE website Egypt resource page. Egypt is the only country to be awarded **WHO "gold tier**" for meeting WHO 2030 elimination criteria.			

A quote from a 2021 study "*Eliminating hepatitis C from countries with high prevalence: When infrastructure comes first*" succinctly describes a key commonality in the success of the eleven (11) countries listed above, structure:

> *"All successful HCV elimination programmes need to involve the most relevant parties, including officials from the local government, health professionals and patient advocacies. The most important feature is to personalize admission to services based on patients' requirements in specific circumstances to break down obstacles and obtain higher diagnostic and treatment rates. To achieve such a goal, the availability of a well-established infrastructure of logistics and management systems is* crucial" (Esmat & El Kassas, 2021)

Structure, infrastructure, capability and capacity were evident in nine (9) of the countries health system structures prior to implementation of their respective elimination programs.

Of the remaining two (2) countries Georgia's implementation was greatly assisted by establishment from the international community as a global exemplar and the Egyptian program an essential response to inadvertent HCV infection transmission from unsafe injection practices associated with a national schistosomiasis control program from the 1950's to 1980's (WHO, 2023b).

Return to Literature review summary and findings

1.5.6.4. Stating the obvious? Decentralised or centralised

A 1990 WHO paper still referenced to this day Health System Decentralization states "…. *have warned that unfortunate tendencies to discuss 'centralization' and 'decentralization' as if they were two clearly defined, completely contrasting and therefore alternative states of existence [do] not merely over-simplify the issues but can actually hinder or distort both descriptive and prescriptive analysis"*. (Mills et al., 1990)

In the 1980's the world had health decentralization reforms adopted in many countries following the Declaration of Alma-Ata on primary health care (World Health Organization (WHO), 1978). These reforms were largely triggered as response for centrally governed health systems to address limitations of reach into underserved communities in low and middle-income countries, often coinciding with other decentralization initiative implementation to stimulate economic growth and strengthen civil society. The overall intended effect included equity in population health outcomes, health system efficiency and health system resilience, including how community engagement influenced these effects (Abimbola et al., 2019).

Decentralization as a term has historically been 'loosely' applied. Many instances of reporting on decentralization as an activity may have been misleading in that the activity was often more of a localised experimentation that, when successful, would be adopted at a national level as a centralised practice (scaling up). While decentralisation has benefits, there are also negative effects. This is often related to financial and geo-political matters leading to inequitable regional disparities resulting in inequality of healthcare (Jiménez-Rubio, 2022).

A 2023 study reviewing pandemic response from a centralised health system perspective found that decentralization of decision making in emergencies may have some benefits in urgent equitable response, however centralised public health systems facilitate more rapidly initiated and co-ordinated response overall. This is subjective and relative to the integration of health care provision into public health. It also noted that longstanding and outstanding health policy challenges from decentralization change impeded local response in some regions (Smith et al., 2023).

From my personal perspective from COVID response, consulting within a decentralized entity under centralized national directive enabled by the National Emergency Management act, and as National Program Manager implementing strategy for HCV elimination; I felt localised modelling was often relatively simple with decentralized finance and decision-making abilities. Integration and coordination at national level was often difficult due to regional disparities and variations of proprietary data management systems, methodologies and organisational structures: the localities legacies of decentralization. In reality, most of what we view as healthcare decentralization is deconcentrating or delegation of fiscal and administrative responsibilities, under centralized directives, strategy, policy and legislation. Health support service tends to be privatised with occasional partnerships also under centralized directives, strategy, policy and legislation. Return to Conclusion of thematic design

1.5.6.5. Scalability

"*Scalability is not solely about expanding operations; it requires a robust foundation of processes that can adapt and evolve with the growing demands of the business. Implementing scalable processes involves streamlining workflows, optimising resource allocation, and adopting technologies that facilitate automation. By establishing a scalable infrastructure, you ensure that the business can efficiently handle increased workloads without compromising quality or efficiency*" (Brown, 2024).

Stand out lessons identified in the WHO publication Practical guidance for scaling up health service innovations include needs for institutional building tasks backed by **sustainable policy** and **program development** around frameworks highlighting **interrelationships**, central elements and **strategic choices** relative to the **scaling up** (WHO, 2009b).

Decentralized, centralized and hybrid program development, implementation, scaling and maintenance all require good governance, co-ordination and service integration. The convenience (or inconvenience) of '*modelling*' and '*ownership*' labels should not become the excuse in the event of compromise of product or service delivery.

Return to Conclusion of thematic design

1.5.7. Impact of Covid

1.5.7.1. Overview of the global pandemic

WHO declared a '*public health emergency of international concern (**PHEIC**)*' on the **11th March 2020** following global pandemic resulting from an initial reporting of clusters of pneumonia of unknown aetiology in Wuhan, China, on the 31st December 2019. This contagion was **identified by the 05th January 2020** as a single-stranded envelope positive-sense contagion named the 'novel SARS CoV-2 virus, **COVID-19** (Onyeaka et al., 2021). **WHO ended the PHEIC on the 05th May 2023**.

COVID-19: **CO** *stands for corona,* **VI** *for virus,* **D** *disease,* **19** *for the year identified*.

SARS-CoV-2: *(severe acute respiratory syndrome coronavirus 2); a natural extension of taxonomic relationship to founding of this species from the beta-coronavirus genus.*

As of 30th April 2024; **7,045,569 deaths** have been attributed to **COVID-19,** (Mathieu et al., 2024) at a **global economic cost** variation of **USD$283 billion to USD$1.9 trillion for 2020** alone (McKibbin & Fernando, 2023). From 2020 to 2023 COVID-19 related **healthcare expenditure** globally was estimated at **85.91%,** that's 9.13% of GDP (Faramarzi et al., 2024) .

In terms of deaths, the **COVID-19** Pandemic was the **fifth (5th) largest in history**.

1.5.7.2. Comparable examples of deaths from endemic conditions

For the same **1,511-day** reporting **period** of **7,045,796** COVID-19 **deaths;**

- **5,288,500 Hepatitis deaths** would have occurred
  - 4,389,455 Hepatitis B, *most avoidable with birth vaccinations*
  - 899,045 Hepatitis C, *most avoidable with elimination programs*
- **4,967,671 Tuberculosis deaths** would have occurred
  - *Vaccine preventable and treatable*
- **2,608,027 HIV deaths** would have occurred, *manageable with detection*

Ironic, the paradox of an officially ended pandemic, yet we live within global endemics, or could we state *epidemic* at a micro level for some populations.

- **Endemic:** *constant presence in the community, relatively contained and not stressing healthcare infrastructure or resources.*
- **Epidemic:** *spreading out of control however contained to a local population.*
- **Pandemic:** *spreading out of control, stressing healthcare infrastructure and resources with large scale disruption, economic loss and general widespread hardship.*

1.5.7.3. Estimates of pandemic impact on HCV

Modelling suggests that the **delays to HCV programs** from healthcare resource allocation to COVID-19; could result in an **additional 49,300 liver cancers and 79,400 deaths from HCV globally by 2030**. The study was based on a one-year hiatus from elimination programs. Most missed treatments would be in low-income countries, and excess liver cancer and liver related deaths among high-income countries. (Blach et al., 2021)

The European Association for the Study of the Liver (EASL) collected data by **survey between January 2019** and **December 2020** from **32 European** and **12 non-European centres**. Results showed **decreases** of 39% and 50% for new **HCV consultations**, 49% and 49% **for new referrals**, 11% and 38% for **HCV RNA detection** and 51% and 54% for **new HCV treatments** across European and non-European centres respectively.

To quote from the EASL survey report conclusion: "*These data **reaffirm the pandemic's major effect on global viral hepatitis elimination** programs and suggest that actions to achieve the WHO 2030 **targets should be reconsidered and revised** to account for each country's progress relative to pre-pandemic values*" (Kondili et al., 2022).

Return to Consolidated thematic analysis

1.5.8. Emergent Disruptive Technologies (EDT) and Associated Technologies

1.5.8.1. Medical Device(s)

General classification for RNA PCR type testing

In New Zealand medical devices are classified and defined under the Medicines Act 1981 (Medicines Act 1981, 1981).

In brief, PCR RNA testing devices are classified as medical devices. Internationally the definitions of medical device vary, as a generalisation these variations include statements to the effect that '*any device having a direct impact on therapeutic concerns or definitive diagnostic ability that dictates therapy or prognosis resulting from use'* places that device in a regulated classification. In the case of PCR testing this classification may be derived from software and hardware involvement.

These classes of device require conformity assessments to demonstrate they meet legal requirements and to ensure they are safe and perform as intended. In some instances, manufacturers will, in the interest of commercial reputational risk management and ongoing quality assurance, make 'recommendations' on user qualification and operation standards as a conditional of sale.

1.5.8.2. In Vitro Diagnostic Medical Device(s) (IVD)

General classification for HCV antibody RDT / POCT testing

In New Zealand IVD's were declared an exempt class of medical device for the purposes of the Medicines (Database of Medical Devices) Regulations. (Exemption Medical Devices Notice, 2003)

IVD's are a class of medical device. In vitro literally means 'in glass', and the diagnostic test component relating to testing of body samples outside of the body for diagnostic reasons. In the case of HCV antibody testing, also called Rapid Diagnostic Test (RDT), the test kit consists of a single use disposable test cassette, reagent and samples.

WHO recognised the need to international standards and have conducted their own conformity testing on available devices. Six (6) test kits meet requirements for listing on the WHO procurement data base , with the first *approved* test available in 2016. (WHO, 2023a).

Both **Medical Devices** and **In Vitro Medical Diagnostic Devices** are rapidly advancing with reductions in test time and cost. Current research and development in the field of multi test units capable of conducting several condition diagnoses from single sample testing is advanced and a near future possibility.

Return to Consolidated thematic analysis

1.5.8.3. Internet of Things (IoT)

Oxford Dictionary credit D.L Brock from a 1999 MIT Auto-ID White paper with the IoT term, then Bruce Sterling from a 2007 design journal entry(Oxford, 2015). Smart devices, device to device communication networks and many other terms have been discussed from possibly 1982 in the concept relating to what we now understand as IoT.

1.5.8.3.1 The apparent IoT correction

In September **1985 Peter Lewis** made a speech to the Congressional Black Caucus Foundation 15th annual legislative weekend in Washington DC. To quote from his speech;

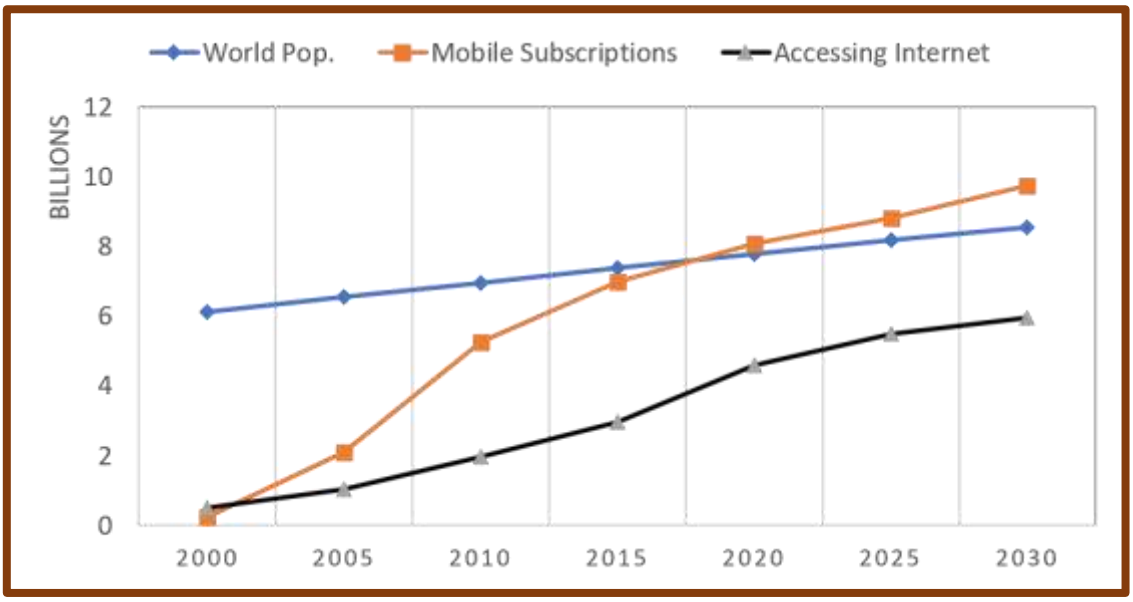
"***The Internet of Things, or IoT, is the integration of people, processes and technology with connectable devices and sensors to enable remote monitoring, status, manipulation and evaluation of trends of such devices****. When all these technologies and voluminous amounts of Things are interfaced together — namely, devices/machines, supervisory controllers, cellular and the Internet, there is nothing we cannot connect to and communicate with. What I am calling the Internet of Things will be far reaching*". (Sharma, 2015)

In a Cisco white paper The Internet of Things How the Next Evolution of the Internet Is Changing Everything the author estimates IoT was born to reality between 2008 and 2009 and to quote "*simply the point in time when more 'things or objects' were connected to the Internet than people*". (Evans, 2011)

Return to Literature review summary and findings

Return to Consolidated thematic analysis Delivery – summary of solution concepts for delivery development

1.5.8.3.2. World population, internet access and subscriptions



The above table, *World population, internet access and subscriptions;* reflects the world population, global internet access and mobile service subscriptions from 2000 to 2024 with an estimated projection to 2030 of (Statista, 2024).

The subscriptions are suggestive of multiple devices per population, and an exponential increase in subscriptions that is higher than access or population. In view of advances in technology improving our online presence and capabilities, with the significant increase in rates 2005 to 2010, this may demonstrate our time of global entry into Internet of Things to some degree.

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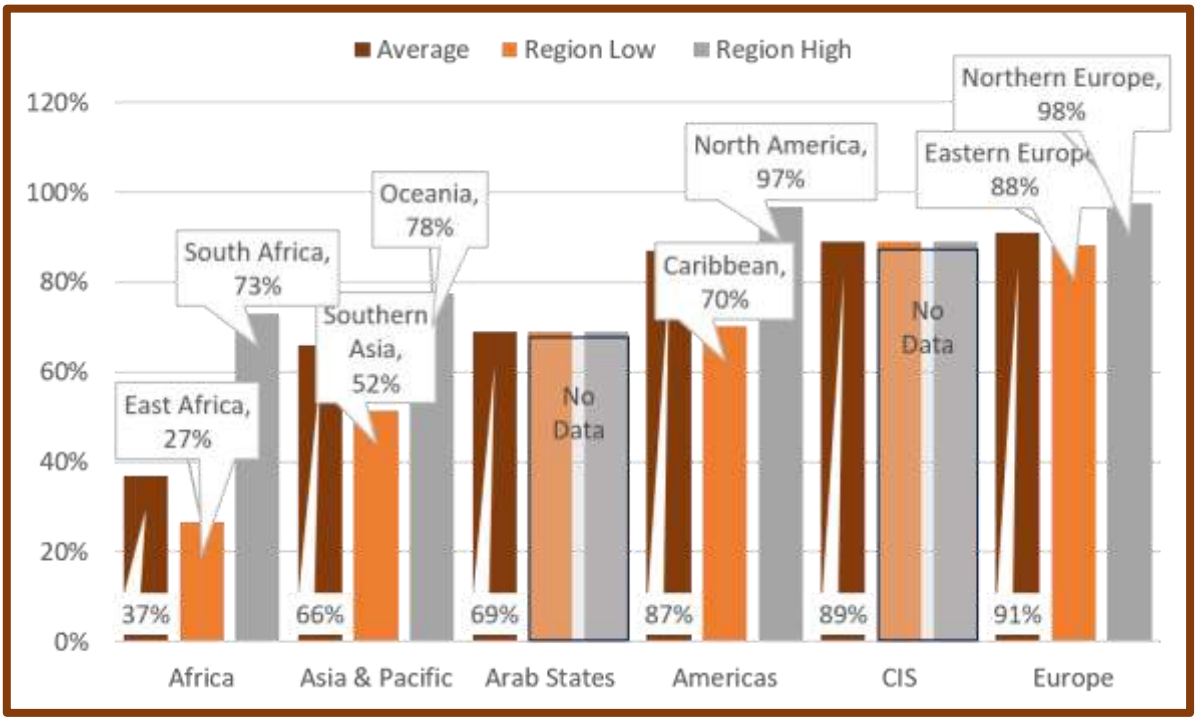
1.5.8.3.3. Global internet penetration 2023, by population users



It is my opinion that this representation of global internet penetration is subjective in the absence and understanding of data evidencing geopolitical matters (such as conflict, natural disaster with regional impact, political instability), regional socioeconomical status, indigenous migration, availability of technology and solutions, literacy / education and other factors.

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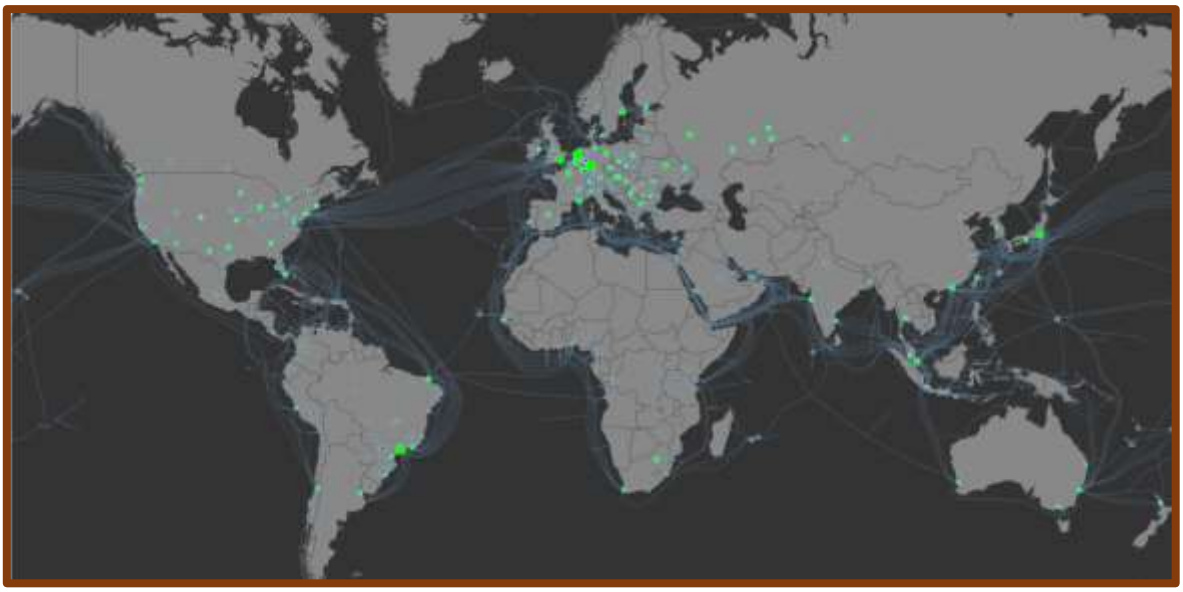
1.5.8.3.4. IoT infrastructure

IoT is reliant on an infrastructure, supported by other '*transport*' mediums such as mobile broadband and data access, satellite means, and in some locations 1990's HF transmission technologies.



The above map (Sudorandom, 2024) shows the *'hard-wired'* core infrastructure of submarine and land cables with advertised internet exchanges. Understanding this is important when understanding IoT stability, security and internet freedom.

Return to Literature review summary and findings

1.5.8.3.5. IoT global security

Limited regional connectivity equates to ease of restriction and control. In 2024 Freedom House scored Nagorno-Karabakh at -3 of 100 following Azerbaijani blockades and assaults (admittedly this caused an almost entire population departure). China ranked at 9 of 100 with internet and content restrictions amongst other factors, Afghanistan scored 6. Finland has the least restricted access with a score of 100. New Zealand scores 99 along with Sweden. (Freedom, 2024)

Note: *I was not able to establish the effect of satellite connectivity and VPN use on or against restriction and control.*

Decline of internet freedom, restrictions, and shutdowns occur largely as a political response to demonstrations, conflict and control of information (civil liberty control).

In 2022 the economic impact of **restrictions equated to USD$23.79 billion globally**. The highest loss from **shutdowns** was seen in Russia, affecting **113 million people** for seven thousand (7000) hours costing **USD$21.59 billion**. **Myanmar** placed the most extended **restriction lasting 17,520 hours in total**. (Petrosyan, 2023)

In **2023 76 new restrictions** on internet usage occurred globally. Asia had the highest at 55 followed by 17 in Africa (Petrosyan, 2024a). Restrictions globally lasting long and migrating to another year **increased from 27 in 2020** to **40 in 2023** (Petrosyan, 2024b).

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1.5.8.3.6. IoT, the future?

Healthcare is seeing the **emergence of new terminology**, Healthcare Internet of Things (**H-IoT**), Internet of Health Things (**IoHT**), and Internet of Medical Things (**IoMT**).

All these terminologies refer to **proficient technological, social and economic aspects of patient centred smart object and IoT health development**. These developments negate many traditional and historical healthcare approaches of calling and visiting doctors' clinics, the necessity for time and place 'in healthcare facility' monitoring, and lack of real time solutions in view of the **paradigms of historical healthcare infrastructure** and smart technologies. Telemedicine, real time monitoring, and remote consultations have been widely adopted evidence of this vital change. (Ketu & Mishra, 2021)

Development is accelerating with IoT and healthcare for innovative solutions **to augment patient care** and **optimize healthcare** results, realise potential of remote monitoring and generative **AI assisted predictive analytics**, leveraging **data for informed strategic planning** and more. **Securing and ensuring user and data privacy** for the extensive adoption potential of IoT and emergent smart technologies may need further **legislative action(s) and policy framework(s) developed**. This is of importance with the emergence of **AI** and machine based **deep-learning**, **digital-twin** modelling, novel security and access measures based on **blockchain, edge-computing, and cloud-based system applications**. We may also need to review the potential application of **AI in healthcare settings**, research has not provided in depth analysis of **limitations and ethical implications** at this time. (Kumar et al., 2023)

Forbes predict the IoT healthcare market will grow to a valuation of USD$289 billion by 2028 (Marr, 2024).

Return to Consolidated thematic analysis

Return to Conclusion of thematic design

1.5.8.3.7. IoT vulnerability overview

For interest, in a 2019 healthcare industry survey by security software company Irdeto, eight **(8) out of ten (10) healthcare organisations** surveyed experienced **an IoT focused cyberattack** in the year previous. **30% of these attacks compromised end user safety**. Top ranking concerns of the survey respondents from USA, China, Germany, Japan and the United Kingdom were data (39%), patient safety (20%) and stolen intellectual property (12%). **IoT device vulnerabilities** were reported points of entry **in 42% of attacks**. (Landi, 2019)

An unpublished estimate from the University of Minnesota School of Public Health states ransomware attacks alone led to the deaths of 42 to 67 U.S. Medicare patients between 2016 and 2017 (Jahic, 2024) .

A 2024 World Economic Forum article provided an overview of USA health cyber-attacks from January 2020 to February 2021. 293 reported breaches or attacks **exposed 106 million records** (equivalent of 1 in 3 Americans having health records breached). The healthcare industry reporting an average **cost per data breach incident of USD$10.3 million**. (WEF, 2024)

To quote, from a commercial industry perspective; "*The sector has been rapidly adopting digital technologies such as electronic health records (EHRs), telemedicine and Internet of Things (IoT) devices. While these technologies bring numerous benefits, they also expand the attack surface, providing more entry points for cybercriminals". "Protecting these digital assets is essential to maintaining the confidentiality, integrity and availability of patient information*." (WEF, 2024)

Note: *It is estimated as little as 20% of health cyberattacks are reported*.

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1.5.8.3.8. IoT, technology and PWID

Results from a 2022 California survey of **PWID mobile technology ownership** and use found **77% of those surveyed owned a mobile phone** with 67% of those owners having free mobile and data access. Over 80% of all surveyed understood and accessed the internet. The survey did find over 55% changed mobiles on average 3 monthly. Of the cohort not owning or accessing mobile technologies homelessness and sharing of needles was a of a higher incidence. Mobile phone owners were more likely to have injected methamphetamine within the last 3 months. (Ozga et al., 2022).

A succinct and **brief conclusion** from a 2016 study **encompasses general findings of the limited studies** in PWID technology access and use very nicely; "*… indicating that **rapid uptake of mHealth interventions may be possible in this population**. However, low ownership and use of mobile technology among **older and/or homeless individuals will need to be considered** when implementing mHealth interventions **among PWID***" (Collins et al., 2016).

And from a more recent **2023** report from the European Centre for Disease Control and Prevention (ECDC) and the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). "*However, **people who inject drugs** often have **very limited access to technology** and may have **low technological literacy**, so technology-based interventions need to be implemented with care in this population*" (ECDC-EMCDDA, 2023).

Return to Literature review summary and findings

Return to Delivery methodology Return to System architecture

My **primary context** in this section **is IoT in relation to HCV** screening and linking to care within **PWID** populations. The following two quotes do provide an interesting, though relevant, distraction from my main theme;

> "*The **digital revolution has transformed the selling and buying of illicit substances**, upending how the market is policed and regulated*" (Tzanetakis & South, 2023), and

> "*…dark web **crypto** markets, **social media** applications … and **surface web** platforms … that are **changing the drug supply landscape** online … **technology in drug supply** has tended to go hand in hand with **improving the efficiency of supply** and opportunities to **reduce exchange-related risks** for both buyers and sellers*" (Coomber et al., 2023).

In my opinion, while this may seem to apply to higher levels of illicit operations, the **efficiencies** and **productivity improvements** identified here have **some impacts** such as increased levels of **availability** and **distribution into the populations** where we **need to achieve effective testing and harm reduction(s)**

1.5.9. Theme derivation from analytical summary of EDT

To reiterate, alignment of this project outcome expectations against action points from the WHO *Global hepatitis report 2024* (Recent Hepatitis C strategy release reports) generates valid themes for EDT and IoT design considerations;

This Health Network Collective project, **will expand testing** (Action 1. Testing, expansion) **with implementation** (Action 2. Treatment, shift from policy to implementation**) as a decentralised model** (Action 4. Service delivery, decentralized public health approach) **encouraging local productivity** (Action 5. Local production). **This will generate data** (Action 8. Data for action**) from community engagement** (Action 9. Community engagement) **with this innovation laying the foundation for expansion to other community prevalent conditions** (Action 10. Innovation).

To realise this project: **IoT**, **EDT** and **associated technologies** will require a **robust framework** to support education **resource**, in **confidence data** and **data sharing**, meeting **international data and security standards**. The solution(s) will need to be widely and freely **available** and **accessible**, with **adaptability** to incorporate other conditions 'navigation of care' and **IoT development**.

Return to Secondary research, literary review and desktop analysis Return to Literature review summary and findings Return to Consolidated thematic response(s) Return to Consolidated analysis and themes

1.6. Literature review summary and findings

Health literacy is broadly defined by the World Health Organisation as "***the ability of individuals to gain access to, understand and use information in ways which promote and maintain good health for themselves, their families and their communities***"; and that "***health literacy not be framed as the sole responsibility of individuals, but that equal attention be given to ensure that governments and health systems present clear, accurate, appropriate and accessible information for diverse audiences***". (WHO, n.d.-e)

In view of the definition of **health literacy**, apparent **emotive contexts in survey response** from non-medical and kaiawhina respondents (as evidenced in Research summary & consolidated response(s)): secondary research and literature review (appendices 1.5) is supportive of both primary research findings and this project concept.

Further secondary research supporting this research is evidence in local initiatives towards elimination targeting remote and difficult to access populations as discussed in appendices 1.5.6.3, '*The countries on track to 2030 HCV elimination goals'*, and appendices 1.5.2.2 '*A community study for treat in place*'.

Thematic analysis of secondary research is incorporated into Consolidated thematic analysis and Conclusion of thematic design.

1.7. EDT, impacts and changes, in summary

The Internet of Things is well embedded and a part of our society (appendices 1.5.8.3.1) '*The apparent IoT correction*' with exponential increase in connectivity and devices exceeding global population (appendices 1.5.8.3.2) '*World population, internet access and subscriptions'*.

Whilst global internet access is currently around 66% by population, (unreferenced sources estimate 85% of the world's surface has internet availability), global penetration has regional variances (appendices 1.5.8.3.3.) *'Global internet penetration by population users'* with suggestion of high rates of technology ownership and availability within PWID (77%) (appendices 1.5.8.3.8.) '*IoT, technology and PWID'*.

Current global '*IoT infrastructure*' (appendices 1.5.8.3.4.) has some contribution to ease of localised control of internet freedom with IoT device vulnerabilities expanding digital attack surface(s) (appendices 1.5.8.3.5.) '*IoT global security'*. Protecting these assets and maintaining confidentiality, integrity and availability of people in care information may need further research regarding the limitations and ethical implications of IoT in healthcare settings (appendices 1.5.8.3.7.) '*IoT vulnerability overview'*.

1.8. Consolidated analysis and themes

Theme derivations from the main question (appendices 1.3.7), respective sub-questions (appendices 1.4) and analytical summary of EDT (appendices 1.5.9) have been analysed to form three (3) consolidated themes: design, delivery and development complimenting the consolidated analytical response.

1.8.1. Consolidated analytical response

By leveraging of EDT and associated technologies *to* ***formalise qualification*** *and provide a* ***systemised supported framework*** *for facilitating* ***HCV care navigation*** *by* ***kaiawhina and peers****; we can* ***contribute to financial, health and community benefits*** *with* ***improved destigmatised health care access*** *and* ***lessened burdens on existing health systems***

1.8.2 Consolidated thematic analysis

Themes derived from consolidated research will further support development of Minimum Viable Product through thematic design, as indicated in '*Phasing and Design Thinking'* (appendices 9). This will also contribute to realisation of the project '*SMART goal statement'* (appendices 10).

Develop self-managed equitable solution(s) for patient centred, decentralised, management of navigation of (HCV) care: within a **systemised framework** built on **neutrality** and **universal principles** that can **assimilate into users' mode of life**.

The Global hepatitis report 2024: action for access in low- and middle-income countries referenced in the section 'Recent Hepatitis C strategy release and reports' (appendices 1.5.1) has several action points encouraging implementation of HCV elimination service delivery through public health modelling with innovation with community engagement. '*A community study for treat in place*' (appendices 1.5.2.2.) demonstrated benefits of navigation of care by community for community. An assumption that can be made, on an evidenced basis as indicated throughout secondary research, is that resourcing for community care by community will need to be based on neutrality and universal principles that do not have religious, political, gender or implications that could be viewed as bias. This will ensure smoother transitions in assimilation into users' environment and community.

The delivery system will need **widely and freely available accessibility** with a **clear, simple, transparent** and **moderated** user tiered access; ensuring '***Single source of truth***' accessibility to **core information** and **community resource**, based on research of **training needs** and analysis of identified best **practice,** integrated **and** applied using **Health Literacy** principles.

'*Health Literacy'* (appendices 1.5.4.), discussed earlier in this document, has a key statement in both *personal* and *organisational* definitions of relevance;
"*The degree to which -*

- *individuals have the ability to find… (personal definition),*
- *organisations equitably enable individuals to find… (organisational definition),*

understand, and use information and services to inform health-related decisions and actions for themselves and others".
This suggests any solutions need to be easily and freely accessible, in a language and presentation that is comprehensible at all levels and encourages contiguous understanding and conversation at all levels. This will entail 'single source of truth' and alignment to current best practice. In our '*Mental health and stigma*' (appendices 1.5.5.) discussion '*non-targeted*' HCV management has been evidenced to improving accessibility, whilst reasonable depth of knowledge of stigma and associated factors is of importance. The '*Impact of COVID'*

(appendices 1.5.7.) demonstrated a negative effect on HCV elimination efforts, suggesting as part of accessibility, a resilience lens is cast over any solutions to ensure continuity of access regardless of other environmental factors.

IoT and associated technologies will need to be **robust** and meet international **data and security standards** with **technology horizon scanning** ensuring equitable **durability** and **longevity** of the product for **future development** opportunity(s).

'*Emergent Disruptive Technologies (EDT) and Associated Technologies*' (appendices 1.5.8.) discussed In Vitro Devices (IVD), such as that used in HCV POCT); and how review suggests a global legislative and regulatory environment supporting assurance in selection, use and possibly logistics of supply of HCV POCT test kits. This innovative associated technology has forecasts of new product capabilities and integrations in development.

In understanding '*Internet of Things (IoT)*' (appendices 1.5.8.3.): review suggested the distribution, availability and use of IoT (and associated devices and technologies) is at an improving global level supporting viability of the proposed solution(s), and generating worthwhile benefits.

From findings in '*IoT vulnerability overview*' (appendices 1.5.8.3.7.), and supporting IoT development review in '*IoT, the future?*' (appendices 1.5.8.3.6.), this project will require system framework design that meets or exceeds international standards, and is adaptable to EDT and IoT developments. With safe secure data sharing capabilities.

Literature review summary and findings Design - Navigation to care pathways; Micro-credential

Design - Navigation to care pathways; Micro-credential

1.8.3 Conclusion of thematic design

Recent research and consistent **2024 policy** and **strategic statement** releases from global lead organisations evidenced in this document, are suggestive the **thematic analysis** derived from **this research** is of current relevance to **adequately inform project development** to enable **intended outcomes** with a **market ready product** and **solution**(s) meeting emerging **global need**.

I am structuring my Minimum Viable Product (MVP) based on the themes developed with this research and subsequent analysis, **clear thematic analysis** has emerged to inform further **development of EDT** for **systemised structured inclusion** of our informally qualified, (and other non-regulated), testers into **established systems** and **emerging initiatives**.

In consideration of this reports response to the main research question; "***By leveraging of EDT and associated technologies*** *to* ***formalise qualification*** *and provide a* ***systemised supported framework*** *for facilitating* ***HCV care navigation*** *by* ***kaiawhina and peers****; we can* ***contribute to financial, health and community benefits*** *with* ***improved destigmatised health care access*** *and* ***lessened burdens on existing health systems*** "

Design and **development** of a **robust systemised framework MVP** solution for self-managed, equitable**,** patient centred, decentralised, management of navigation of (HCV) care will need to follow critical thematic informing. Of particular note, as discussed in '*Stating the obvious, decentralized or centralized*' (appendices 1.5.6.4.) and '*Scalability*' (appendices 1.5.6.5.), with further reference to *'IoT, the future?*' (appendices 1.5.8.3.6.) ; Health Internet of Things is in early development with emergent innovation's and international improvements of understanding around AI, medical ethics and patient rights. System design will need to meet international **data and security standards**; have **durability** and **longevity** for **future development** opportunity(s) with **scalability** for deployment as a **decentralized** practice.

Building on **neutrality** and **universal principles** that can **assimilate into users' mode of life** will assist with stigma and mental health aspects as discussed in '*Mental health and stigma'* (appendices 1.5.5.)**.**

The delivery system and content will need **widely and freely available accessibility** with a **clear, simple, transparent** and **moderated** user tiered access; ensuring '***Single source of truth***' accessibility to **core information** and **community resource**, based on research of **training needs** and analysis of identified best **practice,** integrated **and** applied using '*Health literacy*' (appendices 1.5.5.) principles.

A hypothetical example of financial implications, costs, benefits of developing strategy and implementing elimination programming based on current data can be viewed at *'Financial synopsis of 2030 HCV elimination*' (appendices 1.5.3.) with conceptual design at 'System framework'.

Literature review summary and findings Consolidated analytical response Consolidated thematic response(s)

1.9. Summary and contribution to development

1.9.1. Overview

With an overview of my thematic analysis and research, global opinion and discussion is supportive and encouraging of this project decentralized community-based initiative towards hepatitis C elimination. This project meets and aligns with the majority of strategic directions and actions points raised in the WHO 2024 report (Recent Hepatitis C strategy release and reports) with further validation as discussed throughout Summary and contribution to development. Analysis of assumptions made in the research proposal are available at appendices 1.2, *Pre-survey assumptions with analysis outcomes*.

1.9.2. Community focus

Our vulnerable and marginalised populations, in particular our PWID populations, have a community focus of sorts. Albeit an inward facing focus, however there is a focus. A community study for treat in place, Health Literacy and Mental health and stigma all evidenced or referenced benefits of navigation of care by friendly faces from familiar places and the importance of care for community by community in actively promoting wai ora to seek health. These populations are generally localised groups of like-minded persons often cared for by those with lived experience or some form of symbiotic relationship. In the project initial research proposal, I made a statement;

"Kua roa rawa matou ki te korero ki nga tangata koinei te mea e hiahia ana koe, kaua e patai me pehea e awhina ai koe".
*"We have spent too long telling people this is what you need, instead of asking how can we help you***."**

And a colleague succinctly stated;

"*In a nutshell – finding people who are infected is REALLY DIFFICULT!!?"*

For structured efficient care of community by community we need implementation and operationalization of actions with provision of supported frameworks. Community knows their communities, and by asking '*how can we help you'* many of the '*really difficult to find'* persons may become wai ora seeking health, and helping themselves.

Contribution to equity and indigenous populations Delivery & Development – supporting solution...

1.9.3. Barriers and hurdles

As further discussed in Risk and Mitigation, some of our '*statist*' medical community appear to have hesitation in the face of innovation and development that is '*outside*' of their professional community. Colleagues from my former professional health contract roles who had strong engagement as stakeholders with this project initial research proposal, have slowly (and in some cases immediately) withdrawn their respective involvement in this research and development. One professor did cite concern at the current political and organizational status of health in Aotearoa as reasoning for their hesitation in involvement, in particular with what they viewed as a sensitive matter in New Zealand; implementation of non-regulated workforce in clinical capacities. Their direct concern was in lessons not learned and continued from COVID response and community mobilization, and apparent institutional hesitancy in continued engagement with this population. This '*fear of unknown and new territory'* experience was also visible with seeking national health assistance in my research survey. The health research department requested significant quantities of compliance related documentation, when this was presented, they responded with Health were not involved in community level health initiatives. Following highlighting of the ministerial signed strategy action points of community engagement it was suggested my research was a health communications task. Communications said "*no, its research*". This convoluted circle of 'passing the buck' continued; in my opinion (and a driver in my departing health to complete this masters) evidencing institutionalized organizational hesitancy and fear of change, (or fear of the organization). This is after all, in theory, a predominantly centrally serviced scalable environment with few practical examples of decentralized service delivery. In my opinion, in Aotearoa, even privatized and partnership-based health service delivery is still based on a centralized service delivery model.

1.9.4. Longevity, attrition and bridging the gaps, scaling up

Longevity of programming such as proposed with the outcomes of this project, is improved with understanding and application of modelling principles we discussed at Stating the obvious… and Scalability earlier in this document. Longevity will also be impacted by the relationships and systems put in place with implementation of such a program.

Capability to innovate and adapt incorporating other community beneficial training and outputs will need consideration with development modelling, with support of embedded strategy, policy, developed system frameworks and integration into existing networks.

As discussed earlier in The impact of COVID, and supported elsewhere in this document, longevity through pandemic or other significant events requires resilient establishment and structures to ensure continuity in service and achieving expected outcomes.

1.9.5. Single source of truth

The Polaris Observatory, an initiative of the CDA Foundation is, in my opinion, the single most important source of truth for data and representation of global HCV elimination and modelling information. The foundation fund and are involved in projects spanning the globe.

The Coalition for Global Hepatitis Elimination, (CGHE or Globalhep) an initiative of The Task Force for Global Health, has further in depth information, including Polaris Observatory summaries and reports.

World Hepatitis Alliance are the source for hepatitis advocacy, campaigns and programs globally.

And World Health Organization (WHO) for regulation legislation guidelines and more.

This project, MVP's and solutions intends to **explore AI** and **EDT** emergent technologies for **innovative dynamic updating** of research, references and resources, **complimented by ongoing review**.

The **project design** will reflect **brand and resource consolidation management** elements, **single source of truth** extending from training materials, ensuring **continuity** of **information** and **messaging**. Health Literacy.

2. SWOT Business Analysis

Return to Challenges, a project management review

Analysis Goals

~~Determine if intended research & development has a place in the market.~~

Generate stakeholder buy-in and intent for implementation of product

strengths

Consumer Oriented:

- Enabling community engagement
- Opportunity for increased access to healthcare and links to care

Business Oriented:

- Supplementing existing systems & structures whilst lessening burdens on often overburdened under-resourced systems
- Working towards current World Health Organisation international goals

S

weaknesses

Infrastructure in Infancy:

- There will be substantial growth pains
- 'New' product, although based on existing strategies internationally

Lack of "in-house" technical expertise:

- Reliant on 3rd party advice and expertise with a predominately technical project.

Management:

- Social media strategy placement and networking

W

opportunities O

Master's program:

- Masters level research supporting development and planning

Developing for the future:

- An opportunity to reach a worldwide audience
- We can create new digital real-world product lines and set up for future growth and evolution
- Significant sources of international funding available for such initiatives

T threats

Security:

- Data sovereignty and management may require local level system(s).

Crime and Harassment:

- Difficult to enforce in a digital space, coupled with remote user positioning and possible nefarious use

Micro-Credentials:

- Acceptance of credential-based qualification by current statist community

Client / Consumer buy in:

- Reluctance or refusal to buy-in

Evaluation and Next Steps

- Continue research, & development based on analytical response and thematic informing
- Formalise partner and contracted services for supply of expertise
- Develop social media strategies
- Develop networks and networking
- Develop marketing opportunities and methodologies

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linking to care

3. SWOT Personal Analysis
4. Return to Challenges, a project management review

Analysis Goals

Determine my personal attributes suited to project managing development of this research and project.

strengths

Consumer Oriented:

- Personable & communicative
- Professional presentations and interactions
- Honest & genuine

Business Oriented:

- Strategy & startups
- Stakeholder engagement
- Training & development
- Aware of self-limitations, and when to ask for help

S

weaknesses

Consumer Oriented:

- Limited personal relationships with key stakeholders
- Limited working knowledge of respective fields of expertise at detailed level

Business Oriented:

- Project management past startup
- Finance and budget management
- Too much sympathy and not enough business-based decision making

W

opportunities O

Consumer Oriented:

- Through stakeholder engagement develop improved understanding of their respective fields of expertise
- Expand networks

Business Oriented:

- Develop personal business skills with project & Masters
- Increase personal growth knowledge and development
- Generate preferred lifestyle and income with this project realisation

T threats

Consumer Oriented:

- Language barriers (technical and spoken) with international market place
- No current medical qualifications certifications or authority to practice
- Stakeholder buy-in and my ability to sell

Business Oriented:

- Limited scope & time for considered stakeholder engagement commitments
- My own impatience, and myself
- Funding application & sourcing success

Evaluation and Next Steps

- Continue with current stakeholder engagement and develop engagement(s) formally
- Concentration on technical and funding relationships through organisations, governing bodies, and high-level groups with wide memberships.
- Continue Masters research as part of project development
- Learn to control my impatience... consider personal development / mentor

5. PESTEL Analysis Detailed

Note: This PESTEL analysis is based on a global perspective. Review and adaptation to local or national context prior to application will be undertaken without exception.

P

POLITICAL	
Regulations and Government Oversight	• Are they fit for purpose applicable to product • Financial implications of oversight regulations / legislation
Legal Issues	• Potential restrictions on application of product nationally
Legislative Changes	• Are they required and is the process realistically achievable
Government Subsidies, Incentives and Budgets	• Are subsidies obtainable, incentive packages accessible • Are Government budgets accessible
International Relations and Funding	• If international relations exist, do they influence local policy • Is the nation recipient of global organisation funding
Trading and Embargo Policies	• If embargoed, are local options available and obtainable

E

ECONOMIC	
Business Cycles	• Do political & business cycles impact funding or activities
Exchange Rates	• If unstable, the impact on logistics and purchasing
Economic Growth	• If positive-improved local health, negative- declining
Stability of Financial Markets	• Potential impact on social support and community
Employment Rates	• Lower rates, possible higher levels of at-risk behaviour
Unemployment Trend	• Socio economic impacts- levels of at-risk behaviour

S

SOCIAL	
Demographics	• Population Size – concentrated or spread • Age Distribution and accessibility • Religion(s) –religion and beliefs towards health practice • Racial Equality – social perceptions of assistance to race(s) • Minorities – Social perceptions of assistance to minorities
Education	• Level of community education to enable product use • Medical standards (hospital reuse of needles, transfusion)
Income Distribution	• Possible indicator of at-risk or prevalent communities
Lifestyle Trends	• Acceptable social behaviours, drug use and risk activities
Culture and Ethical	• Impact of culture on local “ethics” of testing &treatments
Attitudes Towards Western Health Practice	• Accepted? (Example: some interpretations of Sharia Law) • Is it merged into tradition practice, accommodating such

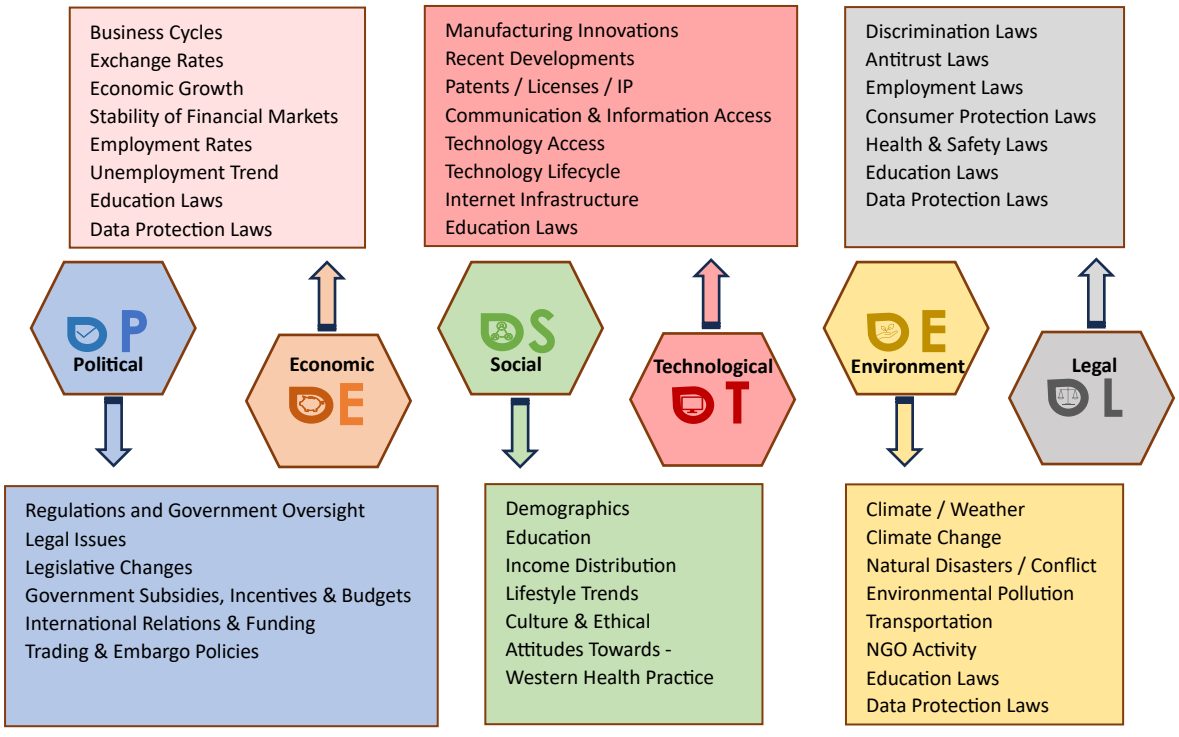
T

TECHNOLOGICAL	
Manufacturing Innovations	• Emergent technologies for in vitro & point of care testing
Recent Developments	• Medical, pharmaceutical, communications and technology
Patents / Licenses / IP	• Are they applicable & enforceable, do they matter
Communication and Information Access	• Level of accessibility and coverage of accessibility • Impacted by socio economic or lifestyle choice situations
Technology Access	• Ownership level of technology, specifically smart tech • Family, group and individual access to technology
Technology Lifecycle	• Climate & environmental effects on lifecycle • Are updates and replacements realistic • Local, national programs for distribution and enablement
Internet Infrastructure	• Quality, reliability, coverage, accessibility

ENVIRONMENTAL	
Climate / Weather	• Impacts on accessibility, communications, technology
Climate Change	• If changes, impacts and timeframes
Natural Disasters / Conflict	• Population migration, contingency for such • Accessibility, notably transport and link to care
Environmental Pollution	• Impacts on exposure risk
Transportation	• Realistic to support access to care and links to care
NGO activity	• Support or potential hinderance

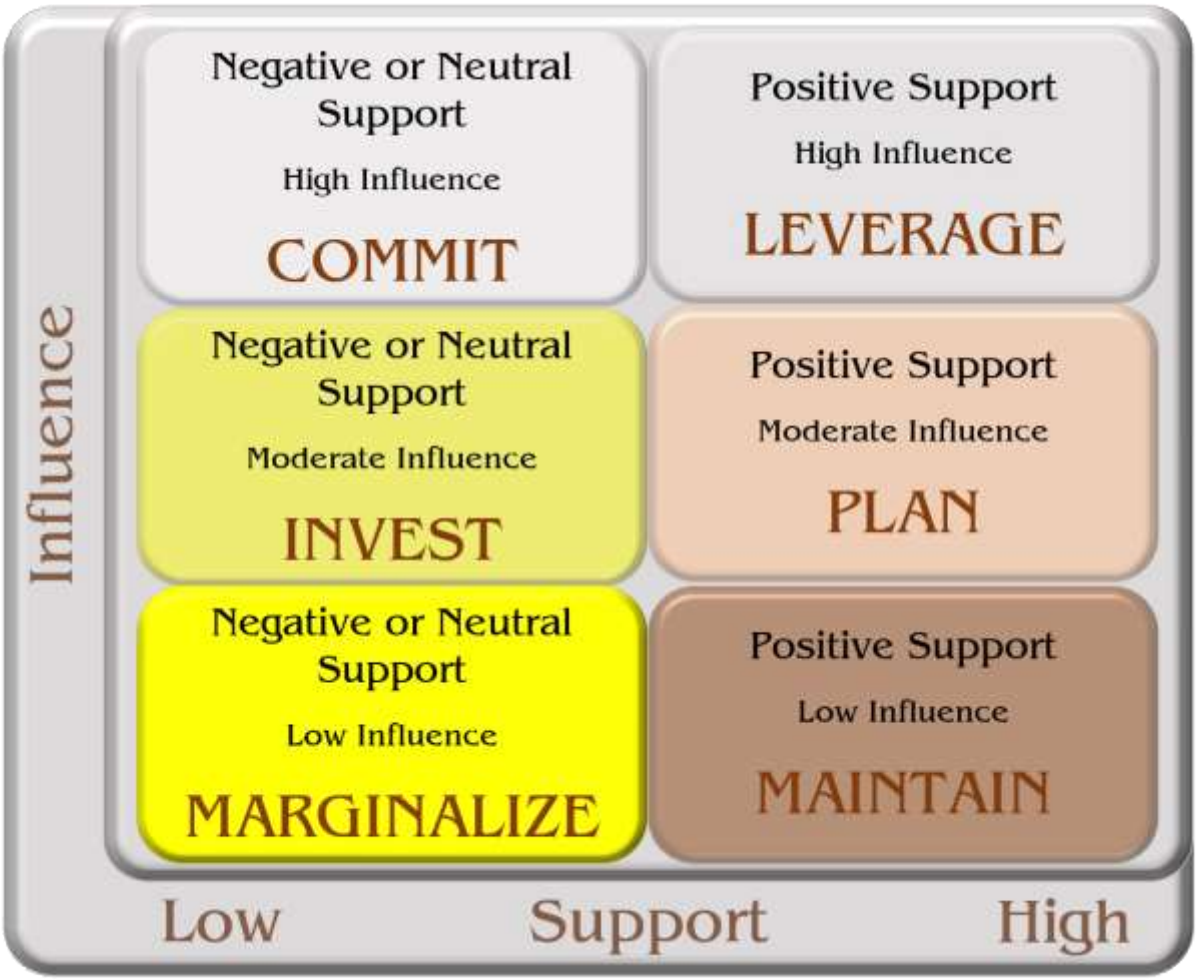
LEGAL	
Discrimination Laws	• Impacts on access to cares and links to care
Antitrust Laws	• Impacts on viability of product deployment and use
Employment Laws	• Local or national volunteers' status and laws • Employees or incentivised volunteers
Consumer Protection Laws	• Application to testers and persons in care or need of care
Health & Safety Laws	• Feasible to be adequate from micro-credential training and global HNC policy?
Education Laws	• Recognition / adaptation of credential locally / nationally.
Data Protection Laws	• Global HNC policy or local / national requirements? • Duration of application / approval to non-GDPR standards

6. PESTEL Analysis Simplified



Return to Challenges, a project management review

7. Stakeholder Mapping

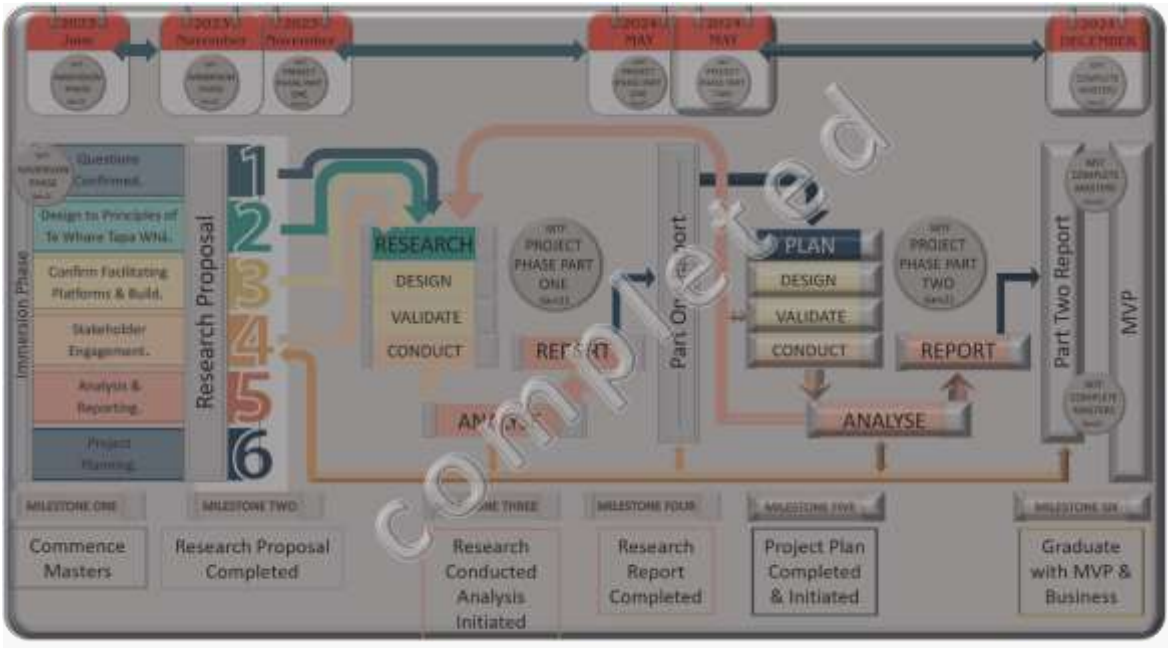


Return to Risk and mitigation

8. Stakeholder Ethics Worksheet

Individuals and groups	Are they …		Are Māori or other cultures a focus of your project? (State group)	Is the project of interest to Māori or another culture (State group)	Are you informed enough about this group?	Will you consult with these groups early in your project (how)	What is your relationship with them?			Are there professional processes in place to work with this group?	Will you need to get informed consent from this group?	How will you recruit participant? (If relevant)	What data will be collected	Nature of risk	Risk analysis		Do you have a mitigation strategy?
Stakeholders	Participant?	Vulnerable?					Power ?	Familiar ?	Independent?				Personal, Professional, Health, Retrospective	Physical Reputational Emotional Spiritual/ Cultural Professional	Likelihood Low Med High	Impact Low Med High	
Gavin Hooper-Newton	Owner	✗	✓	✓	✓	✓	✓			✓	✓	Recruited	Personal Professional	Professional	Low	Low	✗
Subject matter experts	Clinical Research	✗	Māori PWID (People who inject drugs)	Aotearoa population	✓	✓ 2 & 3		✓		✗	✓	Completed Proposal	Professional Health	Professional Reputational	Low	Low	✗
Health Providers	Consumer	✓	Māori Pacific	All populations	✓✗	✗ 1,2,3,4 appendices 13			✓	✓	✓	Marketing F2F	Professional	Professional Reputational	Low	Med	✓
Funders	Funders	✓	Māori Pacific Global	Māori Pacific Global	✗	✓ 1,2,3,4			✓	✓	✓	Proposal F2F	Professional	Professional Reputational	Low	High	✓✗
AcademyEX	Lecturers & Advisors	✗			✓	✓	✓			✓	✓	Recruited	Professional & Personal	Nil	Low	Low	✗
Kaiawhina / Peers	Testers	✓	Māori Pacific. All populations	Māori Pacific. All populations	✓	✓ 1,2,3,4 appendices 13		✓			✓		Professional, health & personal				
Wai ora	Wai ora	✓	All populations	All populations		1,2,3,4 appendices 13			✓		✓		Health				

9. Timeline



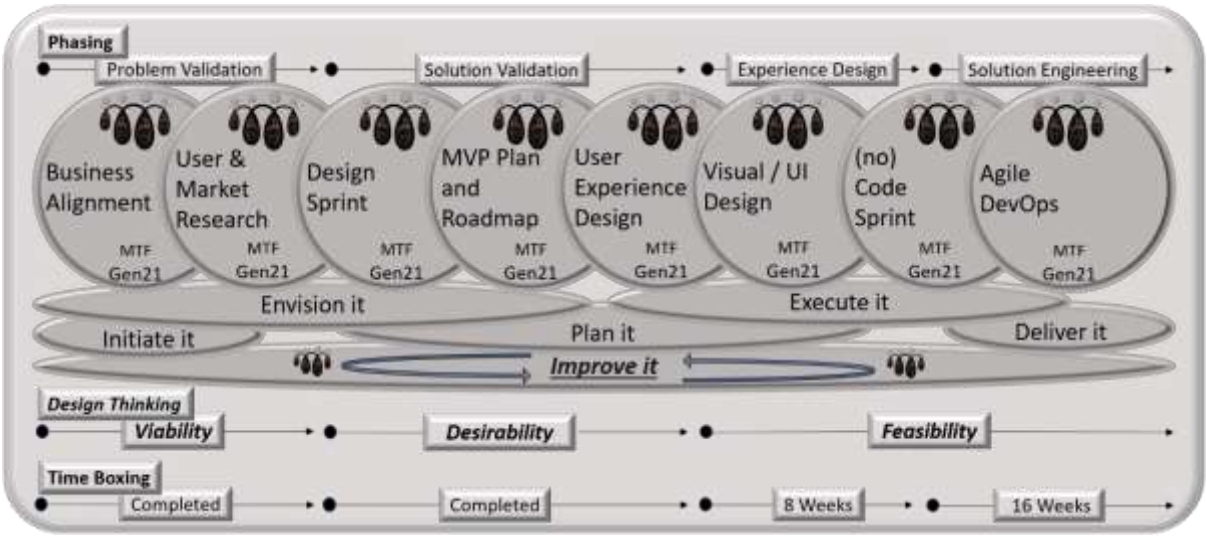
Return to Project plan and timeline

Return to Success of the project and plan

Return to Delivery – summary of MVP concepts for delivery development

Delivery – summary of MVP concepts for delivery development

10. Phasing and design thinking



Return to Consolidated thematic analysis

Return to Project plan and timeline

Return to Consolidated thematic response(s) Delivery – summary of solution concepts...

11. SMART Goal Statement

SMART Goal Statement

Designing a **Solution** for an identified **Market Problem** that is in search of a **Product** *(specific)* **Scalable** to **Global Application** *(measurable)* for community **Hepatitis C Testing** & **Linking to Care** *(attainable)* contributing to **Global Hepatitis Elimination** goals *(relevant)* of **2030** *(time bound)*.

Return to Consolidated thematic analysis Return to Consolidated thematic response(s)

12. Decision Matrix

13. Risk Matrix

Likelihood	Consequences				
	1. Insignificant Risk easily mitigated	2. Minor Delays up to 10%	3. Moderate Delays up to 30%	4. Major Delays up to 50%	5. Catastrophic Project abandonment
5. Certain More than 90% chance	High	High	Extreme	Extreme	Extreme
4. Likely 50% - 90% chance	Moderate	High	High	Extreme	Extreme
3. Moderate 10% - 50% chance	Low	Moderate	High	Extreme	Extreme
2. Unlikely 03% - 10% chance	Low	Low	Moderate	High	Extreme
1. Rare Less than 03% chance	Low	Low	Moderate	High	High

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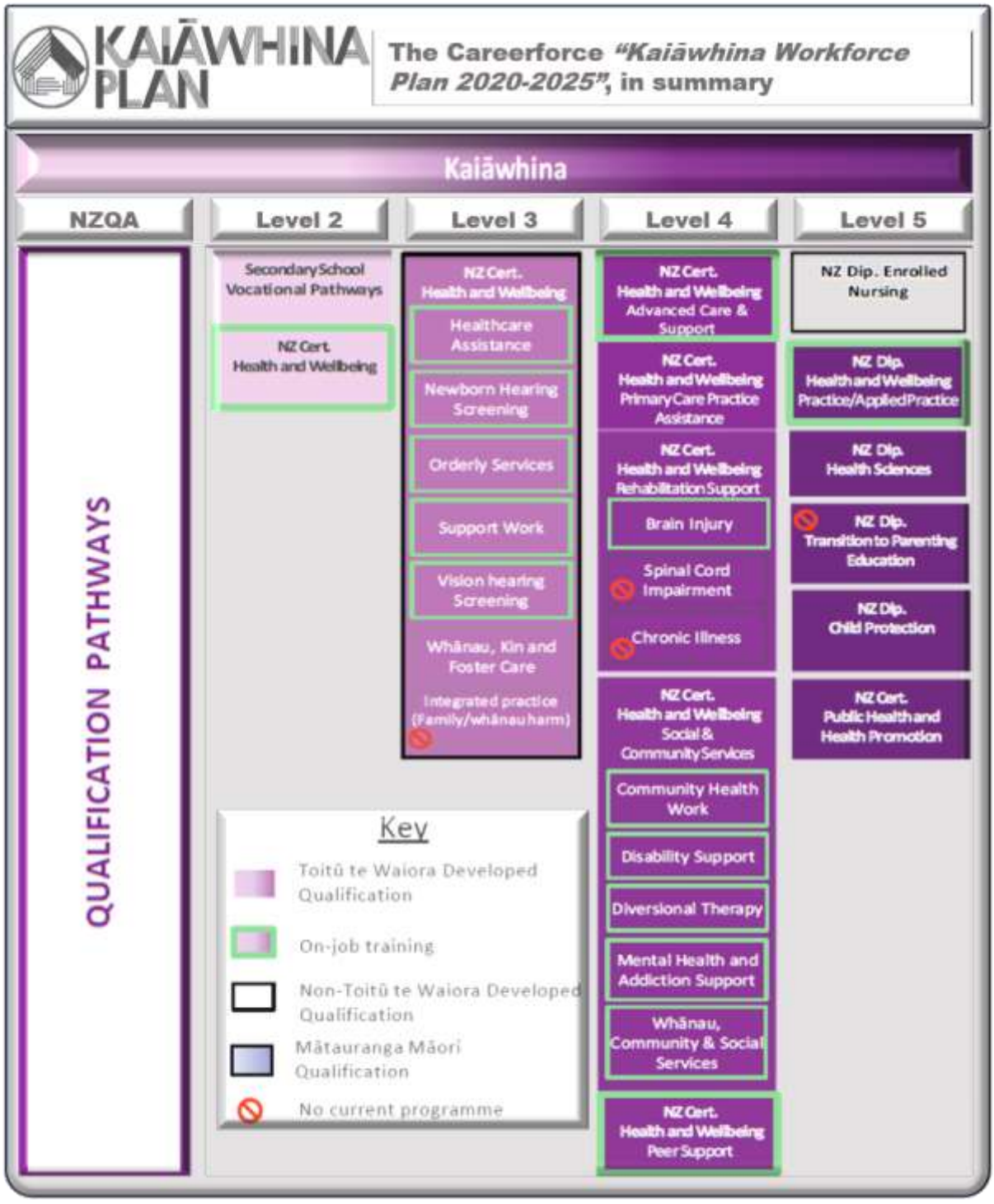
14. Risk Register

Risk Register						
Risk Description	Impact Description	Likelihood Level	Consequence Level	Priority Level	Mitigation Notes	Owner
Project purpose and need is not well-defined	Impact on stakeholder confidence	1	4	High	Complete business case & charter	PM
Project design and deliverable definition is incomplete	Impact on stakeholder confidence	2	4	High	Complete business case & charter	PM
Project schedule is not clearly defined or understood	Potential to go out of scope, delays and overspend	1	3	Moderate	Review schedules with stakeholders	PM
No control over stakeholder priorities	Potential to go out of scope, delays and overspend	1	3	Moderate	Business case and project plans complete	PM
Stakeholder perceived professional risk in engaging	Impact on research and potential for bias	1	3	Moderate	Early informed engagement & planning	PM
Global acceptance, perception or interpretation of Kaupapa Māori principles	Impact on research & stakeholder engagement	1	2	Low	Opportunity to educate and further normalise	PM
Identification of and engagement with kaiawhina / peers often working informally within relatively unsupported structures.	Impact on research and potential for bias	1	2	Low	Network, Early informed engagement & planning	PM

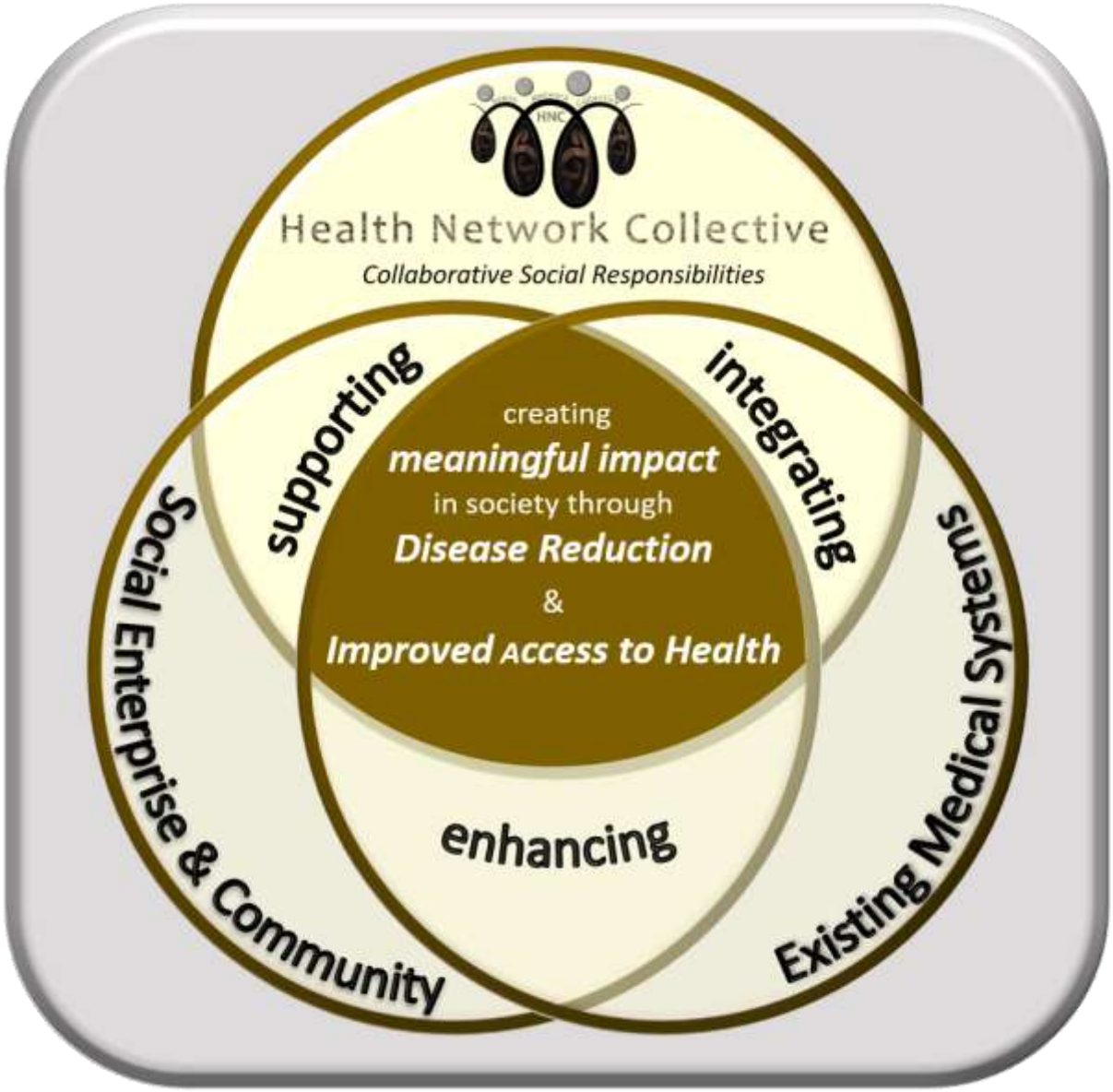
15. In scope out of scope

Return to Project plan and timeline

16. Kaiawhina Workforce Plan Summary



17. Social Responsibility



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18. Finance, 2024 – 2025 development budget

BUDGET OVERVIEW	BUDGET	ACTUAL	UNDER/OVER
EXPENSES	*fields populate automatically*		
ADMIN/GENERAL	$ 73,300.00	$ 3,960.00	$ (69,340.00)
LOCATION/OFFICE	$ 7,060.00	$ 7,060.00	$ -
MARKETING	$ 14,300.00	$ 700.00	$ (13,600.00)
STAFF	$ 93,200.00	$ 53,200.00	$ (40,000.00)
OTHER	$ 17,000.00	$ -	$ (17,000.00)
	$ 204,860.00	$ 64,920.00	
FUNDING	*fields populate automatically*		
INVESTORS	$ 64,920.00	$ 64,920.00	$ (40,000.00)
LOANS	$ -	$ -	$ -
ADDITIONAL FUNDING	$ 14,000.00	$ 14,000.00	$ -
	$ 78,920.00	$ 78,920.00	
FUNDING - EXPENSES	**$ (125,940.00)**	**$ 14,000.00**	**$ 139,940.00**

Return to Financial summary

19. Summary of AcademyEx learning agreement – Option B G Hooper-Newton

3. Final Part 2 report will include evidence-based design, validation, and conduct of project planning to enable a community focused MVP in the form of learning management system micro-credential materials and incorporating EDT and associated technologies.

4. Final Part 2 MVP micro-credential construct and delivery framework and associated plans.

Return to Project phase; part two outcome and final report.

Return to Success of the project and plan

20. Summary of ethics form for project research part one (approved)

Applicant name: Gavin Hooper-Newton
Student ID: 147585444
Programme and Cohort: Masters of Technological Futures, Gen21
Supervisor/Advisor name: Kriv Naicker
APPROVAL STATUS
Master of Technological Futures Assessment and Moderation Panel 22/11/2023
Escalation to; Research, Enterprise and Ethics Working Group
Date approved; from 22/11/2023 to 22/11/2024
Approval number; MTF.8888.190; Amendments noted by REE group 22/11/2023

Full copy of ethics application and approval documentation available on request.

Return to Project phase; part two outcome and final report.

21. Research participant disclosure and agreement

Health Network Collective; Research information and consent form

Democratising access to healthcare through Point of Care Testing

Name and contact details; Gavin Hooper-Newton
Advisor's name and contact details; Kriv Naicker
Programme Lead's name and contact details; Fiona Pond

Introduction

My name is Gavin Hooper-Newton. I am currently enrolled in the Masters in Technological Futures degree at AcademyEX and seek your help in meeting the requirements of the project component of my project democratising access to healthcare through Point of Care Testing.

Brief overview of the project

A project enabling our whanau, kaiawhina (peers) and non-regulated workforce improved contribution to global access to health.
Micro-credentialing with a systemized approach to global implementation; for marginalised, low socio-economic, ethnic and general populations supplementing existing health structures and systems.
The aim of my project is the successful implementation of the proposed improved handover would contribute to financial benefits, accessibility, and viability of widespread general population testing towards global 2030 elimination goals.

What is involved in participating in this research (What this means for you)

Participation in this research is voluntary.
You have been selected for one of the below reasons;

a. You are representative of the kaiawhina / peer community and the project outcome benefits this research will contribute to realising.
b. You have been identified as a stakeholder who could be impacted by this project's outcomes, as described in the aims of this project above.
c. Your organisation has approved your participation, as your organisation, and that you meet either a or b above for participation. Noting your individual participation is still voluntary.

I would like you to participate in an online survey taking approximately 10 to 15 minutes, when convenient to you.
The only personal information collected will be your email in accordance with the data collected section below.
On completion of the survey, you will have an option for your results to be emailed to you, in the format surveyed.
This research is, at the date of signing this document, self-funded.

Data Collected

Your name and any information that may identify you will be kept completely confidential. All information collected from you will be stored on a password protected file and only you, myself and my advisor will have access to this information. Neither you nor your organisation will be identified in any of my project outputs unless I receive permission from you beforehand. The results of the research activity will not be seen by any other person in your organisation without the prior agreement of everyone involved.
Anonymised data will be collated and visible online at the following web address.
https://hoopernewton.com/hnc-health-network-collective-main/resources/analysis/

Definitions:

Confidential means that the data is kept safe with research team
Anonymised means that any reported data cannot be connected to an individual

If you agree to participate, you or your parent/guardian will be asked to sign the consent form before. This does not stop you from changing your mind if you wish to withdraw from the project. You can contact this independent email Gavin@HooperNewton.com if you have any questions, concerns or wish to withdraw. This will have no

impact on you and I still very much appreciate your help. -However, because of our schedule, we ask that you withdraw before 01st April 2024.

I hope that you find this invitation to be of interest. If you have any queries about this project, you may contact me or my advisor (at the contact details above).

By participating in the *online survey,* you are giving consent for me to use the data obtained during *online survey.*

I will take every reasonable action to ensure that neither you nor your organisation (if applicable) will be identified in any report, publication or other output of this research project. This includes avoiding attributing any idiosyncratic comments that would obviously expose your identity. I note however that I cannot completely exclude the risk that participants may be identifiable to those who know them by their views. The results of the research activity will not be seen by any other person in your organisation without the prior agreement of everyone involved. You are free to ask me not to use any of the information you have given, and you can, if you wish, ask to see the relevant sections of the report before it is submitted for assessment.

Please contact us if you need more information about the project. At any time if you have any concerns about the research project you can contact the Programme Lead for the Masters in Technological Futures programme, my advisor or myself.

Ethics approval Number: *MTF.8888.190*

This study has been approved by AcademyEX Research, Enterprise and Ethics (REE) Working Group from (date) to (date). If you have any complaints or reservations about the ethical conduct of this research, you may contact the REE through (*Yuka Gray email*). *Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.*

If you are happy to participate in this research, please sign the attached consent form.

Research Consent Form

Project Title: *Democratising access to healthcare through Point of Care Testing*
Researcher: Gavin Hooper-Newton

By signing this form, or in this instance by completing the online survey, you confirm your agreement with the following:

I have been given the option to access and read the Information Sheet, have understood the nature of the research project and why I have been selected. I have had the opportunity to ask questions and have had them answered to my satisfaction.

[*Amend/Delete where relevant*]

- I agree to take part in this research and confirm that I have been given assurance that participation is entirely voluntary.
- I understand that I am free to withdraw my participation at any time, and withdraw any traceable data up until a specified time

Name:

Signature: Date:

Return to Project phase; part two outcome and final report.

22. Micro-credential

Return to Navigation to care pathways, design considerations

Point of Care Testing (POCT) course content

Preface

This course has been prepared based on Masters of Technological Futures (MTF) research and analysis conducted by Gavin Hooper-Newton and utilised for charitable purpose by Health Network Collective. The resulting thematic analysis informed design and content of this course and the course lessons.

The course is primarily for markets who may not have conducted online self-paced learning previously, and is structured; -

- With lesson-by-lesson gradual increase in content, duration and required learning content. As a self-paced online course.
- Follows (where-ever possible) Explain, Demonstrate, Imitate, Practice (EDIP) principles. Health Network Collective has also included a 'Teach Back' element with available course material design facilitating community orientated display and education. Education may be via direct conversation or incidental through visual media display.
- Through links to further information in the lesson content, opportunity for extended self-learning and understanding where students have an interest.
- All content is adapted from peer reviewed published articles and or reliable international lead organisations.

Licensing

Health Network Collective
linking to care

Introduction statement(s)

Health Network Collective is a project to bring formalised skills and a supportive systemised approach for our non-regulated workforce in navigating pathways to cure in our community.

The Course brings the ability to complete online training to enable, through use of the Health Network Collective application and Point of Care (POCT) antibody testing, screening of those in need, linking to treatment and navigation to possible cure.

This course offers training combining online theory with real world practical application, for Hepatitis C (HCV) Point of Care Testing (POCT).

This course must be completed in entirety, with 80% overall pass of the quizzes to certify, and to enable full access to the mobile application (app). App access is automated on qualification of this course with your notification via the app messaging and email. Subject to local availability of Health Network Collective services in accordance with requesting government, or local organization, and supervising approvals where required or appropriate.

Course Information & Key Features; Target Audience

Course information

Duration	50 Hours.
Format	Online, self-paced learning.
Block Content	Content blocked on course completion.
Repurchase Options	Not applicable, free course. Note - Course Retakes below.
Level of Study	Beginner.
Course retakes	Two complete retakes, initial attempt must be completed.
Resit previous section	No revisit previous section. No update previous quiz answer.
Featured Review	*Providing opportunity to enable equitable access to HCV testing and links to treatment.*
Data Storage	Hostinger server USA based, GPDR, CCPA, New Zealand Privacy Legislation compliant. Cookie Policy, Privacy Policy, Terms and Conditions available at HealthNetworkCollective.com (Hooper-Newton, 2024b)

Key features

- Personal Safety
- Personal conduct and etiquette
- Basic Hygiene
- Culture and understanding
- Medical Ethics and Patient Consent
- What is a virus
- Hepatitis C (HCV)
- HCV Modes of Transmission
- HCV Rapid Diagnostic Test (RDT) Point of Care Testing (POCT)
- Some level of involvement in your community
- Preferred alignment with a community organisation
- Willing to undertake a test yourself, as a self-test to qualify
- Agree to abide by medical ethics and non-disclosure policies
- Agree to both Health Network Collective and local guidelines
- Have no intention of monetising or using this system for personal gain
- Preferable you hold a current First Aid certificate
- To pass, fully complete the course in the order specified
- To pass, achieve 80% overall
- Acceptance as a tester subject to local or national arrangements

Target audience

- Kaiawhina
- Peers, especially those working with People Who Inject (illicit) Drugs (PWID)
- Peers, especially those working with People Who Inject (illicit) Drugs (PWID)
- Healthcare workers
- Persons working with elderly
- Persons working with vulnerable populations
- Remote communities
- Social workers
- Persons working with entities in social spaces, e.g., sex workers, addictions and mental health
- Organisations working with specific prevalent conditions, e.g., HCV, HIV

Lessons; and respective quizzes

Section 1. Overview, Learning agreement

POCT Certificate Course Overview

Duration:

- Five (5) minutes

Course Materials:

- Nil

Links in Lesson:

- Nil

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This course offers training combining online theory with real world practical application, for Hepatitis C (HCV) Point of Care Testing (POCT).

This course must be completed in entirety, with 80% overall pass of the quizzes to certify, and to enable full access to the mobile application. App access is automated on qualification of this course with your notification of access via the app messaging and email.

This course consists of six (6) sections of varying duration, each section with a quiz at completion of the section's respective lessons.

You will have the opportunity to review your quiz answers and sit the quiz again if you feel you need to, we do ask that in the interests of patient safety and accuracy of screening you do pay attention and work your way through all the lessons and supplied materials.

We also recommend where downloadable materials are supplied, that you do download and save the materials for future reference and use.

Links throughout the lesson will open the respective link in another tab or window. If you are conducting this course by mobile phone, please ensure you are familiar with your mobile and switching between screens. On PC or laptop this should be relatively straight forward. We encourage you to open the links and review the references for clarification and or further information.

Thank you for starting this journey and being a part of our collective, widening access to health and working towards healthier communities and futures together. Enjoy and thank you from the Health Network Collective.

POCT Health Network Collective Guidelines

Duration:

- Ten (10) minutes

Course Materials:

- Nil

Links in lesson:

  - United Nations Anti-harassment statement (UN, 2024b)
  - Universal Declaration of Human Rights (UN, 2024a)

Content: Health Network Collective guidelines are just that, guidelines. Health Network Collective strongly recommends that you keep your scope of practice within the guidelines and lessons you are about to take.

This is especially important when it comes to giving advice to the persons we interact with, especially our wai ora (people seeking care). We recommend that any conversations, advice or information is from what you will learn during this course, or as stated within the Health Network Collective mobile app.

Dependent on how Health Network Collective has been deployed in your area, you should have a network connection you or your wai ora can refer to for advice information and direction. It is what and why they are in that position so don't be afraid to ask or reach out to them. When it comes to yours and your wai ora safety and welfare there is no such thing as a silly question.

The mobile app is designed so wai ora who have tested positive will be given access to receiving messages, and responding to those messages. Once you are certified for Point of Care Testing (POCT) you will be one of your wai ora contacts. As a tester you will have access to your local supervisor or advisor.

We will go into more depth regarding **in confidence** and **medical information management** in later sections of this lesson. The **essence of our guidelines is that**;

- Health Network Collective is neutral, we respect the United Nations Anti-harassment statement (UN, 2024b) in that our principles of equality and non-discrimination mean **we will not engage in any unfair treatment or arbitrary distinction based on a person's race, sex, religion, nationality, ethnic origin, sexual orientation, disability, age, language, social origin or other status.**
  - *In short, be kind, be fair, do no harm*
- Health Network Collective embrace the United Nations **Universal Declaration of Human Rights** (UN, 2024a), all thirty (30) articles, available in over 500 languages, starting with Article 1; **All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.**
- So, if we can be nice and respect our fellow brothers and sisters, maybe we can make this world a better place for everyone.

POCT Health Network Collective Obligations

Duration:

- Fifteen (15) minutes

Course Materials:

- Nil

Links in lesson:

  - Mana, Whenua, tangata whenua, kaitiaki, Hapori, Whanau, Te Whare Tapa Whā, *marae*, *ātea*, *whakawhanaungatanga*,

Content: We will dive deeper into obligations as part of Health Network Collective in further lessons. This lesson is about how we act in relation to our land and our people. And our obligations.

Originating in Aotearoa (Google, 2024), New Zealand (Google, 2024), Health Network Collective has an understanding of our obligations and way of being in consideration of equity and equitable ways of behaviour. In Aotearoa Mana Whenua (Moorfield, 2024) (**(noun)** *territorial rights, power from the land, authority over land or territory, jurisdiction over land or territory - power associated with possession and occupation of tribal land. The tribe's history and legends are based in the lands they have occupied over generations and the land provides the sustenance for the people and to provide hospitality for guests)*, has an extensive powerful meaning and presence. Mana (Moorfield, 2024), (**(verb)** *to be legal, effectual, binding,* ***(noun)*** *prestige, authority, status, spiritual power)* is often linked with tapu (Moorfield, 2024) (**(stative)** *be sacred, prohibited, restricted, set apart*) in this context. Whenua (Moorfield, 2024), (**(noun)** *land*) encompassing soil, rocks, plants animals and the people of the land, the tangata whenua, (Moorfield, 2024) (**(noun)** *local people, hosts, indigenous people - people born of the whenua*). Land and people are intrinsically linked both spiritually and physically. Globally, we have an obligation to consult and collaborate with our kaitiaki (Moorfield, 2024) (**(noun)** *trustee, minder, guard, custodian, guardian*), our indigenous peoples and their ancestors. Our host's.

Health Network Collective's kaupapa (principles or policies) are reflected in our logo

Hapori (Moorfield, 2024) **1. (noun)** section of a kinship group, family, society, community

Te aronga o te whanau (Lingvanex, 2024) *(Family Direction*). Whanau (Moorfield, 2024), (**(verb)** *to be born, give birth*, **(noun)** *extended family, family group, a familiar term of address to a number of people - the primary economic unit of traditional Māori society. In the modern context the term is sometimes used to include friends who may not have any kinship ties to other members*).

We are family and we are community. Health Network Collective is **not** about telling family and community what they need and how they need it.

Our obligation is **to ask how we can help**, our obligation is to **share our knowledge** and work towards **collectively improving our family, our community, our society**.

Te Whare Tapa Whā (tepūkenga, 2024) is Health Network Collective's chosen model for development and growth. A holistic model of health that describes health as a wharenui/meeting house with four walls. These walls represent **taha wairua** (spiritual wellbeing), **taha hinengaro** (mental and emotional wellbeing), **taha tinana** (physical wellbeing) and **taha whānau** (family and social wellbeing)

"This is more than just a marae (Moorfield, 2024) *(meeting house) and an ātea* (Moorfield, 2024) *(public forum), it is a nurturing place. It's a place to be communal with each other. It's one of healing, of social engagement and whakawhanaungatanga* (Moorfield, 2024) *(process of establishing relationships). It's a place to be one with each other."* **Owen**, *Kaihautu / Māori Academic Advisor*

What does this mean for us, **we work collaboratively**, together in a **coordinated way** to improve not only ourselves, but also the people around us. We use our skills, and the skills you will learn in this course, to **enhance access to care** and to **enhance the community** entities and systems in place. **Our obligation is to our people and our community**. Communicate, inform, and ask "*how can I help*".

A poem, explaining Wairua; written by *Heather Delamere Thompson*.

"Papa, what is wairua?" the child asked,
eyes wide. .
Wairua, my moko is what gives us life,
Handed down to us from a time past.
At the moment of your beginning,
You shared with me the wairua of our tūpuna;
For I am your link with the past,
You are my place in the future.

The aroha of the whānau has wairua.
And their words, their laughter, their tears,
The marae, tangi, waiata and whakapapa,
Have a wairua that strengthens us, gives us pride.

So too the sunrise and sunset,
The soft summer rain, the raging storm,
The song of the birds in the trees,
The waves on the beach,
The mist rising from the bush,
The moonlight on the water,
And the embracing darkness of the night.

To sit quietly in the wharenui or the wāhitapu,
And feel the presence of your tūpuna is to feel wairua.
Your arms about my neck, your breath on my cheek,
Fills me with a special wairua.
For there is wairua in all things that give meaning to life,
To love, to the future.

So moko, open your mind,
Let your heart love,
Your eyes see,
Your ears hear
Your hands feel.
Give of yourself, my moko,
For in giving you receive
And the wairua grows

POCT Working with others

Duration:

- Fifteen (15) minutes

Course Materials:

- Nil

Links in lesson:

  - stigma's, Aotearoa, tikanga, kaumātua, kaiawhina, peer

Content: The lesson may seem to be sounding like a broken record, repeating the same themes...

This course empowers you with a skill set that can lead to access to health, pathways to cure and improvement in our community's health and way of being. We need to recognise and respect that we are not doctors, nurses or medically qualified specialists (although some of you may well be). We need our community links and relationships to be sound and strong for this system and the skills you are learning to have the greatest impact. These **relationships may be the gateways to engage with wai ora** (people seeking care) and maintaining the relationships that can assist our wai ora in **navigating pathways to possible cure and beyond.**

It is possible that engagement and relationship forming with our wai ora can **break down barrier**s and reduce stigma's (Britannica, 2024) (**[singular] :***a set of negative and often unfair beliefs that a society or group of people have about something)***,** this **reduction in barriers and stigma** could contribute to these wai ora **seeking further health assistance** for other issues and medical problems.

In Aotearoa (Google, 2024), (New Zealand) we would traditionally, and respectfully, follow process in establishing our practice. We call this tikanga (Moorfield, 2024), (**(noun)** *correct procedure, custom, habit, lore, method, manner, rule, way, code, meaning, plan, practice, convention, protocol - the customary system of values and practices that have developed over time and are deeply embedded in the social context) .* This could be that meet with our kaumātua (Moorfield, 2024), (**(noun)** *adult, elder, elderly man, elderly woman, old man - a person of status within the whānau),* and discuss appropriate pathways, discussion and people we should engage with, and cooperate with, in setting up. This could be local council or local government with further engagement with local health authorities.

Find out who your area social service and community health entities, kaiawhina (Moorfield, 2024), (**(noun)** *helper, assistant, contributor, counsel, advocate)*, / peer, (Cambridge, 2024) (**(noun)** *a person who is the same age or has the same social position or the same abilities as other people in a group or representatives are)*. Especially those that are involved with marginalised, vulnerable or isolated people and communities. It is far safer and fair on everyone to work with these entities and kaiawhina / peers who have worked to achieve the relationships they maintain with their respective wai ora.

Give organisations, community groups and entities the opportunity to engage with their respective communities to organise test days. Work with them to create events and social

occasions to draw people in, you will find resources and materials you can download to assist with this in these lessons.

On another level, when we discuss personal safety in section 9 of this course, this collaborative approach is also introducing **safety in numbers**, and utilising **friendly faces from familiar places**, a comfort factor that may add to **safety, security and open communications for us, our wai ora and their kaiawhina / peer**. **Hence reducing barriers, addressing stigma and promoting access to health**.

Have the conversations and coordinate collaborative approaches to maximise our engagements and effectiveness within our communities.

POCT Your Journey

Duration:

- Ten (10) minutes

Course Materials:

- Nil

Links in lesson:

  - New Zealand Qualifications Authority, Toitu Te Waiora

Content: All going well you have by now developed an understanding that Health Network Collective is a community initiative based on equitable humanitarian and ethnic principles, in short;

We act in a kind manner, collaborating with our communities
to improve access to health for the betterment of our communities and people.

In saying that, this is your journey, and we all have our reasons for undertaking this course and training. This course is aimed at a certificate on completion showing that you have completed a course of training towards competency in conducting antibody Point of Care Testing (POCT), enable linking to treatment, and assisting our wai ora in navigation of pathways to possible cure and beyond.

Dependent on your organisation, local, or national deployment and establishment of Health Network Collective; you will have some form of supervision and support. This may or may not be locally physical available support so using the mobile application and messaging will be an important asset for both you and your wai ora communications and information exchanges.

As we describe in coming lessons in this course, the communities and people we work with are varied and often very diverse. We openly **encourage you to get involved** in any opportunity that you can, we do ask that you remember previous lessons content and ensure that any involvement is engaged in an appropriate way. Your journey will be stronger and much more beneficial by open communications and informing of **what you can offer to help, never what they need to do to be helped**.

We like to work with a "**no surprise**" policy. In the event something goes wrong, mistakes or mishaps happen, **reach out to your supervisor or local manager immediately and inform them** clearly of the issue or occurrence. **Health and Safety is everyone's responsibility**, our lessons learned are going to help improve how we do what we do and contribute to the collective health and safety of us all.

Online education is becoming a common method of education globally, Health Network Collective aims to produce further online courses working towards formal recognition of learning within national frameworks, such as in Aotearoa with New Zealand Qualifications Authority (NZQA, 2024) (NZQA) and Toitu Te Waiora (Toitu Te Waiora, 2024) (Workforce Development Council, Aotearoa).

You will do well, and always reach out for help discussion or for any reason early, and often if needed. Much preferred over too little too late.

Quiz POCT Section 1. Overview, obligations and expectations.

Allowed time:	Forty-Five (45) minutes
Questions:	Ten (10) varied formats
Passing Grade:	Eighty (80%) Percent
Instant Check:	On submitting answer, correct or incorrect
Retake:	Two (2) retakes, previous quiz must be completed in entirety
Review:	Full review on completion of test
Show correct answer:	Visible with review on completion
Hints:	Yes, with each question

Introduction: Welcome to your first quiz and test towards **certification in antibody Point of Care Testing (POCT).**

- You will notice in this introduction to our quizzes **many different styles** of questions and ways of answering.
- Overall (over the **6 course sections and 6 quizzes**) you will need to **achieve 80% or greater to gain certification** and access to the Health Network Collective mobile application to conduct testing.
- You will have the opportunity to review your questions and answers (with correct answers shown) on completion of the quiz.
- You have **45 minutes to complete** this quiz.
- **Retaking tests is possible, up to a limit of 2 repeats**.

POCT Section 1. Question 1.

Description / Question
I agree to abide by the guidelines referenced and explained in the lessons in this section. (select the one correct answer)

Answers

- I agree to abide by the guidelines at all times CORRECT
- I agree to abide by the guidelines, except when I am tired or fatigued.
- I agree to abide by the guidelines unless it is Monday
- I do not agree to abide by the guidelines

Hint: No tricks here, should be obvious.
Explanation: Health Network Collective expectations, as with a majority of community entities, is respecting and living the United Nations references and guidelines mentioned in this section, without exception, at all times.

POCT Section 1. Question 2.

Description / Question
Once I complete this course, I can order anyone to do what I think is best, anytime, anywhere...

Answers

- Yes
- No CORRECT

Hint: We really hope you do not need a hint here...

Explanation: One of our key statements and obligations is "what can we do to help", working collaboratively in a coordinated manner to a common cause. Hence the answer is No, you should not tell or order everyone...

POCT Section 1. Question 3.

Description / Question
Health Network Collective will not engage in any unfair treatment or arbitrary distinction based on a person's race, sex, religion, nationality, ethnic origin, sexual orientation, disability, age, language, social origin or other status (True or False).
Answers

- True CORRECT
- False

Hint: 2 answers, 1 is incorrect. We really hope you can get this without a hint.
Explanation: This is the United Nations Anti-harassment statement that Health Network Collective will always respect and abide by. TRUE

POCT Section 1. Question 4.

Description / Question
The United Nations Universal Declaration of Human Rights applies to (Select the one correct answer)
Answers

- All of humanity and all people with exception of those not of my religion.
- All of humanity and all people with exception of people I don't like.
- All of humanity and all people with no exception. CORRECT
- All of humanity and all people with exception of those not of my race.
- whoever I decide they can apply to.

Hint: These are Universal Declarations.
Explanation: The United Nations Universal Declaration of Human Rights applies to "All of humanity and all people with no exception".

POCT Section 1. Question 5.

Description / Question
When I can test people, I will... (select all the good and right choices)
Answers

- Tell everyone they must be tested without question
- Request a meeting with the elders to ask what they consider a good approach to testing CORRECT
- Work with local social services to see how I can work with them to test their people CORRECT
- Suggest the local community group could let me work with them to run a fun event where people could be tested CORRECT
- Approach my local medical clinic and ask if we could collaboratively run testing clinics for their patients and out patients CORRECT

Hint: Coordinated collaborative kind polite...
Explanation: We would not "Tell everyone they must be tested" Leave those types of demands to local authorities, that may be a government directive or suggestion.

POCT Section 1. Question 6.

Description / Question
One of our lessons discussed obligations, which of the answers reflect some of our obligations (select the correct answers)
Answers

- Our obligation is to ask how we can help. CORRECT
- Our obligation is to share our knowledge and work towards collectively improving our family, our community, our society. CORRECT
- Our obligation is to tell everyone we are qualified, in charge and in control.

Hint: Coordinated collaborative kind polite...
Explanation: We are family and we are community. Health Network Collective is not about telling family and community what they need and how they need it. Our obligation is to ask how we can help, our obligation is to share our knowledge and work towards collectively improving our family, our community, our society.

POCT Section 1. Question 7.

Description / Question
Our obligation is to our people and our community (Select the correct answer).
Answers

- Correct, and with no terms or conditions. CORRECT
- Correct, and with no terms or conditions except when it's raining.

Hint: Again, this should be obvious, otherwise it is 50/50...
Explanation: Correct. Our obligation is to our people and our community.

POCT Section 1. Question 8.

Description / Question
To help us break down barriers and reduce stigma with our wai ora, which of the following could help us (select the correct answer)
Answers

- it's all too difficult so best just ignore and hope it goes away, time will help
- Smile and inform the wai ora they just need to harden up, in a convincing voice
- Friendly faces from familiar places, work with our wai ora kaiawhina / peer CORRECT

Hint: The answer spans guidelines, obligations, working with people...
Explanation: To help us break down barriers and reduce stigma with our wai ora; Friendly faces from familiar places, work with our wai ora kaiawhina / peer

POCT Section 1. Question 9.

Description / Question
Which of the following are encouraged by Health Network Collective (select the right answers)
Answers

- Declaring to our community testing is compulsory and must be done.
- Giving medical advice to wai ora that would normally come from a doctor.
- Getting involved with community groups and organisations. CORRECT
- Collaborative coordinated approaches to testing in our communities. CORRECT

Hint: Coordinated collaborative kind polite... knowing our limitations...
Explanation: Health Network Collective encourage " Getting involved with community groups and organisations" and "Collaborative coordinated approaches to testing in our communities".

POCT Section 1. Question 10.

Description / Question
No surprise policy means (Select correct answer)
Answers

- Anything that goes wrong, mistakes and or mishaps, get reported immediately CORRECT
- Anything that goes wrong, mistakes and or mishaps, get reported immediately. Unless it wasn't me
- Anything that goes wrong, mistakes and or mishaps, get reported immediately unless it's raining.

Hint: One of these answers is not like the others....
Explanation: No surprise policy means "Anything that goes wrong, mistakes and or mishaps, get reported immediately"

Section 2. People Centred Practice and Personal Safety

POCT Medical in Confidence Part one

Duration:

- Twenty (20) minutes

Course Materials:

- Nil

Links in lesson:

  - **Medical**, **Health**, **In Confidence**, Statutory laws, https://hoopernewton.com/privacy, Common law, **Mental Health**, constitution, Te Whare Tapa Whā,

Content: Welcome to medical in confidence, an incredibly important aspect of Health Network Collective practice, and an incredibly important aspect of maintaining our credibility, professionalism and good conduct. We will explore Medical Ethics in the next lesson to develop a good grounded understanding for the third lesson in this section, behaviour.

Let's start with a few definitions, and we will keep these definitions at a level relevant to our needs.

- **Medical** (Merriam-Webster, 2024) (**(Adjective): of***, relating to, or concerned with physicians or the practice of medicine.: requiring or devoted to medical treatment*)**.**
- **Health** (Cambridge, 2024) (**(Noun),** *the condition of the body and the degree to which it is free from illness, or the state of being well*)

The term **medical** has a very direct relationship to and with the term **health**. In terms of our wai ora, their physical and mental state, and in terms of the fact they are **wai ora, persons seeking wellness (or health)**. Therefore, having an understanding of the terms makes some sense. Now we can add 'In Confidence';

- **In Confidence** (Collins, 2024) (*as a secret or private matter, not to be divulged or communicated to others; with belief in a person's sense of discretion.*)

Statutory laws (Collins, 2024) are laws determined by Acts of Parliament, or Government. These legislations or acts govern our privacy and the **data that is considered to be part of our privacy**. We won't go into defining data in depth, aside from a consideration that **any investigations, treatment, or disclosure of information with or from an individual in regards medical or health, is data** in the context of this lesson. These statutory laws do have an impact on our practice, specifically in digital data management, however these are encompassed in our data policies that can be viewed at https://hoopernewton.com/privacy (Hooper-Newton, 2024b)

Common law (Reuters, 2024) (*"body of law" based on court decisions rather than codes or statutes*) best describes the level of knowledge we need for our level of practice, **there is a duty of confidentiality which means that when a patient/service user shares data or information in confidence it must not be disclosed without that person's consent.**

For us, the impacts and meaning are that;

- Discussions between you and the wai ora are just that. **In Confidence** translates to the discussions are **not repeated by you to other parties or disclosed in way or form**.
- **Data that is recorded** into the Health Network Collective app is **In Confidence**, the same principle applies.

Exceptions;

- Our only exception. In the case of **engaging with a medical professional in relation to wai ora treatment or enquiry** we recommend that you keep your disclosure of wai ora information to the data you are required to record in the mobile application with testing, and test results only. We **do not enter into discussions with personal opinion** or personal recommendations unless this is requested by the medical professional you are engaged with.
- In the event you do need to have such a discussion make sure you are not in hearing distance of other people, or recording in confidence data or information in such a way it could be accidentally seen by other people.

There are occasions where you may find it is difficult to recognise the boundaries of Medical in Confidence and acting in the best interest of your wai ora. We will take a pragmatic look at this in Lesson 8 POCT Behaviour, and create some work streams or approaches that might help in certain circumstance. To help with this let's start with defining;

- **Mental Health** (WHO, 2024d) The World Health Organisation (WHO) constitution (WHO, 2024c) states: *"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." An important implication of this definition is that mental health is more than just the absence of mental disorders or disabilities. Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community*.

Before we can start to look towards management of these situations and what options we may have in management of such situations, understand that mental health is an absolute component of Health Network Collectives development framework Te Whare Tapa Whā (tepūkenga, 2024). Specifically taha wairua (spiritual wellbeing), and taha hinengaro (mental and emotional wellbeing) as we discussed in section 1 of this course. **Mental Health covers wellbeing, being well, and illness or the state of not being well.**

Our previous lessons on **guidelines**, **obligations**, **working with others**, and this lesson on **Medical in Confidence** all become **factors in how we interact** with not just our wai ora, but all people in and around our practice. Our community level practice means **we are privy to very personal information**, often from both our wai ora and the kaiawhina / peers that we collaborate and coordinate our work with. In forging these relationships open honest clear concise and transparent conversation is an enabler and essential part of relationship forming. This is where we all need to **be cautious and aware of what we saying** and to

whom. In the simplest of terms, if the intended conversation content meets any of the definitions we have discussed in this lesson, **don't say it, don't write it, keep it confidential**.

Our next lesson, Lesson 7 POCT Medical Ethics Part one, will inform you and assist in guiding where when and how we can discuss or share Medical in Confidence information and data.

Use your common sense.

POCT Medical Ethics Part one

Duration:

- Thirty-Five (35) minutes

Course Materials:

- https://www.hdc.org.nz/your-rights/the-code-and-your-rights/ (Download “You have rights”Poster)
- https://youtu.be/fQIOVFCcbmI (Video) NZ Health & Disability Commission, “Õu Mòtika”
- https://youtu.be/AsYUM-jyHuQ (Video) NZ Health & Disability Commission, “Respcting your Rights”

Links in lesson:

- record, Hippocrates, The Principles of Biomedical Ethics, Te Toihau Hauatanga, The Code and your rights,

Content: This lesson, in Health Network Collective opinion, **is one of the most important in this course**. Medical Ethics. Specifically, the **rights of our wai ora**, the **rights of people seeking care and in care**.

Medical ethics is concerned with the obligations of the doctors and the hospital to the patient along with other health professionals and society.

Our Medical Ethics today take many forms internationally, the meaning and essence however is the same.

Originating from the Greek physician Hippocrates (Wiki, 2024), 460-370BC, "first, do no harm" (or "*primum non nocere*," the Latin translation from the original Greek.) For interest, the earliest record (Wiki, 2024) of this exact phrase in the context of medicine is from around 275AD.

A 1979 publication, The Principles of Biomedical Ethics (Holm, 2002) "unleashed" the four moral principles or pillars modern medical ethics are largely based on. These four pillars are; (*and you are not expected to memorise these*)

1. **Autonomy**; giving the patient the freedom to choose freely, where they are able
2. **Non-maleficence**; to do no harm
3. **Beneficence**; doing good
4. **Justice**; ensuring fairness
5. ***note**, some Medical Councils also include or use, integrity, honesty, respect, and trust as the basis for their conduct and professionalism standards.*

For the purpose of this lesson, and with the association of Health Network Collective to Aotearoa, we are going to base our Medical Ethics lesson on the Te Toihau Hauatanga (HDC, n.d.-a) (Health and Disability Commissioner New Zealand) The Code and your rights (HDC, n.d.-d) Also downloadable from the resources section of this lesson.

Let's start with an introduction video, you must watch the less than four (4) minute video in entirety. Te Reo or English.

https://youtu.be/fQIOVFCcbmI (HDC, n.d.-b)

https://youtu.be/AsYUM-jyHuQ (HDC, n.d.-c)

Your Rights

Right One (1) The right to be treated with respect.

- Reflecting on the earlier lessons in this course, we only ever treat and interact with our wai ora with respect, and we extend that respect to how we act with our community.

Right Two (2) The right to freedom from discrimination, coercion, harassment, and exploitation.

- This aligns with Health Network Collective support of United Nations Anti-Discrimination statements and our support of the Universal Declaration of Human Rights. And that we like to be nice.
- Health Network Collective will highlight that relationships with wai ora must be kept on a professional basis. Especially not forming sexual relationships developed or resulting from medical or health related practice. Health Network Collective will not condone or accept any discriminatory, coerced, harassing, or exploitative behaviours or practice. And has no course content or practice that could be suggestive or misinterpreted as such.

Right Three (3) The right to dignity and independence.

- This right should be self-explanatory.
- And see notes for Right Two (2) above.

Right Four (4) The right to services of an appropriate standard.

- Health Network Collective will conduct any procedure, including links to care and navigation of treatment pathways, in a professional manner and as is described in these lessons and course.

Right Five (5) The right to effective communication.

- In the next Lesson 8 POCT Behaviour, we will discuss effective communication and communication strategies in more detail.

Right Six (6) The right to be fully informed.

- The right to be fully informed is, from Health Network Collective stance, is informing within the limitations of our scope of practice, what we have been formally taught by undertaking Health Network Collective training and courses. Informing must be factual and within our respective limitations.

Right Seven (7) The right to make an informed choice and give informed consent.

- Once you are introduced to procedures and the mobile application, you will be equipped with clear concise consent and informing statements to read to or have read by wai ora. Wai ora will also need to indicate, via the application, their agreement.

Right Eight (8) The right to support.

- Health Network Collective encourage our wai ora to bring support people with them. This has a dual purpose. Wai ora have support, and Health Network Collective have the opportunity to inform and educate more people from the community.

Right Nine (9) Rights in respect of teaching or research.

Health Network Collective has statements to help inform our wai ora, and you, within the mobile application. Many of these are publicly viewable, some wai ora informative statements are designed to be read by you giving opportunity for discussion and ensuring wai ora are clear and understanding of the material or statements. Health Network Collective also strives to design and update training materials and welcome feedback and suggestions on content.

Right Ten (10) The right to complain.

Everyone has the right to complain. Formal complaints can always be directed to the Health Network Collective website and sent as an email, or passed on via you. Health Network Collective does ask that the "No Surprise" policy is respected and your supervisor, manager or Health Network Collective are informed of any and all complaints, even if resolve has been reached. And please do not feel you are alone in resolving issues, reach out to your support team and get help.

In Summary

Now that we have touched on Medical Ethics and wai ora rights, and developed an understanding of Health Network Collective guidelines and obligations, the modern-day ethics principles of *integrity, honesty, respect, and trust* should make a lot more sense for application in how we work in a health and medical context.

The following lessons on **behaviour** and **personal safety** will start to bring all these components together in giving us some baselines for strategies and ways of working.

POCT Behaviour

Duration:

- Forty-Five (45) minutes

Course Materials:

- Nil

Links in lesson:

  - Psychological first aid,

Content: Welcome to your Lesson 8 POCT Behaviour.

In our earlier lessons we have discussed real world guidelines, obligations rules and standards that have an impact on how we can do we do, and our conduct and behaviour. For this lesson we are using the term behaviour to describe how we can potentially apply all we have learned so far into practical application for when we are facing wai ora, colleagues and the community. And representing Health Network Collective in the community.

Let's revisit a few of the lessons we have covered so far, and put the theory into a scenario to help understanding of what the theory means.

Our respecting Medical in Confidence extends to combining our guidelines, obligations and what we have learned of Medical in Confidence.

Let's look at an example;

- *You've been navigating John, who is a long-term addict in community addictions and mental health care, through his HCV screening and treatment journey. Trish, Kaiawhina to John, has been facilitating this relationship and been very much involved with this journey. Over coffee and a catch-up chat at a café with Trish one afternoon, Trish starts to chat in very general terms about John and makes a statement that "Johns completely crazy eh..."*

Using Trish's statement as a que to enter a conversation about John being crazy, and based on a non-clinical conversation que, would be **very inappropriate. Especially in the public café** setting. Medical people do tend to have a 'warped' or 'dark' sense of humour at times, this is best left to the appropriate time and place or not at all. That time and place is not in the presence of other people, in public, where comments or discussions may be heard. The risk is not only **breaching Medical in Confidence**, there is also a risk of damaging your own and your organisation professional image and reputation. This could result in **mistrust, reputational risk and serious complaints**.

You may choose to reply to Trish with a statement along the lines "**I don't feel that's appropriate to discuss here**" or simply **ignore the statement** and change the subject. We would encourage you to be cautious in challenging Trish on her behaviour, and would recommend you seek further advice from you supervisor or manager. Not being a senior positioned medically qualified professional or senior manager, avoid the possible confrontation.

However, let's say that some of **John's behaviour** and actions **have caused you concerns.** If we consider "**first do harm**" from our Medical Ethics lesson and that '***medical ethics is concerned with the obligations of the doctors and the hospital to the patient along with other health professionals and society';*** looking at John through the lens of "***does this behaviour suggest a threat or danger to John or others around him***" might help rationalise what we could do. As **we are not equipped professionally** to deal with this scenario, **seeking professional help** and assistance is the only resolve. This will entail some level of exchange of information that could be labelled Medical in Confidence.

So back to the scenario;

- *You've been navigating John, who is a long-term addict in community addictions and mental health care, through his HCV screening and treatment journey. Trish, Kaiawhina to John, has been facilitating this relationship and been very much involved with this journey. Over coffee and a catch-up chat at a café with Trish one afternoon, Trish starts to chat in very general terms about John and makes a statement that "Johns completely crazy eh..."* This **raises a 'red flag'** for you, so you ask Trish if you can **go somewhere private** to continue the conversation. You have **concerns over John's behaviour and safety** so this has become an appropriate conversation. Trish agrees with your concerns and is able to inform her organisation who deploy the **appropriate resources and people** to help John. This may be marae or community teams, ambulance, mental health intervention teams, or even police.
- And this is definitely not dinner table conversation when we go home... communities have a way of these conversations getting around...

First Aid

We will look at some forms of immediate reactions to first aid scenarios as we progress through the clinical lessons for POCT procedure. However, **Health Network Collective is not conducting First Aid training** or training that could be considered as suitable in lieu of approved First Aid training. It is expected that you will have a current certificate of completion of a first aid course from an approved training provider.

Psychological Fist Aid (PFA)

As with First Aid, **Health Network Collective does not conduct Psychological First Aid training**. We do however recommend the course where available as a great means of identifying and linking to care those in need. PFA has many parallels to our POCT practice.

Psychological first aid (Wiki, 2024) is a technique designed to reduce the occurrence of post-traumatic stress disorder. It was developed by the National Centre for Post Traumatic Stress Disorder, a section of the United States Department of Veterans Affairs, in 2006.

If we go back to the scenario of John, Trish and you. We can break this down into simple manageable steps by applying PFA principles.

- **Prepare**. Learn about the crisis event. Learn about the available services.

    - *This is an exercise you have or will be conducting by meeting collaborating and coordinating with people and entities in your community. And you are becoming one of the available services by taking this course.*
- **Look**. Check for safety.
    - *We discuss personal safety in more depth in the following lesson. Never willingly place yourself or others in a position of danger. Gut instinct is our primitive warning system, listen to it.*
- **Listen**. Approach people who may need support.
    - ***Listen...** this is not about offering advice, or giving resolution or absolution. It is about listening so we can offer informed linking to care information. Encouraging the next step for who we are listening to in seeking further help.*
- **Link**.
    - *Some wai ora just want a contact to reach out to. Some may want you to navigate the pathway with them. It is recommended that you link and extract yourself and minimise or stop your involvement as timely as you can.*

Health Network Collective Code of Conduct

You may or may not have noticed that Health Network Collective does not have a code of conduct. As a largely volunteer entity we are bound by the legislative acts, and common laws of the localities we are represented in. Health Network Collective, and as agreed to by you in question 1 of the initial quiz in this course, have agreed to abide by the guidelines and obligations discussed and referenced in the section one lessons of this this course. These collectively form conduct expectations that can be applied on a global scale, and that we have all agreed to.

POCT Personal Safety

Duration:

- Sixty (60) minutes

Course Materials:

- https://www.youtube.com/watch?v=HB9Wat44JqA (Video) City of Boroondara, "Personal Safety Advice"

Links in lesson:

  - *Are You Ok*, *Shine*, *Womens Refuge*, *CAB*, *Pet Refuge*, *Youthline*, *Tautoko Tane*, *Shakti*, gut feelings, **Safe Time Out**, Psychological First Aid,

Content: *Some of the content of this section may be confronting or triggering, in Aotearoa reach out to Are You Ok* (Are you Ok, n.d.), *Shine* (Shine, n.d.), *Womens Refuge* (Womens Refuge, n.d.), *CAB* (CAB, n.d.), *Pet Refuge* (Refuge, n.d.), *Youthline* (Youthline, n.d.), *Tautoko Tane* (Tane, n.d.), *Shakti* (Shakti, n.d.)*... there are many more; a google search may help. Internationally there will be support services somewhere... or view these sites for info... many of these sites have a hide my visit function*

Here's a short video to get us thinking about personal safety, in very general daily terms

https://youtu.be/HB9Wat44JqA?si=jv8D2IthqGcMe-q2 (CCoB, n.d.)

Australian City of Boroondara Personal Safety introduction

Risk Mitigation and less can be more

We can take simple **measures** in our daily lives and activities to **reduce the risk** of placing ourselves in compromising situations. Working within community we can **lessen our risk of threat or** compromise from others by **respecting and living the key learnings from our previous lessons**. Respecting medical in confidence, working within guidelines medical ethics present, and using our ***integrity, honesty and respect, to give and gain trust*** will reduce the risk of antagonizing or giving others reason to act in a threatening manner.

Compromise doesn't just mean the risk of physical threat; compromise can be placing yourself or your organisation in jeopardy from your actions. This is where our "no surprise" policy can be an asset for your personal safety. Disclose early and honestly and a majority of the time the issues can be dealt with without major issue. Non-disclosure or dishonesty in hiding or denying can only end badly.

A few tips for Personal Safety

Always leave a work and travel plan *with someone before you leave for the day, if that's not possible let someone know that your days plan will always be on your fridge door (for example).* ***Consider google location sharing*** *with a partner, family member or someone you trust.*

- **Be alert and stay alert**

    - awareness is your best defence, if the little red flags start waving start looking at the other tips and access the situation.
    - Have emergency contact on your phone, and possibly set as quick calls. Keep a copy of these numbers written in a safe place in case you lose your phone.
    - Be confident – even if you don't feel it.
- **Trust your instincts**.
    - Some describe gut feelings (Healthline, n.d.; Remmers & Michalak, 2016) as a small internal voice, some research suggests gut instinct is a flood of acid released into the stomach as a primitive warning of somethings not right. Others call it a rapid onset of anxiety. Either way, fair to say it's likely a good call to trust your instincts.
- **Be aware of all your surroundings.**
    - If you're setting up in a new location or venue, arrive a few minutes early and familiarise yourself, if your happy or it doesn't feel right, change.
    - Preplan and check your maps before you need them.
- **Leave with friends or colleagues wherever possible.**
    - Travel with friends or colleagues, ask others to escort you to car parks or as far as areas with more people or activity.
    - Travel as if you know where you are going.
    - Take the most direct route and try to stay within areas where other people are around.
    - Try to stay in well-lit areas.
- **Avoid anything that does not feel safe.**
    - If you suddenly find you don't feel safe, consider the most direct route to where know it's safer or where more people are around.
- **Anticipate possible problems.**
    - Look at local travel sites, are there protests, road closures...
- **Be vigilant and prepared for anything.**
    - Within reason, try not to become paranoid and afraid of everything, just healthy levels of aware.
- **Report suspicious activity.**
    - Call it in early, and if in doubt make the call.

A few tips for conducting POCT testing, the key is keeping yourself closest to the exit and using tables or trays to create barriers between the wai ora, you and the exit.

If things start to feel wrong, they are wrong. Get out. Worried your sudden departure may trigger someone, simply say you suddenly feel unwell and need to step outside for a breath of fresh air. **Or stand up and leave**.

- **In a mobile setting, ie a van**
    - Step out of the van, invite the wai ora in first, then enter. This way you are closest to the door (the exit). Another good idea is to have a table the wai ora is behind, another barrier allowing you a fast exit.
    - Leave the exit open
    - Keep your mobile on your person as much as possible
    - Keep your personal belongings secured out of sight and out of reach.

    - Where possible have an assistant, buddy or colleague with you. Remember collaborative coordinated approaches to testing, safety in numbers.
- **In a building**
    - The same principles as in a mobile setting apply.
    - Always leave the test room, invite and allow our wai ora to enter first and direct them to the seat farthest from the exit as you enter to your seat closest to the exit.
    - If you or colleagues have any safety concerns in relation to the community group or individual you are planning to work with, ensure you have a buddy or colleague with you.
    - Familiarise yourself, and others, with the building's health and safety requirements. Fire, earthquakes, disasters. If it's a large site insist on sighting where exit points, fire extinguishers and emergency locations are.
    - Where visitor registers are in use, sign in sign out. If you're on the register they will come find you.

If things start to feel wrong**, they are wrong. GET OUT.**

The following is largely from two family violence sites, Are You Ok and White Ribbon. The messaging is absolutely applicable to any situation of possible violence, confrontation, even your response(s). Please click on the two links and have a good read of the content. **No violence is ok**.

Violence is a choice.
No-one makes us do it, we own our bodies and how we use them.
We own our voices and how we use them.
We own our emotions and how we handle them.

Safe Time Out (Are you Ok, n.d.): we need to be able to read the signs of our own state of "getting wound up" and taking safe time out when we notice we are getting wound up, agitated or wanting to respond personally.

- calmly state "I need to take safe time out"
- leave the situation
- do something physical like go for a walk
- use positive self-talk: "the only person I need to be in control of is me, I need to calm down"
- talk to someone who can help you calm down
- arrange another time to talk or meet again when everyone is calmer and likely ready to talk

This is about **YOU**. Back in section 8, Behaviour, we talked about Psychological First Aid (Wiki, 2024) (PFA). This is about you and your wai ora, **Look Listen, Link**.

- **Look**; identifying there is an issue or problem
- **Listen**; simple, listen. We are not there as councillors, lets link our wai ora to appropriate trained persons where-ever possible.
- **Link**; Linking to the appropriate support, with a health approach that responds to their preferences and needs.

Some of the content of this section may have been confronting or triggering. In Aotearoa reach out to Are You Ok (Are you Ok, n.d.)*, Shine* (Shine, n.d.)*, Womens Refuge* (Womens Refuge, n.d.)*, CAB* (CAB, n.d.)*, Pet Refuge* (Refuge, n.d.)*, Youthline* (Youthline, n.d.)*, Tautoko Tane* (Tane, n.d.)*, Shakti* (Shakti, n.d.)*... there are many more; a google search may help. Internationally there will be support services somewhere... or view these sites for info... many of these sites have a hide my visit function*

POCT It is Ok to Ask for Help

Duration:

- Forty-Five (45) minutes

Course Materials:

- Nil

Links in lesson:

  - *Are You Ok*, *Shine*, *Womens Refuge*, *CAB*, *Pet Refuge*, *Youthline*, *Tautoko Tane*, *Shakti*, gut feelings, **Safe Time Out**, Psychological First Aid, ***SDG***, ***UHC***, **United Nations Anti-harassment statement**, **Universal Declaration of Human Rights**, **Safe Time Out**,

Content: *Some of the content of this section may be confronting or triggering, in Aotearoa reach out to Are You Ok, Shine, Womens Refuge, CAB, Pet Refuge, Youthline, Tautoko Tane, Shakti... there are many more; a google search may help. Internationally there will be support services somewhere... or view these sites for info... many of these sites have a hide my visit function*

This course is an introduction to what may be a lot of new concepts content and learnings for many of you. Human nature tends to base our personal perspectives and understanding on our own lived experience, then our learned experience.

If you have not lived it, learned it and practiced it; it is not going to happen under stress response or in an emergency. Knowing this can make a difference when we are under a stress response or in an emergency situation. Possibly this understanding can help with our **People Centred Approach**.

Today's health services are not fit for 21st century challenges. Approximately half the world's population lacks access to essential health care. Where health care is accessible, it is often fragmented and of poor quality. A fundamental shift in the way health services are organized and delivered is key to achieving the health-related Sustainable Development Goal (SDG) (WHO, n.d.-j) ***and universal health coverage (UHC)*** (WHO, n.d.-k)***.*** *World Health Organization 2023 (WHO)*, please **read the full article** on *Services Organization & Integration **here*** (WHO, n.d.-i). Noting the section on *Integrated People-Centred Health Services*.

We have explored the **United Nations Anti-harassment statement** (UN, 2024b), and the **Universal Declaration of Human Rights** (UN, 2024a) as forming the basis for our guidelines and approach to our work. These important principles form the basics of our **People Centred Approach**, especially neutrality, respecting free and equal rights without discrimination or judgement and equitable health access.

We also have developed understanding that our **Health Network Collective obligation** is to **ask how we can help**, to **share our knowledge** and work towards **collectively improving our family, our community, our society**.

Health Network Collective aims to consciously adopt the perspectives of individuals, families and community as participants and beneficiaries in a health approach that

responds to their preferences and needs. This aligns to World Health Organization (WHO) key universal health care coverage messaging.

It is Ok to Ask for Help:

Read this from the previous section again, and then again one more time. The following is largely from two family violence sites, *Are You Ok* and *White Ribbon*. The messaging is absolutely applicable to any situation of possible violence or confrontation, even your response(s). Please click on the logo and links below and have a good read of the content. **No violence is ok**.

Violence is a choice.
No-one makes us do it, we own our bodies and how we use them.
We own our voices and how we use them.
We own our emotions and how we handle them.

Safe Time Out (Are you Ok, n.d.): we need to be able to read the signs of our own state of "getting wound up" and taking safe time out when we notice we are getting wound up, agitated or wanting to respond personally.

- calmly state "I need to take safe time out"
- leave the situation
- do something physical like go for a walk
- use positive self-talk: "the only person I need to be in control of is me, I need to calm down"
- talk to someone who can help you calm down
- arrange another time to talk or meet again when everyone is calmer and likely ready to talk

Violence Happens in Many Ways...

- **Emotional**: making you think you are crazy
- **Verbal**: put downs, harassment
- **Threats**: to your safety and the safety of others
- **Isolation**: keeping you away from your friends, family and support. Sometimes by creating distrust
- **Sexual**: molestation, rape, coercion
- **Financial**: keeping you financially dependent
- **Intimidation**: living in fear
- **Physical**: slaps, punches, kicks, weapons

If this is you, or someone you know call for help. If you're identifying this (or these patterns) in wai ora or those in need; think PFA (Look, Listen, Link) and either seek advice on what to do or, if appropriate, offer link(s) to care.

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Quiz POCT Section 2. People Centred Practice and Personal Safety

Allowed time:	Forty-Five (45) minutes
Questions:	Ten (10) varied formats
Passing Grade:	Eighty (80%) Percent
Instant Check:	On submitting answer, correct or incorrect
Retake:	Two (2) retakes, previous quiz must be completed in entirety
Review:	Full review on completion of test
Show correct answer:	Visible with review on completion
Hints:	Yes, with each question

Introduction: Welcome to your second of six quizzes towards **certification in antibody Point of Care Testing (POCT)**.

- Again, our quizzes have **many different styles** of questions and ways of answering. You may have **noticed hints in the questions** themselves?
- Overall (over the **6 course sections and 6 quizzes**) you will need to **achieve 80% or greater to gain certification** and access to the Health Network Collective mobile application to conduct testing.
- You will have the **opportunity to review your questions and answers** (with correct answers shown) **on completion** of the quiz.
- You have **45 minutes to complete** this quiz.
- **Retaking tests is possible, up to a limit of 2 repeats**.

POCT Section 2. Question 1.

Description / Question
What is the difference, by definition, between Medical and Health (Select the correct answer)
Answers

- Medical is the practice or treatment, Health is the body and illness. CORRECT
- Medical is the body and illness, Health is the practice or treatment.
- Health is same as medical and Medical is the same as health.

Hint: We see medics for health reasons.
Explanation

- Medical is the practice or treatment of, relating to, or concerned with physicians or the practice of medicine.
- Health is the body and illness: the condition of the body and the degree to which it is free from illness, or the state of being well.

POCT Section 2. Question 2.

Description / Question
In Confidence (Which statement is correct)
Answers

- as a secret or private matter, to be divulged or communicated to others; at my personal sense of discretion.
- as a secret or private matter, not to be divulged or communicated to others; with belief in a person's sense of discretion. CORRECT

Hint: Read the statements carefully

Explanation: In Confidence: as a secret or private matter, not to be divulged or communicated to others; with belief in a person's sense of discretion. WE DO NOT DISCUSS OR SHARE!

POCT Section 2. Question 3.

Description / Question

Te Toihau Hauatanga (Health and Disability Commissioner New Zealand), The Code and your rights, includes (tick the correct choices)

Answers

- The right to be treated with respect. CORRECT
- The right to suitable refreshments when seeking treatment.
- The right to dignity and independence. CORRECT
- The right to make an informed choice and give informed consent. CORRECT

Hint: Again, read the questions carefully...

Explanation: Whilst "The right to suitable refreshments when seeking treatment" is seen as a priority for many, it is not one of the ten items in the Code of your rights.

POCT Section 2. Question 4.

Description / Question

One of your wai ora is angry and wishes to make a complaint. What would be the correct ways to manage this situation (Select the correct answers)

Answers

- Attempt to calm the situation and tell the wai ora I will contact Health Network Collective (who can manage the complaint) and then hope the wai ora forgets and leave it.
- Attempt to calm the situation and record the wai ora's complaint and contact details to refer to my manager or supervisor. CORRECT
- Attempt to calm the situation and record the wai ora's complaint and contact details, then resolve the issue myself and only report to management if serious.
- Attempt to calm the situation and refer the wai ora to the Health Network Collective website (who can manage the complaint) to complete a contact form online with their complaint. CORRECT

Hint: No Surprise Policy

Explanation: Attempt to calm the individual, direct them to the Health Network Collective website if they wish to complain themselves (still inform you manager) or record details of the complaint and complainants' details then pass to your supervisor or manager. Either way report, even if the event had a simple resolve.

POCT Section 2. Question 5.

Description / Question

You've been navigating John, who is a long-term addict in community addictions and mental health care, through his HCV screening and treatment journey. Trish, Kaiawhina to John, has been facilitating this relationship and been very much involved with this journey. Over coffee and a catch-up chat at a café with Trish one afternoon, Trish starts to chat in very general terms about John and makes a statement that "Johns completely crazy eh..."(select the right responses)

Answers

- You very sternly tell off Trish for disclosure of what is clearly Medical in Confidence information in a public place.
- You feel this is inappropriate in this public setting so quickly change the subject. CORRECT
- John has been acting strangely of late so this a great opportunity to have a fun conversation, laugh and let of some steam.
- You have had concerns over John's safety and the safety of others, so suggest you both go somewhere private to continue the conversation. CORRECT

Hint: You shouldn't need a hint here, if you do read the question then the answers again carefully...

Explanation: The conversation is not appropriate in a public setting, and you need to consider if you should be telling people off at risk of conflict. So, avoiding the conversation or if you have concerns taking the conversation to a private place.

POCT Section 2. Question 6.

Description / Question

Health Network Collective expects in regards to first aid.

Answers

- It is expected that you will have proof you have read a book on first aid, sometime.
- It is expected that you will have a current certificate of completion of a first aid course from an approved training provider. CORRECT
- It is expected that will have completed some form of first aid course at least once before.

Hint: You'll get this one :)

Explanation: Health Network Collective have an expectation that as we are involved in a medical field that we can all respond in some effective way in case of medical emergencies, therefor current recognised certification in first aid is expected.

POCT Section 2. Question 7.

Description / Question

One of your wai ora starts to offload their personal problems, and you can understand that some of these problems are issues that you have heard of and come across before, do you (select the correct answer)

Answers

- Listen to the wai ora and let them continue to speak, offering to link the wai ora to appropriate professional help once they have let you complete your own counselling with them.
- Listen to the wai ora and let them continue to speak, offering to link the wai ora to appropriate professional help or services. CORRECT

- Listen to the wai ora and let them continue to speak, but its late in the day so stop the conversation and get them leave as you don't want to be involved.
- Listen to the wai ora and let them speak, then invite them to dinner as your partners uncle's sister once had a similar problem and could talk to them.

Hint: We call this process or technique Psychological First Aid (PFA)
Explanation: Look, Listen, Link. Listen to the wai ora and let them continue to speak, offering to link the wai ora to appropriate professional help or services.

POCT Section 2. Question 8.

Description / Question
Should I trust my instincts (Select the correct answer)
Answers

- Maybe but it could be just wind...
- Yes, absolutely, without any doubts... CORRECT
- Hungry or hangry, it can be confusing...
- No, evidence strongly suggests it's an old wife tail.

Hint: If in doubt...
Explanation: Yes. This may be the most primal response we can have...

POCT Section 2. Question 9.

Description / Question
You have been asked to assist with a test to treat program in a local prison, for your testing set up do you (Select the best answer)
Answers

- Establish a testing room where you can always be closest to the exit. CORRECT
- Offer to walk yourself through the prison going cell to cell testing.
- Get all those in custody to meet you in the prison yard because it's a nice day to be outside.

Hint: Hopefully your common sense will help you here...
Explanation.: Establish a testing room where you can always be closest to the exit. Always ensure you can get away if needed.

POCT Section 2. Question 10.

Description / Question
At the same prison test to treat program, you have finished late and your car is some distance from the prison in a dimly lit area, do you ask a guard to escort you to your car. (true or false)
Answers

- FALSE
- TRUE CORRECT

Hint: Remember personal safety.
Explanation: True, absolutely ask for an escort.

Section 3. Hepatitis C (HCV)

POCT What is Hepatitis C (HCV)

Duration:

- Forty-Five (45) minutes

Course Materials:

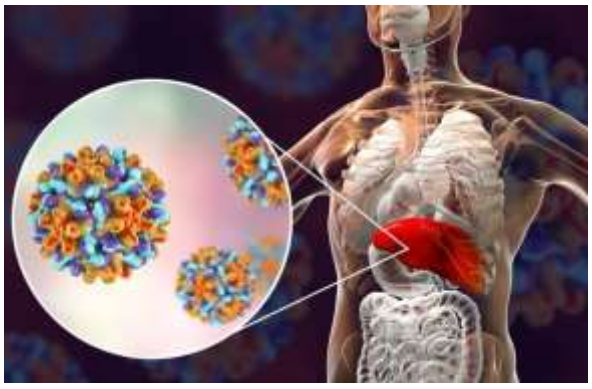
- *Hepatitis C General Fact Sheet, CDC (PDF), Centre for Disease Control, "Hepatitis C General Fact Sheet"*

Links in lesson:

  - Hepatitis C, acute, chronic, cirrhosis, cancer, vaccine, symptomatic, jaundice, bilirubin, anorexia, Anorexia Nervosa, abdominal, febrile, arthralgia, symptomatic, bilirubin, asymptomatic, Fatigue, Depression, **Mental Health**, constitution, cirrhosis

Content: During the course of this lesson, we really do recommend you click on the links within the lesson and read the supporting online material and resources, as you come across them. This lesson is a rapid-fire quick overview of Hepatitis C, it does contain the important parts that will help develop your understanding of the virus, the disease, and the impact on the lives of our wai ora impacted by HCV. Bearing in mind our esteemed colleagues, senior professors and consultants who work with Hepatitis, have likely studied and worked in this field for a minimum of a decade (and collectively hundreds of years) in order for us to have access to the information and understandings we do, let alone the testing and treatment protocols.

All adults, pregnant women, and people with risk factors should get tested for Hepatitis C



Overview, **Hepatitis**: Hepatitis means inflammation of the liver. Our liver process' nutrients, filters blood and helps in fighting infections. The liver is one of our vital organs. When the liver is damaged or becomes inflamed its function is affected. Heavy alcohol use, certain toxins, some prescribed medications, some illicit drugs and many health conditions can cause hepatitis.

Hepatitis is most often caused by a virus, the most common types of viral hepatitis are Hepatitis A, Hepatitis B and Hepatitis C. All types of viral hepatitis cause and present with similar symptoms, however they are spread in different ways, have different treatments, with some types more serious than others. In very general terms, and we will discuss in more detail in a future lesson, once you have had hepatitis virus in your blood, you will have antibodies to that virus present in your blood.

Please download the Learning Resource " *Hepatitis C General Fact Sheet, CDC* (CDC, 2020a)"

Hepatitis C (HCV) Hepatitis C (WHO, n.d.-f) is a bloodborne virus that is can cause liver disease, specifically inflammation of the liver. We will go into more depth in following

lessons on what the does, transmission or how it can infect you, and more. Hepatitis C is transmitted through exposure to blood that carries the virus. The virus can cause sudden (acute (Cambridge, 2024)) serious illness, or lifelong - long term (chronic (Cambridge, 2024)) infection that may range from no to mild illness or potential development of later in life liver disease (cirrhosis (Cambridge, 2024)) and cancer (Cambridge, 2024)(s). Acute and chronic HCV infection can be potentially life threatening. Of the people that are infected around 30% will naturally clear the virus from their bodies within 6 months of infection. *These people will still test antibody positive with the POCT test you will be learning on this course*. No one really understands why some people's natural defences clear the virus and others do not. Unlike Hepatitis A and B that do have vaccine (Cambridge, 2024), there is no vaccine for HCV.

Any person meeting, or suspected of meeting, any of the following Acute Hepatitis C criteria needs to be referred to and assessed by a qualified medical authority.

Acute Hepatitis C: By definition when we are discussing acute hepatitis C, the HCV infection presents with signs and symptoms (the infected person becomes symptomatic (Cambridge, 2024)) within six (6) months of infection. In basic terms, the recent HCV infection makes you unwell. The signs and symptoms will possibly present as some or all of the following;

- Yellow appearance of the skin or the whites of the eyes.
    - This is a condition called jaundice (Fargo et al., 2017; Maciej Serda et al., 2013). Jaundice is caused by, in the case of HCV infection, the inflammation of the liver causing ducts in the liver to block raising bilirubin (Cambridge, 2024) levels. (We will discuss bilirubin in more detail in a following lesson). The excess bilirubin circulates in the blood eventually dissolving into fat under the skin (subcutaneous fat) causing the yellowish appearance of the skin and the whites of the eyes.
- Not wanting to eat.
    - Described as anorexia (Cleveland Clinic, n.d.). When used in describing the loss of appetite associated with acute hepatitis C we are describing the loss of appetite, not to be confused with the condition Anorexia Nervosa (Mayo Clinic, n.d.) that is a serious eating disorder.
- Upset stomach, possibly with throwing up.
    - People may present with upset stomachs and possibly vomiting with stomach (abdominal (Cambridge, 2024)) pains.
- Fever, joint pain and tiredness
    - They might have a fever (febrile (Cambridge, 2024)) and joint pain (arthralgia (Wiki, 2024)), commonly associated with fever and they will have tiredness that comes from fever and the body fighting illness.
- Dark urine and light-coloured poo.
    - With illness from HCV infection, or becoming symptomatic (Cambridge, 2024) (showing signs of illness), liver inflammation results in bilirubin (Cambridge, 2024) levels above normal. So, the body disposes of the excess bilirubin in urine instead of via the intestines and stools (poo), as occurs in well people. Therefore, the bilirubin causes the appearance of light-coloured stools (lower levels of bilirubin) and dark coloured urine (increased amounts of bilirubin).

Chronic Hepatitis C : By definition when we are discussing chronic hepatitis C, the HCV infection can remain asymptomatic (Cambridge, 2024) for the person's lifetime. This person is carrying HCV however has not developed signs or symptoms (become symptomatic) with six (6) months of being infected. This person may be an infection risk to other people if they are exposed to the infected persons blood regardless of being symptomatic (Cambridge, 2024) or asymptomatic (Cambridge, 2024).

Early indicators of possible chronic HCV infection may include one or more of the following, however are not limited to;

- A history of or current behaviours that are suggestive of 'at risk behaviours' for exposure to HCV. (We will go further into at risk behaviours in an upcoming lesson in this section).
- A generalised feeling of being unwell.
- Constant feeling of tiredness (Fatigue (Cambridge, 2024)).
- Depression (WHO, n.d.-b). Let's reflect back to section 2 of this course, '*Lesson 6 POCT Medical in Confidence*' and our brief look at a description of mental health. This combination of not quite feeling well over months or even years, with constant tiredness is very fitting of that description. So, in this case hepatitis C infection is creating an impact on mental health. Our perception of this individual's illness may be that we see 'laziness or health-anxieties' Here's that description again; -
    - **Mental Health** (WHO, 2024d) The World Health Organisation (WHO) constitution (WHO, 2024c) states: *"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." An important implication of this definition is that mental health is more than just the absence of mental disorders or disabilities. Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community*.
- Chronic HCV infections, in the absence of the infected person undertaking testing of their own accord, might be detected during screening for blood donating, or routine blood tests with routine medicals if HCV is a part of the routine medical screen.
- Later in life, possibly decades after infection, HCV may present as cirrhosis(Cambridge, 2024) of the liver (scarring of the liver) and or liver cancer. Chronic liver disease is a slow progressively worsening condition often without signs or symptoms over several decades. And can lead to significant long-term health and medical care requirements.

POCT How is HCV Transmitted

Duration:

- Twenty (20) minutes

Course Materials:

- *Nil*

Links in lesson:

  - vertical, Human Immunodeficiency Virus, 30% of those with HIV will have HCV, HIV, maintenance hemodialysis,

Content: The following is not an exhaustive list of transmission or exposure, or an exhaustive list of at-risk behaviours. It is inclusive of the most common modes of transmission and very much captures the common risk behaviours that can lead to exposure. We will look closer at People Who Inject Drugs (PWID) in a later lesson.

Hepatitis C Transmission / or Exposure usually occurs when someone comes into contact with blood from a person who is infected with HCV. You can be infected more than once; this is why anyone with at risk behaviour is encouraged to undergo regular testing. Transmission or exposure can be through;

- **Sharing drug injection equipment.**
  - Sharing of needles and equipment used for illicit drug use is the most common transmission route of HCV.
- **Birth.**
  - Also known as vertical (Ades et al., 2023) transmission. Of expectant mothers who have HCV infection, 5-6% will pass that infection on to their baby, and of those infected babies 25-40% will spontaneously clear of HCV infection within five (5) years.
  - There is no evidence of transmission through breastfeeding though it is suggested when nipples are cracked or blood exposure is possible to not breastfeed.
- **Health and Medical care exposure.**
  - This is not a common occurrence today. It is a risk in underdeveloped facilities / countries where poor sterilization techniques, reuse of equipment, such as injection and intravenous equipment, or health-care professionals not following correct procedure may happen.
- **Sexual transmission.**
  - While not common exposure can occur during sex, this is most common amongst men who have sex with men, people who have multiple sex partners, and those who engage in rough sex.
  - The practice of 'chemsex' where illicit drugs are used as a sexual stimulant, often with sharing of injecting equipment, carries significant risk.
  - The risk increases for those who have a sexually transmitted disease, or are infected with Human Immunodeficiency Virus (CDC, n.d.-a) (HIV), (as many as 30% of those with HIV will have HCV (Freitas et al., 2014))
- **Tattoos and Body Piercings.**
  - Considered low risk in today's environment, the significant risk is when tattoo professionals do not follow correct hygiene and sterilization procedures, and tattoos or piercings conducted in informal or unlicensed environments such as prisons or backyard studios.
- **Sharing personal items.**

    - HCV infection can occur from miniscule traces of blood from sharing items such as razors, nail clippers, toothbrushes, and any personal items that have been in contact with infected blood.
    - HCV is not spread by sharing eating utensils, hugging or kissing, coughing or sneezing, breastfeeding, or through food or water.
    - Household transmission is unlikely and would require exposure to infected blood.
- **Blood transfusions and organ transplants.**
    - Blood transfusion products and donated organs have been screened worldwide for HCV since 1992.
    - Any blood transfusion or organ transplant prior to 1992 did carry exposure and infection risk.

Who is at risk of HCV infection or exposure: again, this is not an exhaustive list of who is at risk of exposure to, or infection with HCV. There are reported cases where the mode of transmission was not established.

- People Who Inject Drugs PWID)
- People with HIV (CDC, n.d.-a) infection
- People with certain medical conditions, including those receiving maintenance hemodialysis (NCBI, n.d.)
- People who received transfusions or transplants prior to 1992
- Healthcare and medical personnel who experience needle stick injury or gross blood contamination
- People, (children) birthed from mothers who had HCV infection at the time of pregnancy or birth.
- For reasons unknown, people who abuse alcohol, and do not inject, show a higher predisposition to HCV infection.

POCT People Who Inject (illicit) Drugs (PWID)

Duration:

- Forty-Five (45) minutes

Course Materials:

- Hooked on the needle *(PDF), Kristin Hanoa, "Hooked on the needle": Exploring the paradoxical attractions towards injecting drug use*

Links in lesson:

  - *NIDA*, Globally, statistically,

Content: Quote: Addiction is defined as a chronic, relapsing disorder characterized by compulsive drug seeking and use despite adverse consequences. It is considered a brain disorder, because it involves functional changes to brain circuits involved in reward, stress, and self-control. Those changes may last a long time after a person has stopped taking drugs.

Addiction is a lot like other diseases, such as heart disease. Both disrupt the normal, healthy functioning of an organ in the body, both have serious harmful effects, and both are, in many cases, preventable and treatable. If left untreated, they can last a lifetime and may lead to death. *NIDA* (NIDA, n.d.)

People Who Inject Drugs (PWID) often do so to feel good, to feel better, to do better, or from curiosity and social or peer pressure. Trouble is the next hits never going to be as good as the last and the effort vs reward cycle gets deeper and harder every step. Many people struggle to understand addiction, and some would say that those who haven't been down the addiction pathway are pretending if they say they can understand the cycles of addiction.

We can look to biology, genetics, environment, in fact a raft of factors in determining risk for addiction, however it is not that simple. No single factor can determine one's predisposition to addiction. If it was addiction would be much less of a problem.

Stigma, stigmatism: or labelling is an issue when it comes to finding people who are affected by HCV within our PWID population. This stigmatism extends beyond this population and into general population as soon as the term "injecting" is used. Sigmatism is a multi-faceted beast, it is applied by mainstream society against those who are in our PWID populations, and often felt as being applied to and against those who are the PWID population. This also has an effect on those individuals who, '*that one time at band camp back in the day*' experimented one-time decades ago. These individuals are concerned of being labelled if family friends or colleagues learn of their historic use, and unfortunately HCV has a stigma attached that has an association with drug use.

We need to destigmatize HCV, PWID and addiction. Health Network Collective stance is very clear when it comes to destigmatizing the myths, fear and misinformation around addictions and our PWID populations. If we review earlier sections of this course, we discussed United Nations Anti-discrimination statements, the Universal Declarations, and reviewed Health Network guidelines and obligations. In the lesson "Working with others" we discussed coordinated collaborative approaches to working together with our community. This approach gives us the community based '*friendly faces from familiar places*' and the expert knowledge and relationships that can help us extend our offer of access to health into these communities. Even the ability, through forming relationships, to link those in need to care for injection injuries and other health issues is invaluable. And of

course, some of you taking this course may already be these faces, thank you and we hope someone extends the courtesy of asking "***how can we help***".

Globally, statistically (WHO, n.d.-d) (*UNAIDS,2020*) **23-39% of new HCV infections are from injecting drug use**, PWID's. **One in three HCV deaths can be attributed to injecting drug use**, and within our PWID populations **HIV HCV co-infection rates are incredibly high.**

This shows that over 60% of HCV infections are not from within PWID populations, and 2 of 3 HCV deaths not attributed to injecting drugs.

So, based on that, where ever Health Network Collective can, lets offer to support and enhance the services in place in our PWID communities, and place our efforts (unless the PWID support community is not present) in furthering our reach into the community and people who are making up the over 60% of HCV infections. AND make an effort towards destigmatizing the world of PWID and HCV stigma.

Note; sadly, the images of the "zombie drug epidemics" in this age of Fentanyl and synthetic derivatives, the methamphetamine scourge now replacing the prescription fuelled days of pharma grade "legal" addictions and other horror stories grace our media and headlines. This is very real; we do need to ask ourselves is this representative of today's age... and sadly the answer in the changing face of the world might just be yes...

*Please download and read the Learning resource "*Hooked on the needle (Battjes, 1984; Crofts et al., 1996; Degenhardt et al., 2017; Fast et al., 2009; Fitzgerald et al., 1999; Hanoa et al., 2022; Harocopos et al., 2009; Järvinen & Ravn, 2011; Lloyd, 2013)*": Exploring the paradoxical attractions towards injecting drug use. Great Norwegian study and interesting read.*

POCT What does the liver do

Duration:

- Thirty-Five (35) minutes

Course Materials:

- *https://www.youtube.com/watch?v=wbh3SjzydnQ* (Video) Emma Bryce *"What does the liver do"*

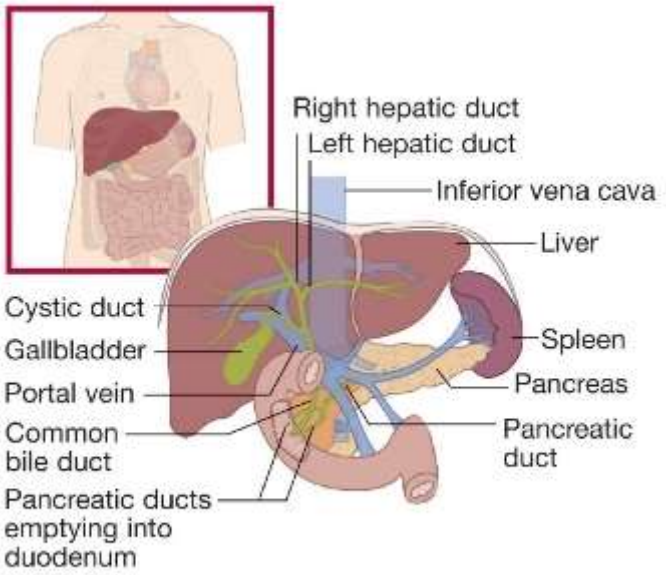
Links in lesson:

- liver, hepatocytes, Glycogenesis, Glycogenolysis,

Content:

Our liver (WebMD, n.d.) is a fascinating thing! Place your right hand just under your ribs on the right side of your body, that almost covers the area your liver takes up. The largest solid organ in our bodies and the largest gland, our liver weighs in at about 1.3kg for women and 1.8kg for men. Our liver, at any given time, contains 13% of our blood volume (that's around 0.5-0.6 litres) and is busy performing over 500 functions simultaneously.

Dark reddish brown in colour and consisting of two (2) main lobes, (smaller left and larger right) the liver is sub-divided into around 100,000 small lobes or lobules. 60% of the liver is made from special liver cells (hepatocytes (Cambridge, 2024)) that are replaced every 150 days. These cells' primary role is to absorb nutrients, detoxify, and remove harmful substances from the blood. The liver is an accessory organ that works with our pancreas, gall bladder and other organs as part of our Gastro Intestinal tract process and more.



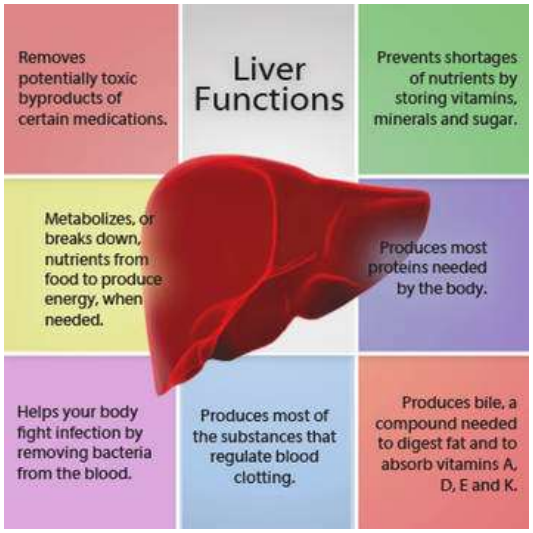
Please watch the following TED-Ed video on "What does the liver do?" in entirety.

https://youtu.be/wbh3SjzydnQ?si=NaPAwHidj5ePyGlb (Bryce, n.d.)
TED-Ed What does the liver do? - Emma Bryce

Our livers more important functions include, as an overview:

Producing and managing quick energy, when we eat carbohydrates such as bread and potatoes, our body breaks these down into sugars (Glycogenesis (Wiki, 2024)) and stores them in the liver and muscles. The liver works with the pancreas to release these back into the blood stream (Glycogenolysis (Wiki, 2024)) as energy when we need it. This process becomes very important to understand with **diabetic type conditions**.

Like anything that produces and manages energy, our **liver also helps manage waste** that is produced. When we **digest protein** ammonias are released, our **liver turns these into urea** that we then pee out. **Alcohol is converted by the liver into acetate** which other tissues in the body can then break down into carbon dioxide and water. **Fats are collected and released from the liver as bile** (about a litre a day) that is then released into the small intestine where nutrients are absorbed and waste 'pushed through'.



- our liver **filters and remove toxins**, including medications and drugs,
- helps **break down nutrients and store as energy** to release when we need,
- helps in **fighting infection** by filtering bacteria from the blood,
- produces most of the essential substances that **regulate blood clotting,**
- Helps **digest fats**,
- absorbs some essential **vitamins**,
- **produces most of the proteins** we need for our body and health
- helps **prevent shortages** of **vitamins**, **minerals** and **sugars** by storing and releasing as needed

In better understanding the role the liver has in our day to day living and health maintenance, you should be starting to understand how much of an **impact the inflammation of the liver caused by HCV** has on the body and our health. In the case of c**hronic asymptomatic HCV infections,** the impact of slow gradual onset of disease on the liver has the same **slow gradual effect on the body** and its functions from the inability of the liver to function at 100%.

The addition of persistent and constant toxins from drug and or alcohol abuse, and the possible lack of adequate nutrition and poor health often associated with such abuse, really increases the odds of poor health, illness, and increased need for eventual long term medical cares.

POCT Reducing Risk

Duration:

- Five (5) minutes

Course Materials:

- Nil

Links in lesson:

  - Nil

Content: Reducing the risk and Prevention of HCV transmission or exposure: Hepatitis C has no vaccine, unlike hepatitis A & B. The simple message here is avoid behaviours that suggest a risk of exposure. Easier said than done, especially in view of community behaviours when it comes to at risk behaviours.

Health Network Collective community approaches with our coordinated collaborative "how can we help" concept can be an absolute asset when it comes to reducing risk in our communities. Working with other agencies organisations and community entities in harm reduction and risk mitigation is so important in getting consolidated consist messaging across.

In our **PWID community and populations** strengthening, educating and ensuring equitable accessibility to **needle exchange programs** and resources on **safer injecting practices** needs to be a priority.

In our **men who have sex with men** community, **sex workers** and similar, reinforcing **safer sex practices** and ensuring there is **equitable access to resources and prophylactic's (protection) with education and support.**

Destigmatizing HCV and PWID, we need to be all working to **normalize hepatitis** as a community prevalent condition, and that is on a **global scale**.

And we need to actively engage in promoting population wide screening and testing to treat.

On a personal level for working with wai ora, we need to ensure we wash hands regularly and thoroughly, use gloves when there is a risk of blood contamination, take care with sharps such as needles and be very aware of the management of testing by-products.

If we can show the governments and health systems of the world that we can work collaboratively as a community, then maybe they will follow.

POCT HCV Screening and Testing

Duration:

- Fifteen (15) minutes

Course Materials:

- Nil

Links in lesson:

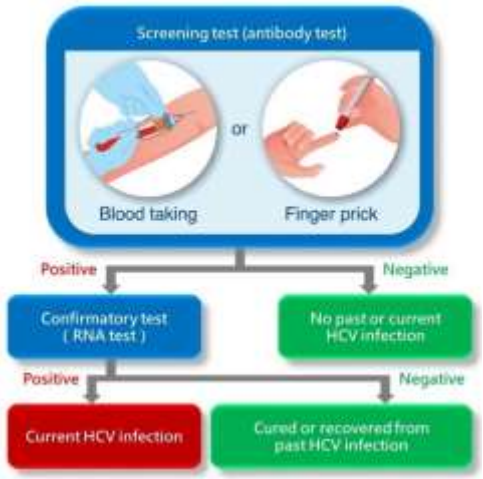
  - Nil

Content: Now we have a basic understanding of Hepatitis C, the infection, transmission, risk and some understanding of impacted populations, we can make a start towards the reason you are completing this course. **Screening and Testing**.

The below **two notes of information are very important** for us to understand as testers and as kaiawhina / peers working in and with our communities.

- **Following exposure to HCV that has resulted in infection, it can be up to 8-11 weeks for an HCV antibody test to be reactive or positive**. For most people antibodies, if present, will show as positive ten (10) weeks after exposure that has resulted in infection.
- **Antibodies are proteins are released into the bloodstream** when you get infected with HCV, and these will **always be present** regardless of if you have the virus in your blood or not, or have been **cured or not**.

A blood sample is required to test for Hepatitis C



Screening Anti-HCV Test (Antibody against HCV)

A Rapid Diagnostic Test (RDT) point of care test involving a finger prick blood sample to check for antibodies. This tells if the tested person has been exposed to HCV. If negative, it is unlikely they have been exposed.

If positive, in the case of the RDT showing positive, another sample needs to be taken for a confirmatory test, the blood sample test may automatically advance to confirmatory testing. This is explained more below.

Screening Anti-HCV Test: as we described this test shows the presence, or not, of HCV antibodies in the blood. This indicates previous exposure to HCV. The test can be conducted in several ways, we will go into more depth on using a finger prick Rapid Diagnostic Test (RDT) using a cassette, drop of blood and a reagent that can produce a positive (reactive) or negative (non-reactive) result within 5-20 minutes. This is a relatively inexpensive means of testing that is quick and suitable for widespread testing. Positive, or reactive, results do require further testing.

Another option for Anti-HCV testing is dried blood spot testing or venous sampling. These have a higher skill level, involve a lot more expense and logistics and are reliant on qualified

resourcing at many levels of the process. The advantage for the wai ora is a single test to treatment (in most cases) pathway.

Confirmatory HCV-RNA Test: HCV Ribonucleic Acid (RNA) test is a laboratory machine-based test. Some of these machine-based systems are portable, however they all require a suitably qualified operator to conduct testing with samples for testing also (generally speaking) needing a qualified person to obtain. This type of test is required before wai ora can be offered treatment.

SO... why not just use RNA type test everyone... In a perfect world this would be the ideal. Reality is we have hesitancies and stigmas affecting some populations, discouraging their participation with existing health systems and structures. Kaiawhina and peer access is often possible and this is where RDT POCT type testing is suited. Other factors can simply be the resources and expense required for a whole of population RNA type testing program.

You should get tested for hepatitis C if you, or your wai ora:

- Are 18 years of age and older (get tested at least once in your lifetime)
- Are pregnant (get tested during each pregnancy)
- Currently inject drugs (get tested regularly)
- Have ever injected drugs, even if it was just once or many years ago
- Have HIV
- Have abnormal liver tests or liver disease
- Are on haemodialysis
- Received donated blood or organs before 1992
- Have been exposed to blood from a person who has hepatitis C
- Were born to a mother with hepatitis C

Recommended regular testing if wai ora are currently injecting or sharing injecting equipment, or partaking in other at-risk behaviours.

Recommended tests with pregnancy.

POCT HCV Treatment

Duration:

- Five (5) minutes

Course Materials:

- https://www.rxabbvie.com/pdf/mavyret_pi.pdf (Abbvie, 2017) (PDF), Abbvie, *"Mavyret Prescribing Highlights"*

Links in lesson:

- Nil

Content:

Treatment of hepatitis C

- Currently, direct-acting antivirals (DAA) are first-line drugs of hepatitis C treatment.
  - Highly effective (over 90% of HCV infection can be cured, Mavyret shows 95-99% cure rates)
  - Oral administration (do not require injection)
  - Treatment usually takes around 8 - 12 weeks
  - Minor side effects
- As compared with traditional treatment using PEGylated interferon and ribavirin, DAA's are not only better tolerated, but also more effective.
- With successful clearance of HCV, the risk of progression to cirrhosis and liver cancer and dying from liver diseases can be significantly reduced. However, regular examination is still required if there is deteriorated liver function, cirrhosis or its complication before treatment.
- As treatment does not confer protective immunity, recovered hepatitis C patients should stop high-risk behaviours to prevent HCV re-infection.

Important note; - treatment will, in most instances, require an RNA PCR type test and a script issued by either a doctor or a prescribing / dispensing approved nurse for the treatment. You, as a community Health Network Collective tester and representative should be able to facilitate this.

Aotearoa New Zealand has approved regulations in place that allow approved community liver and hepatitis nurses to dispense treatment to qualifying wai ora.

Sustained virologic response (SVR) is an indicator of treatment success.
A sustained virologic response occurs when the blood test shows no detectable RNA viral load 12 weeks after treatment. People having achieved SVR after treatment are considered as cured, and will not transmit the virus to others.

POCT Life after Treatment

Duration:

- Five (5) minutes

Course Materials:

- Nil

Links in lesson:

- Nil

Content: Life following treatment and cure, you or the wai ora (person seeking care) will have the comfort of knowing that the risk of developing potentially life-threatening illness or conditions in the future related to HCV are significantly reduced if not removed. For some the knowledge that the risk of accidental infection of your loved ones, family and others is also removed.

For many who have had chronic HCV infection, cure should allow the start of feeling stronger and more energetic as the hepatitis virus that may have caused chronic fatigue is cured and eliminated from the body. If the liver had suffered mild to moderate damage (fibrosis) this damage may regenerate and heal in as little as 3 to 6 months.

This does come with caveats, or conditions.

These caveats or conditions include, however are not limited to, some of the following

- Mitigation of and elimination of at-risk behaviours such as; -
  - sharing of drug taking equipment (and you could say taking illicit substances)
  - ensuring tattoos are from reputable hygienic providers
  - ensuring piercings are from reputable hygienic providers
  - avoidance (where possible) of questionable or unhygienic medical practice. This may include ensuring when travelling to under-developed areas adequate accident and medical evacuation and insurance plans are in place
  - Although not guaranteed, taking safe sex precautions with any at risk sexual activities, such as multiple partners, chem-sex, anal sex

If you or your wai ora have any doubts, seek advice or simply get another test. Bearing in mind that once exposed to HCV antibodies will be present so an RNA PCR type test will be required. Having had this type of test previously will have given the awareness of what is involved and hopefully reduced stigmatism's associated with getting the test(s).

In brief, getting tested to cure will most likely be a life changing experience in some regards, those changes may simply be not having to experience the potentially life-threatening impacts of chronic untreated HCV infection.

Important note; - where there is evidence of, or suspicion of, liver or other damage as a result of chronic HCV infection, regular check-ups by an appropriate medical professional are highly recommended. This may also indicate the need for considering lifestyle changes to further reduce the risk of ongoing or future complications and issues. These changes may include reducing or removing at risk activities, diet and exercise changes or improvements, and other recommendations from your or your wai ora's health professional.

Quiz POCT Section 3. Hepatitis C (HCV)

Allowed time: Forty-Five (45) minutes

Questions:	Ten (10) varied formats
Passing Grade:	Eighty (80%) Percent
Instant Check:	On submitting answer, correct or incorrect
Retake:	Two (2) retakes, previous quiz must be completed in entirety
Review:	Full review on completion of test
Show correct answer:	Visible with review on completion
Hints:	Yes, with each question

Introduction: Welcome to your third of six quizzes towards **certification in antibody Point of Care Testing (POCT)**.

- Again, our quizzes have **many different styles** of questions and ways of answering. You may have **noticed hints in the questions** themselves?
- Overall (over the **6 course sections and 6 quizzes**) you will need to **achieve 80% or greater to gain certification** and access to the Health Network Collective mobile application to conduct testing.
- You will have the **opportunity to review your questions and answers** (with correct answers shown) **on completion** of the quiz.
- You have **45 minutes to complete** this quiz.
- **Retaking tests is possible, up to a limit of 2 repeats**.

POCT Section 3. Question 1.

Description / Question
A wai ora presenting with Jaundice, or yellowish appearance of the eyes and possibly skin, needs to be assessed by a medical professional.
Answers

- False
- True CORRECT

Hint: Jaundice is a sign of significant liver acute liver issue(s).
Explanation: True, when the liver is compromised by HCV and not working well from HCV infection, it releases excessive bilirubin into the body, hence the yellow (ish) appearance.

POCT Section 3. Question 2.

Description / Question
Chronic HCV infection may remain asymptomatic, or not showing signs or symptoms, for many years.
Answers

- True CORRECT
- False

Hint: Chronic meaning long term, acute meaning within 6 months and showing signs or symptoms.
Explanation: HCV infection can remain asymptomatic for the person's lifetime. This person is carrying HCV however has not developed signs or symptoms (become symptomatic) with six (6) months of being infected. This person may be an infection risk to other people if they

are exposed to the infected persons blood regardless of being symptomatic or asymptomatic.

POCT Section 3. Question 3.

Description / Question
Sharing of injecting equipment is the most common cause of HCV transmission.
Answers

- True CORRECT
- False

Hint: Illicit drug use and sharing of equipment can lead to blood transfer and contamination.
Explanation: Sharing of needles and equipment used for illicit drug use is the most common transmission route of HCV.

POCT Section 3. Question 4.

Description / Question
Addiction is defined as a...
Answers

- weakness for stimuli
- chronic, one-time use
- an excuse for getting high
- chronic, relapsing disorder CORRECT

Hint: You should be able to eliminate the incorrect answers here :)
Explanation: Addiction is defined as a chronic, relapsing disorder characterized by compulsive drug seeking and use despite adverse consequences. It is considered a brain disorder, because it involves functional changes to brain circuits involved in reward, stress, and self-control. Those changes may last a long time after a person has stopped taking drugs.

POCT Section 3. Question 5.

Description / Question
Our bodies can adapt and overcome liver issues and survive by letting other body organs take over the liver functions
Answers

- False CORRECT
- True

Hint: Hopefully this is easy, a common-sense approach to the correct answer...
Explanation: False. In better understanding the role the liver has in our day to day living and health maintenance, you should be starting to understand how much of an impact the inflammation of the liver caused by HCV has on the body and our health. In the case of chronic asymptomatic HCV infections, the impact of slow gradual onset of disease on the liver has the same slow gradual effect on the body and its functions from the inability of the liver to function at 100%.

POCT Section 3. Question 6.

Description / Question
What are the three (3) correct measures that we can promote in our community to reduce the risk of HCV infection spread.
Answers

- Ensuring equitable accessibility to needle exchange programs and resources on safer injecting practices CORRECT
- Destigmatizing HCV and PWID, we need to be all working to normalize hepatitis as a community prevalent condition, and that is on a global scale CORRECT
- Reinforcing the labelling of HCV infected persons and their risk behaviours with our communities, so others are aware and can avoid risk of transmission
- Ensuring HCV infected persons are placed in strict isolation, with limited contact with others to reduce and mitigate transmission risk
- Reinforcing safer sex practices and ensuring there is equitable access to resources and prophylactic's (protection) with education and support CORRECT

Hint: Think of your lesson in obligations, guidelines and ethics. We really hope you do not need this hint for this question. If you do, please review the course in entirety.
Explanation: 1,2 and 5 are correct. Education, equitable access to prophylactic measures and clean equipment, with support and messaging destigmatizing HCV is extremely important in our community approach to HCV.

POCT Section 3. Question 7.

Description / Question
Pick the one (1) correct answer. When are HCV antibodies detectable in the bloodstream.
Answers

- Exactly ten (10) weeks after exposure
- Approximately ten (10) weeks following infection CORRECT
- Only once the HCV infection has been cured.

Hint: Infection meaning the virus has entered and remained in the body. Exposure does not guarantee infection.
Explanation

- Following exposure to HCV that has resulted in infection, it can be up to 8-11 weeks for an HCV antibody test to be reactive or positive. For most people antibodies, if present, will show as positive ten (10) weeks after exposure that has resulted in infection.
- Antibodies are proteins are released into the bloodstream when you get infected with HCV, and these will always be present regardless of if you have the virus in your blood or not, or have been cured or not.
-

POCT Section 3. Question 8.

Description / Question
HCV treatment and cure gives individuals full protective immunity.
Answers

- False CORRECT
- True

Hint: Again, we really hope you do not need this hint for this question. If you do, please review lesson 16 on POCT HCV Treatment.
Explanation: False, as treatment does not confer protective immunity, recovered hepatitis C patients should stop high-risk behaviours to prevent HCV re-infection.
POCT Section 3. Question 9.

Description / Question
In older people who show signs of laziness, depression or long-term fatigue, we can simply state it is a mental health issue associated with old age. No need to consider other causes.
Answers

- True
- False CORRECT

Hint: In lesson 6 we discussed mental health, and revisited this definition in lesson 10... do we have the complete mental and physical picture...
Explanation: Mental Health; The World Health Organization (WHO) constitution states: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." An important implication of this definition is that mental health is more than just the absence of mental disorders or disabilities. Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community. Consider the underlying "other" factors and causes. Chronic HCV may only present as fatigue.
POCT Section 3. Question 10.

Description / Question
On completion of this course, you will be qualified to decide on what follow ups and reviews your wai ora will require for ongoing treatment and care..
Answers

- True
- False CORRECT

Hint: Remember limitations and patient safety when it comes to our practice as Health Network Collective in our community
Explanation: Where there is evidence of, or suspicion of, liver or other damage as a result of chronic HCV infection, regular check-ups by an appropriate medical professional are highly recommended. This may also indicate the need for considering lifestyle changes to further reduce the risk of ongoing or future complications and issues. These changes may include reducing or removing at risk activities, diet and exercise changes or improvements, and other recommendations from your or your wai ora's health professional.

Section 4. Basic Hygiene

POCT Hygiene, The Basics & 5 moments for hand hygiene

Duration:

- Forty (40) minutes

Course Materials:

- Your 5 Moments for Hand Hygiene, *(Poster), World Health Organisation, "5 moments of hand hygiene"*

Links in lesson:

  - **5 moments for hand hygiene,** antimicrobial, antiseptic,

Content:

Let's start with some of the very basic concepts in hygiene.

Our aim in these lessons covering hygiene is multi purposed. Obviously (we hope) we do not want to develop the very illness' we are working towards screening, treating and ultimately contributing towards eliminating as significant public health threats in our communities. At the same time our efforts need to be medically professional, our actions seen as trained competent professional acts that can leave a lasting impression and possibly some level of education with our wai ora and people seeking care. And importantly we do not wish to pose a contamination or exposure threat to our wai ora and those around us.

In lessons 19 - 24 we will look at specific areas of hygiene in greater depth that relate to our practice as Health Network Collective representatives. None of this is difficult, however on occasion we may be required to get creative with the resources we have at hand to accomplish adequate hygiene and reduced risk of contamination. Importantly, our hygiene needs to be a constant focus, notably with planning and preparation... if we are not prepared and ready then we will be setting ourselves up for contamination, and potential infection.

In the following lesson, lesson 19, we will take an in depth look at hand washing and how we wash our hands, adequately. The **5 moments for hand hygiene** (OMS, n.d.) are a World Health Organization (WHO) designed initiative to minimize the risk of transmission of microorganism's between kaiawhina, or healthcare worker, wai ora or patient, and the environment. We will start with the 5 moments of hand hygiene as this also describes the stage's we will go through in interacting with our wai ora or people seeking care in a clinical sense. And the stages where we need to consider steps in hygiene practice.

Moment 1. **Before touching a patient**. This is immediately before we touch our patient. This includes shaking our wai ora's hand, assisting our wai ora in moving, touching their personal items such as glasses, passing them an item, or any interaction involving touching or exchange of items. Even if your intent is not to have some form of physical interaction with the wai ora or their belongings, it is good practice as the wai ora seeing your hygiene action of hand washing can be reassuring. After all our wai ora do not wish to be inadvertently contaminated or infected from or by you or the environment.

Moment 2. **Before a procedure**. Let's consider procedure to include, however not limited to, any form of interaction with our patient. Especially clinical procedures. Our 5 moments for hand hygiene are not a strict step 1 to step 5 process. We need to look at the 5 moments pragmatically and apply a level of common sense in the 5 moments of hand hygiene application. In preparing for a procedure, we need to wash our hands, and again once we are set-up and ready to again touch our wai ora or patient. The equipment and testing environment needs to be kept as clean as possible so we reduce or mitigate risks of incidental contamination or transfer of microorganisms. This is not only about protecting ourselves; it is also about protecting our patients from us, and even our patients from themselves. Microorganisms and nasties can transfer from anywhere to anywhere or anyone. Even our own bodies such as our hands to our mouths.

Moment 3. **After a procedure or body fluid exposure risk**. Consider any procedure a fluid exposure or contamination risk. And any instance where blood or body fluids are present is an absolute risk, without question. We will discuss gloves and Personal Protective Equipment (PPE) in further lessons, these items are barriers enhancing protection, not a replacement or option for handwashing and hygiene. In the context of our Health Network Collective HCV antibody testing, cleaning up and appropriate disposal of procedure equipment is considered a part of the procedure, and it is at this stage we again wash our hands. An exception may be any instance where there is real or perceived contamination from any blood, fluids or substance that could pose contamination risk. This is one instance where you might or should decide to wash your hands and decontaminate as appropriate. If this means resetting and restarting the procedure again then that is absolutely fine. Act confidently and with professionalism, you and your wai ora will be better for it. It is always better to err on the side of caution than disregard the risks and possible consequences.

Moment 4. **After touching a patient**. This may coincide with after a procedure or body fluid exposure risk. This also includes any touching of the patient, which may simply be shaking hands on greeting or farewell, that's if you do shake hands. As a side note it is not uncommon practice to only shake hands when offered by our wai ora, that is we do not offer or initiate handshakes. It is also common practice as a result of COVID that we do not shake hands or have polite social bodily contact.

Moment 5. **After touching a patient's surroundings**. This a crucial and often overlooked moment for hygiene. Use of antimicrobial (Cambridge, 2024) or antiseptic (Cambridge, 2024) solutions, sprays or wipes on any surfaces used or surrounding procedures and areas of patient contact is common practice. This can include chairs furnishings and other items in the environment patients may have had contact with. This doesn't mean we need to make a large-scale decontamination exercise for cleaning, imagine how you would feel faced with over-the-top cleaning procedures as wai ora. Subtle yet effective and appropriate timings can mean a lot and there is a difference between professional actions and appearance vs possibly reinforcing stigmatism or causing wai ora to feel as if they are contaminated...

In summary, the five (5) moments of hand hygiene are designed as a best practice guide to help us mitigate risks associated with microbial transfer and contamination. This helps in keeping us safe, from ourselves, others, environment and risks associated with the things that can make us and our wai ora unwell.

If possible, print off or draw a copy of the course materials available with this lesson and display in a prominent place as a reminder and as a potential educational aid for anyone who takes the time to read it.

POCT Hand Washing

Duration:

- Forty-Five (45) minutes

Course Materials:

- https://www.hqsc.govt.nz/our-work/infection-prevention-and-control/our-work/hand-hygiene/ (Website) Te Tāhū Hauora, "*Ringa Horoia, Hand Hygiene*"
- https://www.hqsc.govt.nz/assets/Our-work/Infection-Prevention-Control/Publications-resources/How_to_hand_wash_English.pdf *How to Hand Wash (Poster), Health Quality and Safety Commission New Zealand, "How to Hand Wash"*
-

Links in lesson:

- **Nil**

Content:

Now that we have learnt of the *5 moments for hand hygiene*, let's look at what is involved in hand hygiene.

Keeping our hands clean is one of the most important things we can do to help avoid becoming unwell and spreading germs to others. A lot of disease and illness is spread by not washing our hands. This lesson is based on science, backed by studies, research and effectiveness measured by many case studies. This lesson and the remainder of lessons in Section 4, Basic Hygiene, will provide links and further reading for your interest and learning.

The best form of hand hygiene is the good old tried and true soap and water hand washing. One of the key components of adequate hand washing is the friction created by rubbing or washing the hands, this can greatly assist in getting the result we need. Alcohol and other types of hand sanitizers are acceptable however not as efficient as using soap and water. The really important thing is that we are prepared that we can perform some form of hand hygiene wherever we are under any circumstance.

Our daily personal hygiene shouldn't be overlooked, keeping nails trimmed and tidy, using a nail brush to clean out behind our nails and keeping our hands generally clean and tidy should be a part of our daily routines.

If you have anything presenting as dermatitis, legions, allergic skin reactions or similar on your hands seek medical advice and minimize any contacts with wai ora. Gloves may be a consideration in this instance and recommended if you are not able to minimize contact with your wai ora. We will discuss gloves in a following lesson.

Any cuts abrasions burns or broken skin on your arms or hands will need to be cleansed regularly and have appropriate dressings or coverings at all times you are around wai ora or in a clinical environment.

Handwashing, first steps.

- Remove any and all jewellery from your arms and hands, with exception of wedding bands if you object to removing your wedding band or ring.
- Make sure the hand wash area is clean and free from other objects and items and you have soap, running water and paper towels, or at least a clean towel to dry hands at the ready.
- Wet the hands, all over, and apply enough soap to cover all the surfaces of your hands, including your wrists.

- Once all your hand and wrist surfaces are covered in soap, rub your hands in a circular motion palm to palm including the wrists.
- The friction you're causing with the rubbing motion is an important part of ridding and destroying any microbes and nasties that may (or may not) be present.
- Make sure the surfaces of your fingers get a decent 'rub' as well, all the inside or palmer aspects of the hand and wrist.
- If you wish to be really thorough include the forearms.
- In the case of visible dirt, notably around the finger nails, feel free to use a scrubbing brush to get in around and under the nails, carefully.

- Next use the right palm over the back of the left hand.
- Link your fingers of the left hand into the fingers of the right hand with a consistent rubbing motion.
- Half time change sides and do it all again, left over right.
- If you get lost just do it again.

- Now rub palm to palm with the fingers inter linked.
- Swap you thumbs so left is over right then right over left.
- Rub rub rub, with some circular motion.
- With a little practice you will develop an instinctive routine in no time.

- And like the image shows, back of fingers interlocked into the opposing palms and wash or rub with an up and down semicircular motion.
- Swap over and do the same again.

- Nearly there, take your thumb in the palm of the opposite hand and give it a goof rub and wash with a circular motion.
- Swap over and same again on the other thumb

- Second to last, or the final rub, use the fingers of one hand to rub and wash the palm of the opposite hand.
- Open and close the palm of the hand you're rubbing to get into all those crevices and places.
- And swap and same again on the other hand.
- This will also to some extent help with cleaning your nails.

- Now give your hands a good rinse under running water (where possible) to rinse of the soap.
- Make sure you basically rinse similar to the steps you just took in the previous steps, not as thorough we just want to make sure we have rinsed off all the soap and any dirt or nasties.
- Shake of excess water once done.
- For a pedantic professional look use your elbows to turn off the water, that is assuming the sink has lever type taps to enable using your elbows.

- And finally dry.
- Dispose of the paper towels in the rubbish by dropping them into the bin, just washed the hands so avoid touching rubbish bins or disposal points, that's essentially contamination and you will need to repeat the complete procedure again.
- No short cuts.

Now you've mastered the fine art of hand washing, your next task is to go and complete this at least 5 times, right now. And then start to make this your standard of hand washing every time you wash your hands. Even better; start to think of the 5 moments for hand hygiene and apply them, with good hand washing technique, into your daily routines.

And even better, teach the whanau (family) and friends. Good hand washing is a simple activity that can minimize and even prevent some un-wellness and contamination risk.

Finally, print or redraw the attached downloadable course materials from Te Tāhū Hauora (HQSC, n.d.-b), the Health Quality & Safety Commission of New Zealand, and place it next to the 5 moments for hand hygiene as a visible reminder and another opportunity for education for anyone who reads it. Click here (HQSC, n.d.-a) for some really awesome quality information and education materials on hand hygiene from Te Tāhū Hauora.

POCT Using Hand Sanitizer

Duration:

- Thirty (30) minutes

Course Materials:

- https://www.youtube.com/watch?v=JGWce_WDs5c (Video) American Heart Association "*Why does hand washing work"*

Links in lesson:

  - He Puna Waiora, Healthify NZ, here, 2016 US Food & Drug Administration (FDA) ruling, 2020 randomized single blinded controlled trial, disinfectant, CDC lowdown on recommendations, changing diapers, Show me the Science,

Content: This section and lesson is more for interest and learning. Health Network Collective encourages you to open the links, watch the videos and take some time to help better understand one of the most important aspects of infection control, hand hygiene.

Here's a great video from He Puna Waiora (Healthify, n.d.), Healthify NZ (Healthify, n.d.), explaining in really simple terms why hand washing with soap and water is our best defence and option, when available. This is based on COVID however the message is similar for microbes and nasties we don't want in our or our wai ora life.

https://youtu.be/JGWce_WDs5c?si=Vlb5IF_Ghi-GLNYZ

The Centers for Disease Control (CDC) has some great information regarding soap washing vs hand sanitizers that you can access here (CDC, n.d.-b). In brief, ordinary soap handwashing is best, the exceptions are some specialist clinical environments such as surgical facilities. And, ordinary soap is best. A 2016 US Food & Drug Administration (FDA) ruling (FDA, n.d.) removed the sale of antibacterial soaps from over the counter sales when manufacturers failed to show substantial benefit, and in fact research suggested that these soaps may contribute to microbial resistance.

A 2020 randomized single blinded controlled trial (Khairnar et al., 2020; Pittet et al., 2006) amongst dental college students comparing *hand sanitizer based hand hygiene* to *soap and water based hand hygiene* to World Health Organization (WHO) *combined soap washing and sanitizer protocols* showed negligible differences. This study was conducted with individuals who were practiced at hand hygiene with proficient techniques. Multiple other studies have shown that soap and water hand hygiene or washing is more efficient at removing actual dirt.

SO....

- **What if I have water but no soap to clean my hands...**
  - Rub and wash your hands under clean running water as we discussed in the previous lesson. Dry your hands and then use a sanitizer of at least 60% alcohol content. The friction in rubbing helps remove and kill some nasties, running water helps clean and the sanitizer does the rest.
- **I only have hand sanitizer...**

    - Use it, follow the same procedure as with hand washing with soap and water, and ensure that the sanitizer remains wet on your hands for the procedure. This means you may need to apply more as you wash / rub your hands.
- **Is warm or cold-water better...**
    - Whatever temperature is comfortable for you.
- **What if the water source is dirty, discoloured or contaminated...**
    - Consider boiling, filtering or adding mild disinfectant (Wiki, 2024) such as a mild bleach solution. Otherwise just use hand sanitizer. Please follow recommendations from manufacturers if using the bleach or disinfectant option, if in doubt just use hand sanitizer.
- **When should I wash my hands...** here's a CDC lowdown on recommendations (CDC, n.d.-b)
    - Before, during, and after preparing food
    - Before and after eating food
    - Before and after caring for someone at home who is sick with vomiting or diarrhoea
    - Before and after treating a cut or wound
    - After using the toilet
    - After changing diapers (CDC, n.d.-d) or cleaning up a child who has used the toilet
    - After blowing your nose, coughing, or sneezing
    - After touching an animal, animal feed, or animal waste
    - After handling pet food or pet treats
    - After touching garbage
- **If soap and water are not readily available, use a hand sanitizer with at least 60% alcohol to clean your hands.**

This "Show me the Science (CDC, n.d.-c; Luby et al., 2011; Michaels et al., 2002)" article from the CDC has some great information and a list of academic studies and resources if you really want to learn some quality information and science behind hand washing. Again, one of the most important aspects of infection control, hand hygiene.

POCT Contamination

Duration:

- Ninety (90) minutes

Course Materials:

- https://bpac.org.nz/BT/2014/November/docs/BT25-exposure.pdf (PDF) Best Practice Advocacy Centre New Zealand "*Exposure to body fluids, keeping the primary healthcare team safe"*

Links in lesson:

  - 2023 study, Cambridge Dictionary, process, dirty, poisonous, state, containing, unwanted, dangerous, substances, Tabers Medical Dictionary, bacteria, yeast, fungi, protozoans, virus, prions, endotoxins, exotoxins, microbes, MRSA,

Content: For this lesson, please take your time. This is a lot of information and opportunity to learn for you, whanau and friends, The provided links and materials are available for self-paced learning with key messaging and expected take home learnings well indicated. This is a consolidation of many areas of learning and a complex minefield of information. Health Network Collective would really appreciate your spending time in better understanding contamination risk and possible outcomes as a result of contamination. Especially when it comes to your health and wellbeing, and having the learned confidence to deal with possible contamination scenarios that may occur at some stage. This is not to scare you or cause fear. This is to empower you with preventative measures and assurance that following best practice most often leads to good outcomes. A 2023 study (Moran-González et al., 2023) conducted at the peak of the COVID epidemic showed a rate of 2.79 needle stick injuries (see needle stick injuries below) per 100,000 injections, up from some 0.79 per 100,000 pre COVID. ***Health Network Collective is not conducting mass vaccinations at the time of writing, we are conducting controlled calm finger prick tests. Smaller needles calmer environment and not as pressured as the COVID time has been.***

Contamination is a broad word in terms of definition and meaning. A succinct and broad definition can be found in the Cambridge Dictionary (Cambridge, 2024);

noun [U]; **UK** /kənˌtæm.ɪˈneɪ.ʃən/ **US** /kənˌtæm.əˈneɪ.ʃən/

the process (Cambridge, 2024) of making something dirty (Cambridge, 2024) or poisonous (Cambridge, 2024), or the state (Cambridge, 2024) of containing unwanted (Cambridge, 2024) or dangerous (Cambridge, 2024) substances (Cambridge, 2024)

In the context of Health Network Collective activities and procedures ***this is not the best of definitions*** in that it contributes to enforcing stigmas and untoward perceptions of HCV and similar conditions. In the context of your safety and wellbeing this is appropriate to help you understand that contamination and risk of contamination may result in your un-wellness or the risk of un-wellness for those that we seek to help.

In Tabers Medical Dictionary (Taber, n.d.) the definition related to medical and clinical contamination is more appropriate; ***1. The act of contaminating, esp. the introduction of pathogens or infectious material into or on normally clean or sterile objects, spaces, or surfaces.***

It is also important to recognize the *difference between* ***contamination*** *and* ***infection*** in our context. Especially in the narrative you will develop for any conversations or education you may enter into with colleagues, wai ora; or anyone.

Contamination is the non-intended or accidental introduction of infectious micro-organisms to any environment. This includes however is not limited to bacteria (Cambridge, 2024), yeast (Cambridge, 2024), fungi (Cambridge, 2024), protozoans (Cambridge, 2024), virus (Cambridge, 2024) and prions (Cambridge, 2024). It can also include contamination by toxins such as endotoxins (Cambridge, 2024), exotoxins (Cambridge, 2024) and any of their by by-products.

Infection is the invasion of our body tissues by microbes (Cambridge, 2024). Possibly as a result of contamination. This may be from **injection, ingestion, inhalation or absorption**.

- Nose, mouth (respiratory), we breath the microbe in from someone breathing sneezing or coughing it out. These are airborne Pathogens.
- Infected wounds, eye discharge. This may be direct or indirect contamination (wound to wound, or eye to hand to surface to hand...)
- Contaminated surfaces, to skin
- Contaminated food, water or associated systems
- Antibiotic-resistant pathogens (such as MRSA (CDC, n.d.-e))

So, consider in very broad terms, ***contamination*** is cause leading to effect, the effect is ***infection***. Even the best of procedure, education and process can result in inadvertent contamination. And the same can be said for infection. For you it is *important to understand risk of contamination can be minimized*, hopefully reducing the risk of *infection*. All Health Network Collective needs you to understand is that ***contamination is spreading nasties***, largely by accident, and ***infection is getting unwell or sick***.

For interest, contamination can also apply to radiation, stress responses to environmental contamination, psychological effect (words running together into non-sensical meanings), land and environment contamination... and the list goes on... A decent google search produces many results, ***Health Network Collective does not recommend "Dr Google" based assumptions or diagnosis in the absence of qualified opinion.***

Prevention is better than cure. In previous lessons we have looked at

- Overview and Learning Agreement
- People Centred Practice and Personal Safety
- Hepatitis C (HCV)
- Basic Hygiene; including the 5 Moments of Hand Hygiene, Use of Hand Sanitizer and this lesson on Contamination.

All of these are contributors to reducing or mitigating the risk of contamination. As we have mentioned, there is never a guarantee of eliminating the risk of contamination. There is no one single act that is the magic solution, hence our best defence is to be diligent, take our

time and follow best practice at all times. In saying that, our 5 moments of hand hygiene with good hand washing / hygiene technique really can help.

Standard Precautions; to reiterate, **5 moments of hand hygiene** and **good hand washing** techniques combined with always **following best practice**. We can support this with personal preparedness measures of ensuring our **vaccinations are up to date** and we are maintaining **good or better personal hygiene** at all times.

- Hand hygiene, as discussed in previous sections
- Appropriate Personal Protective Equipment, as discussed below
- Cough etiquette, coughing or sneezing into the crook of you elbow or tissue. If using tissues, they go in the bin followed by hand washing
- Safe use of needles and other sharps, again we will discuss in detail in following sections.
- Aseptic "no touch" techniques where ever possible, we will explore this further when cover our POCT procedures in a following section.
- No reusing of disposable or single use equipment or items.
- Safe waste management and good environmental hygiene practice.

Personal Protection Equipment (PPE); we will discuss masks, gloves and other forms of PPE in the following sections. For now, consider that any risk of respiratory conditions, such as COVID or Influenza in the community would be extremely suggestive of **wearing masks**, for both kaiawhina or health worker, and for wai ora or person seeking health. **Use of gloves** is not compulsory, however, as we are testing blood there is a risk of blood contamination so **glove use is recommended**. We will discuss this further in a following section.

Body Fluid Spills; cleaning and appropriate first aid is essential.

- Ensure you and the patient are safe, for example bleeding control if required. Simply put; - all persons have air going in and out, and blood going around and around - within the body.
- Reassure our wai ora, and yourself. Take your time, be purposeful not rushed or panicked.
- Avoid further contamination, this may be distancing yourself from the risk.
- Apply suitable further first aid as required and indicated.
- Clean the affected areas thoroughly. Soap and water with good washing technique is best, although sanitizers are suitable if the situation dictates use of sanitizer(s). Obvious visible contaminate must be cleaned and removed followed by a thorough efficient clean of the affected and surrounding areas.
- Dress any wounds appropriately.
- Seek medical advice in all cases. Document and report as appropriate to your local health professional, they will inform you of the pathways for further actions, tests and requirements.
- We will discuss needle stick injury (NSI) in further detail below.

Needle Stick Injury (NSI). Follow the steps as described in body fluid spills above and **SEEK PROFESSIONAL MEDICAL ADVICE**

- If you pierce, puncture or even suspect a needle scraped or pierced your skin, see a health professional immediately or seek professional medical advice as soon as possible.
- Any needle injury, regardless of where or how the needle has been used, must be considered a risk of infection from hepatitis B & C, HIV and other viruses.
- The risk is dependent on several factors such as whether the person(s) the needle pierced have infection and their viral load, or number of viruses in the blood. Let your medical professional be the judge of this supported by their recommended tests and follow-ups.

The Waiting Room,

- **keep it simple** with chairs and surfaces having **non-porous surfaces**. This allows more efficient cleaning of surfaces and reduces spaces for nasties to hide.
- Keep in mind **children's toys** may be a nice distraction for parents seeking care, they are very efficient at hiding and **transmitting microbes**.
- If the room can be **well ventilated** with fresh moving air, all the better.
- **Spacing is preferred** and maintaining a reasonable schedule to minimize the number(s) of persons waiting where possible should be adhered to.
- **Clean frequently**. The area should appear clean and tidy to any persons arriving at any time.
- In times of respiratory conditions being prevalent in the community **have masks available** at the entrance
- Where possible have clean **rest rooms with hand washing facilities** available
- Place **hand sanitizers** strategically in and around entrances and waiting areas
- **Waiting rooms are a great education opportunity**, place posters and awareness materials in the area so they are visible and accessible.

The Real Risk of HCV HBC HIV contamination.

For the purpose of this lesson, and Health Network Collective activities, we will **consider the risk as very real** and subject to discussion, testing and confirmation by **seeking further medical advice from a health professional such as a doctor**.

Please download the file "*Contamination and Exposure Recommendations, BPAC NZ*" from the course materials available for this lesson for further information and reference in your workplace.

Summary; Best practice with frequent hand washing, and following the 5 moments of hand hygiene, is a great step towards mitigating the risk of contamination. We can't absolutely remove the risk of contamination so in the event of perceived or real contamination (for example when you are not sure) follow contamination procedure as we have discussed in this section, and seek professional medical advice as soon as possible. Preferably immediately.

POCT Masks

Duration:

- Sixty (60) minutes

Course Materials:

- https://www.youtube.com/watch?v=aNUPVdJHeAQ (Video) World Health Organisation, *"Find a mask that fits your face the best"*
- https://www.youtube.com/watch?v=ciUniZGD4tY (Video) World Health Organisation *"How to wear a fabric mask"*
- https://toolkit.covid19.govt.nz/assets?tags=Face%20Coverings%20Topic&search_strategy=use_or (Posters) Te Whatu Ora, *"Wearing a face mask is encouraged here"* and *"How to wear a face mask safely"*

Links in lesson:

- Infection Prevention and Control, Te Tāhū Hauora, WHO, ASTM F3502, CEN/TS17553

Content: Depending on who you talk to, the use of masks and recommendations for mask use seems to have a few variations. In this section we will look at masks and their role in Infection Control Procedures, and the contribution of masks to our and our wai ora wellbeing.

Health Network Collective strongly recommends that you take some time out, grab a coffee or cup of tea, and spend some time reading the following link on Infection Prevention and Control (HQSC, n.d.-c) by Te Tāhū Hauora (HQSC, n.d.-b), the Aotearoa New Zealand Health Quality & Safety Commission. The site and information provided will give you greater depth of understanding and resources in the broader sense of infection prevention and control. For the environments we may work in this provides improved knowledge and resources we can display and use as incidental education materials (such as posters we can display in waiting rooms).

So why wear a mask: *Wearing a mask reduces the spread of respiratory illness within the community by reducing the number of infectious particles that may be inhaled or exhaled. These particles may be spread when an infected individual talks, sings, shouts, coughs, or sneezes (even if not symptomatic).* WHO (WHO, n.d.-a)

The above statement from the World Health Organization indicates that mask wearing is not only for the benefit and protection of us as Health Network Collective. It is also for the benefit of our wai ora in their protection from anything we may have. In short, if air is going in and out, we are at risk, hence wearing a mask.

Pragmatically, many guidelines are suggestive of mask wearing being an essential recommendation in the following circumstances; -

- Any suggestion of community prevalence of any airborne conditions. This could include seasonal influenza or flu outbreaks (and not limited to in your immediate area, consider any suspicion in your country as adequate reasoning). Especially where physical distancing of at least one meter is not possible.

- Any interactions with persons, including yourself, when known to have a condition that has the potential of spreading via airborne means. This also applies to suspected or confirmed transmissible infectious disease. It is advisable to have the wai ora wear a mask as well as you or the health provider.
- Any invasive procedure(s) are to be conducted.
- You have doubts as to the effectiveness of ventilation in your workspace or environment.
- You or your wai ora have a health compromise where further infection will place them at risk.
- Any doubt. wear a mask.

Types of masks: Finding a mask that fits your face best is extremely important to ensure effective protection and reduction of risk. Watch the following WHO video for a brief introduction to mask fitting.

https://youtu.be/aNUPVdJHeAQ?si=mcHvYe9Qupk1UT6u (WHO, n.d.-c)

- **Disposable medical masks** are our normal standard and usually the most accessible. The disposable part of the description is very important. Change your mask frequently and in between interactions with different persons. Remember the outside (and inside) of your mask are effectively contaminated so minimize touching the mask and wash your hands when touching or changing masks. Naturally, the used mask goes into the rubbish for disposal. Further down in this section we go into depth on how to change and remove your mask.
- **Non-medical masks** are acceptable when disposable medical masks are not available. If you or wai ora choose to use non-medical masks it is recommended that the mask is well fitted and meets the following criteria
    - Have an inner layer of absorbent material such as cotton
    - Have a middle layer of non-woven non-absorbent material such as polypropylene; an example of which is the inner layer of babies' disposable nappies
    - Outer layer of non-absorbent material such as a polyester or polyester blended material, such as poly-cotton or terrycloth.
    - If buying a non medical mask check labels for standards ASTM F3502 (ASTM, n.d.) or CEN/TS17553 (SNZ, n.d.).
    - Wash this type of mask at least once a day in soap or detergent, preferably with hot water at 60 degrees Centigrade or 140 degrees Fahrenheit. Ensure it is dry before use.
    - If a hot water wash is not possible, wash in soap or detergent at room temperature followed by boiling the mask for at least one minute.

N95 and filtering or respirator type masks: these are extremely effective options for protection and risk reduction, they are not always effective if the wearer has not been fit tested to ensure adequate fit. Not having a fit test may leave the wearer with small gaps where particles can pass through. While these types of masks look great, they are expensive, require specialist fitting for correct sizing and fit, and will normally only be offered to clinical staff in high-risk areas.

How to fit, wear and change you mask: please watch the following video. The video does mention COVID however is still very relevant for us and our mask requirements.

https://www.youtube.com/watch?v=ciUniZGD4tY (WHO, n.d.-g)

- **To put on your mask**
    - Before touching the mask, hand wash. Preferably with soap and water or alcohol-based hand sanitizer
    - Inspect the mask for tears, damage or holes and do not use a mask that has been previously worn
    - Ensure you've identified the right way up and right side to face out. (white side normally faces in towards your face)
    - Place the mask over your nose and mouth ensuring there are no gaps between your face and the mask. Place straps behind the ears and do not cross the straps, this can cause gaps.
    - Pinch the metal strip to fit your nose.
    - Do not touch the front of your mask while wearing, if you do wash your hands.
- **To take off your mask**
    - Before touching the mask, hand wash. Preferably with soap and water or alcohol-based hand sanitizer
    - Remove the straps from behind ears, avoid touching the front of the mask
    - Lean forward and pull the mask away from your face, discard immediately.
    - Wash your hands.
    - If you suspect your mask is wet, contaminated or soiled, change it.

In summary if in doubt wear a mask. Again, best practice as described in this section of our lesson with masks and mask use is an important part of infection prevention and control. And keeping us and our wai ora safer. For further information download the New Zealand Ministry of Health PDF how to use a face mask safely from the course materials in this section along with a poster encouraging mask use for your use.

Now find a mask or two and practice.

POCT Gloves

Duration:

- Thirty (30) minutes

Course Materials:

- https://www.nzno.org.nz/Portals/0/Files/Documents/Support/2020-09-22-Guide-to-glove-use-healthcare-settings.pdf? (Poster) Ministry of Health New Zealand, *"Guide to glove use in health care settings"*
- https://www.cdc.gov/vhf/ebola/resources/pdfs/poster-how-to-remove-gloves-p.pdf (Poster) Centre for Disease Control, *"How to remove gloves"*
- https://www.youtube.com/watch?v=3I_kKVNrEMo (Video) Globus Group, *"The Globus Guide to Putting-on and Removing Non-Sterile Disposable Gloves"*

Links in lesson:

- Glove Use,

Content: Like mask wearing and use, there is a lot of differing points of view on gloves and appropriate use. Like all our actions and recommendations **Health Network Collective bases learnings on qualified sources** and where possible **based on research and evidenced practice**. A WHO "Glove Use (WHO, 2009a)" information leaflet has messaging that glove use in itself helps keep your hands clean and reduces the risk of contamination, or exposure to microbes that can make you sick. Importantly, use and **wearing of gloves is a component of good hygiene practice and a part of our 5 moments for hand hygiene** in conjunction with good hand washing technique.

So why wear gloves: as we stated above, glove use is **part of a systemized approach** to infection prevention and control, with our 5 moments of hand hygiene and good hand washing technique. **Gloves do not provide complete protection** against hand contamination; they do **contribute to providing barriers and reducing risk**. We should always wear gloves when;

- there is a **risk of touching or being exposed** to, even if wai ora appear healthy and infection free
  - bodily fluids
  - bodily tissues
  - mucous membranes
  - broken skin of any form
- **there is a risk, or you do have**
  - broken skin, this includes nail bed and surround damage
  - cracks in your hands from dry skin
  - dermatitis or any skin condition
  - in all these cases hand washing prior to putting on gloves is very important, and ensure any broken skin or wounds are well cleansed and covered with a waterproof adhesive dressing prior to gloving up.

Types of medical gloves:

- **Nitrile non-sterile gloves** are designed for adherence to standard transmission-based procedures. For use with activities where hands are possibly going to have contact with blood, body fluids or other potentially infectious materials. **Standard Precautions**.
- **Vinyl non-sterile gloves** are for when providing direct patient cares or contact with the patient's immediate environment, including for wai ora requiring contact isolation. **Contact Precautions**.
- **Latex non-sterile gloves** have the same standards as Nitrile Non-sterile gloves. **NOTE: do not use latex gloves if you or wai ora have latex allergy.**
- **Surgical Sterile gloves** are used for aseptic sterile procedures and require specialist training in hand hygiene and procedure for use. This isn't only about glove use; the training extends to level of practice and procedures this type of glove is required for. These gloves are also expensive and most likely will not be readily available.
- **Polyethylene or plastic gloves** are designed for **food grade use only**, preparing or handling food. These are **not for patient contact**.

To put on your gloves, watch the following video on how to put on your non-sterile medical gloves, and then we will discuss in more detail.

https://www.youtube.com/watch?v=3I_kKVNrEMo (Globus, n.d.)

- Ensure you have the appropriate glove for the task at hand.
- Check you have the right size of glove
- Following our 5 moments of hand hygiene and best practice, thoroughly wash and dry your hands
- Simply pull gloves onto your hands, and ensure the fingers are well fitted and cuffs over the wrist where possible.

Removal, or 'Doffing' of gloves: you will have seen in the previous video how to remove your gloves, let's go through step by step. Remember your gloves once worn need to be treated as contaminated.

- To remove your gloves minimizing the risk of contamination, never touch your skin with the outside surface of the glove. This is regardless of use or contaminated or not, always assume that once gloves are worn, they are contaminated.
- Grasp the outside of one glove near your wrist with thumb and fore finger of the other hand.
- Carefully pull the glove off, turning it inside out as you roll the glove off the hand.

- Hold the rolled off glove in the palm of your still gloved other hand.
- Slip two fingers from your ungloved hand under the wrist of the remaining glove.

- Pull the glove off allowing the glove to turn inside out as it comes off.
- The first glove you removed should end up inside the glove you are removing, or have just pulled off.
- Dispose of the gloves immediately, and safely.
- We will discuss disposal of Personal Protective Equipment (PPE) in more detail in the following lesson.

- Wash your hand thoroughly, take your time and ensure you include your wrists with the hand wash.
- Ensure your hand wash is immediately following disposal of your gloves, and before touching any surfaces objects or persons.
- Gloves can have holes that are too small for us to see. These holes can allow microbes to pass through to the skin.

In Summary if in doubt, wear gloves. We don't need to make a big deal or show of our infection prevention and control procedures, and making this a casual appearing act whilst conversing with our wai ora can often help in reducing stigma and making our wai ora more comfortable. Very importantly use of gloves is a part of a systemized approach to infection prevention and control.

Please download these sections course materials, again they are useful reminders for us and good materials for incidental education opportunities for our wai ora and community.

When you can, find some gloves and practice.

POCT Disposal of Personal Protective Equipment

Duration:

- Twenty (20) minutes

Course Materials:

- Nil

Links in lesson:

  - here (Biological Waste),

Content: We have discussed PPE use and removal in this section, along with contamination procedure recommendations. In the following section we will be discussing our Point of Care Testing (POCT) Rapid Diagnostics Test (RDT) equipment and procedure(s). To this point in our course, we potentially have masks, gloves, tissues and possibly other materials contaminated as a result of either PPE use or contamination. In the following section we will have equipment used in our procedure for managing blood, bodily fluid, and lancets or small "finger prick" needles.

An important note and reiteration is that **all used PPE and procedure equipment is considered, or is, contaminated**. Collectively we can label **all this waste as biohazardous material**, click here (Wiki, 2024) for further reading on biohazardous material(s) definitions and information. **We must minimize handling** of such items and their **disposal needs to efficient and not create a risk** of exposure at a later stage for us, our wai ora or other members of our communities.

Where ever possible coordinate with your local or community health services for advice and assistance with disposal of medical waste such as PPE and sharps.

In times of pandemic, such as COVID and regional influenza or respiratory disease prevalence, Health Network Collective strongly advises you seek the advice of your local health authorities for appropriate process and procedure. These situations may require further safe disposal procedures.

- **PPE Disposal**: Ideally, we will have a foot operated rubbish bin located by our handwashing facilities. This enables a smooth flow in removal of PPE, disposal of the PPE and subsequent handwashing.
- Always use a liner that we can simply tie off at the top, remove and prepare for disposal.
- PPE disposal is preferable to be incinerated, although safe disposal into general waste and rubbish removal is acceptable once secured into a tied off or sealed rubbish bag.
- **Ensure there are not sharps such as needles or lancets disposed of in this manner.**

- **Sharps Disposal**: With initial supplies of test kits, a suitable sharps container should be supplied. These are designed for safe management of sharps items. Only sharps (in our context lancets) should be disposed of in sharps containers.
- Safe sharps management, as described in subsequent lessons, must be adhered to.
- These containers when full can be disposed of via local pharmacies, GP's, or community health facilities and should be at no charge for disposal.

Summary: Materials and items potentially contaminated, and collectively under the definition of **biohazardous materials, are predominately single use medical items** that we have discussed in previous sections and lessons for best practice use and disposal. **This step in final disposal must be adhered to** as part of our Infection Prevention and Control process, and reducing the risk of further exposure for us, our wai ora and our communities.

Any doubts ask your local health providers, pharmacies, GP's. Even better, raise this with your community groups you may be establishing and include any local, regional, or country supervisors and coordinators you may have.

Quiz POCT Section 4. Basic Hygiene

Allowed time:	Forty-Five (45) minutes
Questions:	Ten (10) varied formats
Passing Grade:	Eighty (80%) Percent
Instant Check:	On submitting answer, correct or incorrect
Retake:	Two (2) retakes, previous quiz must be completed in entirety
Review:	Full review on completion of test
Show correct answer:	Visible with review on completion
Hints:	Yes, with each question

Introduction: Welcome to your fourth of six quizzes towards **certification in antibody Point of Care Testing (POCT)**.

- Again, our quizzes have **many different styles** of questions and ways of answering. You may have **noticed hints in the questions** themselves?
- Overall (over the **6 course sections and 6 quizzes**) you will need to **achieve 80% or greater to gain certification** and access to the Health Network Collective mobile application to conduct testing.
- You will have the **opportunity to review your questions and answers** (with correct answers shown) **on completion** of the quiz.
- You have **45 minutes to complete** this quiz.
- **Retaking tests is possible, up to a limit of 2 repeats**.

POCT Section 4. Question 1.

Description / Question
Our 5 moments of hand hygiene, which answer is incorrect
Answers

- After a procedure washing hands is optional if wearing gloves CORRECT
- After touching our wai ora surroundings we need to wash our hands
- Before a procedure we need to wash our hands.

Hint: Frequent hand washing is encouraged, at every stage of practice.
Explanation: Our 5 moments of hand hygiene are before touching a wai ora, before a procedure, after a procedure or body fluid exposure risk, after touching wai ora and after touching wai ora surroundings.

POCT Section 4. Question 2.

Description / Question
Which statement is TRUE in regards hand washing
Answers

- The best form of hand hygiene is tried and true soap and water. CORRECT
- Our daily personal hygiene does not matter as long as we wash our hands.
- Hand washing is only to prevent us catching disease from our wai ora.
- Hand washing is only required when contamination is visible on the skin.

Hint: Ideally, we keep our personal and hand hygiene up at all times to protect us and our wai ora.
Explanation: The best form of hand hygiene is the good old tried and true soap and water hand washing. One of the key components of adequate hand washing is the friction created by rubbing or washing the hands, this can greatly assist in getting the result we need. Alcohol and other types of hand sanitizers are acceptable however not as efficient as using soap and water.

POCT Section 4. Question 3.

Description / Question
Any cuts abrasions burns or broken skin on your arms or hands will need to be cleansed regularly and have appropriate dressings or coverings at all times you are around wai ora or in a clinical environment.
Answers

- False
- True CORRECT

Hint: You should be ok without a hint here...
Explanation: True. Any cuts abrasions burns or broken skin on your arms or hands will need to be cleansed regularly and have appropriate dressings or coverings at all times you are around wai ora or in a clinical environment. This reduces risk for both you and wai ora.

POCT Section 4. Question 4.

Description / Question
Which of the following statements is true
Answers

- Alcohol based hand sanitizers are more efficient than soap and water hand washing
- The rubbing action of hand washing is important in contributing to killing and removing microbes. CORRECT
- Contaminated water is better than no water or sanitizer alone for hand washing.

Hint: Again, you should get this one...
Explanation: Correct; The rubbing action of hand washing is important in contributing to killing and removing microbes. Please never use contaminated water, and soap and water washing is always our preferred option.

POCT Section 4. Question 5.

Description / Question
True or false. Following best practice and wearing PPE will stop and remove all risk of contamination.
Answers

- True
- False CORRECT

Hint: Read the question carefully...
Explanation: False, we can reduce the risk of contamination, however even the best of procedure, education and process can result in inadvertent contamination.
POCT Section 4. Question 6.

Description / Question
Select the true statements
Answers

- Infection is the contamination of our skin by microbes.
- Contamination can only occur from bodily fluids.
- Contamination and infection are really same same but different.
- Contamination can occur from injection, ingestion, inhalation or absorption. CORRECT
- Infection is the invasion of our body tissues by microbes. CORRECT

Hint: No hints for this one sorry...
Explanation

- **True**, Contamination can occur from injection, ingestion, inhalation or absorption. (*This can lead to infection*)
- **True**. Infection is the invasion of our body tissues by microbes. (*Likely from contamination by injection, ingestion, inhalation or absorption*).
-

POCT Section 4. Question 7.

Description / Question
Wearing a mask reduces the spread of respiratory illness within the community by reducing the number of infectious particles that may be inhaled or exhaled. These particles may be spread when an infected individual talks, sings, shouts, coughs, or sneezes (even if not symptomatic).
Answers

- True CORRECT
- False

Hint: If you're in need of a hint here, re read the question...
Explanation: True. This is a World Health Organization statement in regards to why wear a mask: Wearing a mask reduces the spread of respiratory illness within the community by reducing the number of infectious particles that may be inhaled or exhaled. These particles may be spread when an infected individual talks, sings, shouts, coughs, or sneezes (even if not symptomatic).

POCT Section 4. Question 8.

Description / Question
Select the most correct answer, some are close, one is closest...
Answers

- Once confident and practiced glove use is not required.
- Wearing and use of gloves is part of a systemized approach to Infection Prevention and Control CORRECT
- As a systemized approach to Infection Prevention and Control all the components are option based on experience.
- By encouraging our wai ora to hand wash we do not need to wear gloves for Infection Prevention and Control.
- Gloves are the main component of Infection Prevention and Control.

Hint: Infection Prevention and Control has many components creating a best practice.

Explanation: True. Wearing and use of gloves is part of a systemized approach to Infection Prevention and Control. This is only a part of overall best practice to minimize risk of contamination, and possible infection from contamination.

POCT Section 4. Question 9.

Description / Question
Select the one correct statement from the following options
Answers

- Once removed, single use medical PPE items should be placed in a lined disposal bin immediately following hand washing.
- Once removed, single use medical PPE items should be placed to the side following hand washing for placement in a lined bin at the end of the day.
- Once removed, single use medical PPE items should be placed aside following hand washing for cleaning and reuse.
- Once removed, single use medical items should be incinerated immediately.
- Once removed, single use medical PPE items should be placed in a lined disposal bin immediately followed by hand washing. CORRECT

Hint: Two of these sound similar.... one choice... heads or tails... (hopefully you are not needing to use heads or tails...)
Explanation: True. Once removed, single use medical PPE items should be placed in a lined disposal bin immediately followed by hand washing. *We can then tie the liner containing the items for disposal. This may well be at the end of the day, ideally more frequently.*

POCT Section 4. Question 10.

Description / Question
Select the two true statements
Answers

- Infection Prevention and Control is a systemized approach to reducing contamination risk. CORRECT
- Biohazardous materials include all our PPE items only once removed.
- Biohazardous materials include all our PPE items once put on. CORRECT

Hint: No hints here, sorry... aside from think Contamination and Infection Prevention and Control...
Explanation

- True, Infection Prevention and Control is a systemized approach to reducing contamination risk
- True, Biohazardous materials include all our PPE items once put on. As soon as we handle or wear any PPE items, they are considered contaminated.

Section 5. Rapid Diagnostic Test (RDT)

POCT Settings & Environment

Duration:

- Fifteen (15) minutes

Course Materials:

- Nil

Links in lesson:

- Nil

Content: This may be a challenging section. Health Network Collective aims to bring formalized skills and a supportive systemized approach for our non-regulated workforce in navigating pathways to cure in our community. Our focus is marginalized, low socio-economic, ethnic and general populations, supplementing existing health structures and systems. This broad statement lends itself to kaiawhina peers and support persons often working with wai ora, person seeking health, in challenging environments.

Further to this, our **environments and wai ora are often in a position of perceived (if not real) stigmatization** and social prejudice. The interaction we are undertaking with **Health Network Collective HCV testing and education may be the first step for our wai ora in de-stigmatizing health** and creating a gateway to further health access and availability. **We need to get this right**.

At no time and under no circumstance is any compromise on clinical procedure allowable, ethical or medically safe. The clinical pathway and process must be adhered to or we are at risk of contamination and subsequent infection leading to significant health risk and professional compromise. **This could add to stigma's and further isolate wai ora from seeking health access and support**. That would be very bad.

As an example, we could look to an ambulance vs hospital accident and emergency department response to the same condition or injury. Clinically very similar, if not same, procedures and process are followed. This is not only clinical; it is encompassing **Infection Prevention and Control**. What is different is the hospital-based staff are working on wai ora on a bed in a controlled clinical environment. Our ambulance heroes are often on their knees, crawling to wai ora through spaces made safe by fire and rescue heroes, or in unsanitary unclean locations in poor lighting with little support. **Risk reduction and mitigation in terms of Infection Prevention and Control and clinical procedure does not get compromised.**

In an ideal world we will have access to a clinic type facility with a controlled environment. Our basic hygiene and Infection Prevention and Control principles apply as always, and are relatively simple to maintain. All surfaces are cleaned at least daily, rubbish and waste removal is conducted frequently and our set wai ora treatment and testing area is easily cleanable in between wai ora or any use. Mild disinfectant solutions, made in accordance with the manufacturer’s instructions as written on the container, are best for full and complete cleaning of the room and wipe down of surfaces where wai ora interaction occurs. Medical professionals at diploma and degree level can spend weeks if not months on this area of learning alone, with annual revisions of basic principles. For us let’s consider all

surfaces are cleaned frequently and all the factors we discussed in basic hygiene are used and adhered to. As best as we possibly can.

Working Surface(s)

In our ideal world we will have in our well-ventilated clean controlled work environment we can clean and wipe down daily and between wai ora interactions, the following as a minimum standard:

- A surgical/stainless steel wheeled trolley for equipment
    - Top shelf clean area
    - Lower shelf possibly sharps container and cleaning wipes, gloves, masks and
- A desk height non-porous surface that we can place absorbent hospital pads on (at minimum paper towels) to create a disposable work surface. Where this disposal pad is not available a non-porous surface (as an example glass or stainless steel that is easily and efficiently cleanable) is suffice as a work surface.

Field based testing

Like our ambulance and first responder hero's, **there may be occasion when you need to test in less-than-ideal environments**. Whenever and wherever possible **we must respect wai ora privacy and medical in confidence**, this may be via social distancing policy or creating barriers such as a waiting point. **In this case our work surface is considered clean, sharps and contaminated items go from work surface, to wai ora, to waste disposal**. Our procedure for testing that we cover in a following lesson does not change.

In **field-based situations** Health Network Collective would strongly encourage you to **seek a partnership or collaboration with a local health professional**. This can give you an opportunity to **develop best practice relevant to the environments** you will be working in. That's an education and partnership process that you can then **share and develop with your community**.

Summary: You may have identified that our POCT settings & environment captures elements of all the lessons we have covered so far, with an emphasis on Infection Prevention and Control. Reaching out for advice from your community is not only creating the partnerships and collaborations we want and need, it is contributing to the wellness of us, our wai ora and our communities.

POCT RDT Equipment

Duration:

- Fifteen (15) minutes

Course Materials:

- Nil

Links in lesson:

  - in vitro diagnostic, Premiere Medical Corporation, SD Biosensor Inc, InTec, Orasure Technologies, Abbott Diagnostics, Bioline HCV, immunochromatographic, serum, plasma, This article (RNA PCR Testing),

Content: As of November 2023 six (6) Hepatitis C Virus (HCV) Point of Care Test (POCT) Rapid Diagnostic Test (RDT) kits have been prequalified as in vitro diagnostic(WHO, n.d.-h) products by WHO for WHO procurement. This is a stringent process ensuring products meet both manufacturers claims and clinical requirements. The kits are

- HCV RDT Premiere Medical Corporation (Premiere, n.d.) 2023,
- HCV RDT ABON Biopharm 2023, (All links lead to Abbott)
- HCV RDT SD Biosensor Inc (SD Biosensor, n.d.) 2020,
- HCV RDT InTec (InTec, n.d.) 2019,
- HCV RDT Orasure Technologies (Orasure, n.d.) 2017,
- HCV RDT Abbott Diagnostics (Abbott, n.d.) 2016,

For the purpose of this lesson, we will look at the Abbott Bioline HCV test kit. Health Network Collective recommend that with any kit you may use, you read the instructions that come with the kit. To further support your learning the Health Network Collective mobile application has a step-by-step process for testing to help ensure we get as accurate information and results possible, and as accurate results as we can. In fairness, if the test is not conducted correctly, or the test kit is faulty, the test result will indicate this. All POCT RDT tests have a built-in control test to validate the test kit and test itself.

We will explore the Health Network Collective Mobile Application, and the step-by-step testing functionality in a following lesson.

Equipment: the below is the equipment required in an ideal setting. Items are indicated as to supplied with the test kits or extra requirements.

This is a standard supply option for the Abbott SD Bioline Hepatitis C Rapid Diagnostic Test (RDT) Point of Care Test (POCT) available in lots of 25 or 30 test kits. **Supplied with Test Kits**.

Test device, as they are taken from the box in their sealed wrapper to the right and opened ready for testing on the left. **Supplied with Test Kits**

The Bioline HCV (Abbott, n.d.) test device is an immunochromatographic (Wikipedia, n.d.) or Lateral Flow(Wikipedia, n.d.) rapid test for the qualitative detection of antibodies specific to HCV in human serum, plasma (Byjus.com, n.d.) (click the link for a great description of what serum and plasma are and do) or whole blood. Health Network Collective procedure uses whole blood samples.

In simpler terms, if the Hepatitis C Virus has been in your body, your body has made antibodies to defeat the virus. These antibodies remain even after the virus has gone. These antibodies are what the Bioline HCV test detects (qualitative or yes/no). That's why we need another test specifically for the virus and quantity of virus (quantitative or how much) prior to treatment. This article (Medicalnewstoday.com, n.d.) explains qualitative and quantitative very nicely. Antibodies do not cause HCV and are not transmissible or a contaminant.

Assay Diluent, normally supplied as one dropper type bottle per box of test kits. This cannot be substituted by any other substance and is recommended the solution provided in the test kit box is used exclusively for the test device(s) supplied in that box. **Supplied with Test Kits**

Capillary Pipette, used for drawing the blood sample. **Supplied with Test Kits**

Alcohol swabs, used to assist in preparing the skin for the procedure. **Supplied with Test Kits**

Lancet. Used for the finger prick. The type to the left is a safety lancet, to the right a manual push in type. **Supplied with Test Kits**. These are **SHARP'S**, requiring sharps disposal.

Gauze, occasionally you may need to use cotton wool balls. These are **not supplied with test kits**.

Gloves, think 5 moments of hand hygiene, hand washing, contamination... These are **not supplied with test kits**.

Sharp's safe disposal container. In the event this is not available use a plastic container, preferably with a lid, and follow the same disposal procedure. These are **not supplied with test kits**.

Timer. an off the shelf digital timer, and the timer screen on the Health Network Collective mobile app. These are **not supplied with test kits**.

In addition, think back to our lessons on basic hygiene. Have a consideration for risk reduction in terms of contamination, **5 moments of hand hygiene**, **hand washing** and **waste disposal**. Also risk reduction with community prevalent conditions by **wearing of masks**. These are items that you may wish to have a supply of in addition to the above test equipment and items. We will also discuss our testing environment and preparedness in a following lesson.

Equipment Orders: are an automated part of completion and passing this Health Network Collective POCT course, with further orders via the Health Network Collective mobile application Equipment screen. This screen enables standard kit orders and possibly supplemental equipment, dependent on local establishment.

POCT Health Network Collective Mobile Application, the app

Duration:

- Twenty (20) minutes

Course Materials:

- Nil

Links in lesson:

- API

Content: You have already sighted the public visible version of the Health Network Collective mobile application. It is how you registered for and gained access to this course. You should have also been tested as a part of the process of introduction to Health Network Collective. Generating a test request or having a test conducted initiates the step-by-step process and opportunity to partake of this course and, with completion and passing of this course, become part of the Health Network Collective testing community.

For those who install the mobile app for interest, education or accessing testing services, the user will have limited accessibility. Here's examples of public and testers accessible content:

- **Home page**: Introducing Health Network Collective and what the apps designed for with basic menu for public access.
- **About**: An overview of Health Network Collective and activities
- **LMS**: Access to the Learning Management System
- **RNA Sites**: The public can access locations of locally accessibly sites for RNA PCR testing. As this is the definitive test for treatment it is simpler for wai ora who are willing.
- **FAQ**: Frequently asked questions with an option to change between **HCV Specific FAQ** and "**Other Info**" FAQ.
- **Menu**: This has a tiered access
- **Tier one** visibility will include **Messaging** and **Personal Information**. Accessible to persons who have had a positive test (automatically giving this access)
- **Tier two** visibility includes **Tier one**, and **Calendars**, **Conduct HCV Test**, and **Equipment Order**(s). Access on completion and passing of this course.
- **Tier three** visibility gives full access for supervisors, local and international managers. Including **Statistics**, **Testers Details Locations** and more.
- All pages, with the exception of Home page, have access to "**Get Tested**"

- This screen is accessible from all screens with the exception of the home screen. This is where new users or members of the general community can come to find availability, locations of testing sites. Alternatively, where persons have completed Health Network Collective training and become a part of local, regional or country initiatives, this page will generate a test request that will be either submitted to local supervisors or managers, or to local testers for an appointment for testing.
- This screen also has basic information with key messaging of not only testing conducted by Health Network Collective, also encouraging wai ora to seek RNA PCR testing where possible.
- The requestors information and data are stored for further actions with testing and to initiate issue of login in the case of a positive HCV POCT test, or progression to training; where offered or available.

We will explore and discuss further screens available for testers in the following lessons as we learn the HCV POCT procedure. This will include API (Wiki, 2024) based actions that occur when a positive test result is entered, such as referrals for RNA PCR type testing for quantitative results to enable treatment.

POCT RDT Preparation

Duration:

- Thirty (30) minutes

Course Materials:

- Nil

Links in lesson:

  - Nil

Content: Preparation for conducting a Hepatitis C Virus (HCV) antibody Point of Care Testing (POCT) Rapid Diagnostic Test (RDT) as part of the Health Network Collective community starts with learnings from lessons one of this course. Our mindset, conduct and approach to the interaction with our wai ora for testing begins before we consider introductions explanations or testing.

- **From Section one**: Overview and Learning Agreement
  - We act in accordance with Health Network Collective Guidelines, including respecting United Nations Universal Declarations, and our obligations as part of Health Network Community.
- **From Section two:** People Centred Practice and Personal Safety
  - We act in confidence, in the interest of our wai ora and with consideration for medical ethics. Remembering our roles, capabilities (sticking to our role and constraints of what we have been taught) and importantly our limitations. Health Network Collectives "No Surprise" policy with informing, and asking for advice or help.
  - Our workplace and environment meet or exceed health & safety requirements, and our personal safety is planned and prepared.
- **From Section three:** Hepatitis C (HCV)
  - We have a comfortable evidence based, basic conversational level knowledge of HCV, POCT and possible outcomes. Keep it simple, too technical we risk confusion, inaccuracies and risk adding to stigmas that may exist. And, we do not pretend to understand issues habits or behaviours we do not have lived experience of. Even with lived experience, everyone's story and journey is their own.
  - This is an educational opportunity, clear concise and simple conversations. We need wai ora to have opportunity for equitable health access, and we may be able to provide that gateway with friendly faces from familiar places, honesty and clarity, reducing stigma is a side effect we want.
- **From Section four:** Basic Hygiene
  - We are clean and presentable; our personal hygiene is of a high standard.
  - If in a clinic or static type workplace, the site is clear of clutter and meets our Infection Prevention and Control needs. This includes accessibility to gloves, mask and waste disposal means.
  - If mobile or in the field, we are prepared, especially for respecting our 5 moments of hand hygiene and hand washing.
  - We have a contamination contingency plan, and response, ready. This may simply be a bottle of alcohol-based hand sanitizer to supplement our standard Infection Prevention and Control.
- **From This Section:** Rapid Diagnostic Test (RDT)

- You will need your **Health Network Collective mobile application** with full logins and access to "**Conduct HCV Test**"
- Ensure you have the appropriate test kit.

Initiating your test

- Your Health Network Collective **Mobile App** has a **step-by-step guide** to conduct the test and record results.
- **Once logged in**, click and open **Conduct HCV Test**
- The first screen you will see is a **Test Informed Consent** screen. **This must be read in full to our wai ora getting tested**.
- Once read to the wai ora seeking testing we recommend you ask the wai ora if they **have understood the consent** and **agree to the consent and being tested.**
- Press **Next** once your wai ora has agreed.
- **In the event your wai ora does not agree,** indicate this on the next screen along with at least the wai ora name or identity.

- Your next screen is for the **HCV Test Personal Details**, that is the details of the wai ora seeking testing.
- The **more details we can gather here the higher the success rates may be of matching our wai ora to records for further tests and linking to care** in the event they have a positive result.
- At this stage **the app will record a date and time** of data entry in the background **as an automated process**.
- In the event your organization uses anonymized or 'ghost' identities (such as with some HIV wai ora) please ensure the entry is correct, and can be related back your anonymized or 'ghost' identity records.
- This information will form the basis of records and logins as required.
- Enter **Yes / No for consent** statement. **If NO, do not proceed.**
- Press **Next**

POCT RDT Site disinfection, fingerstick and collection

Duration:

- Twenty (20) minutes

Course Materials:

- Nil

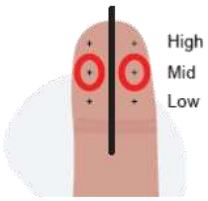
Links in lesson:

  - Nil

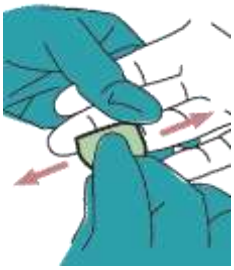
Content:

Having pressed next on your Health Network Collective mobile app, you should now see the HCV test procedure screen to assist you in the correct steps for getting to having obtained an adequate whole blood sample for testing, as outline below.

- **Double check your workspace** and equipment are suitably prepared.
- **Check the expiration date** on the back on the test device pouch or sealed wrapper.
  - If the device has **pouch has been opened do not use**
  - **If the test device is expired do not use**, please use a new device that is not expired.
- **5 moments of hygiene**; **wash your hands** and **put on a new pair of gloves**
  - During this time chat with your wai ora, explain what you are doing as you go. If your wai ora is the one doing the talking, be a good listener
- **Open the test device pouch** and place the device on a flat dry surface where the test is to be performed. At this stage we can also write the patients identification on the device.
- Have your wai ora **hang their arm to their side while opening and closing their fist**. This will help with circulation and make obtaining the correct sample size easier.



- Determine the site for getting our sample. Use the **ring finger on their non-dominant hand** of the wai ora being tested.

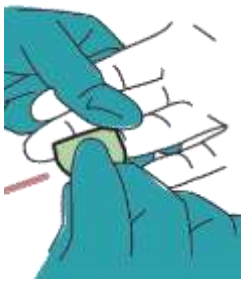


Clean your wai ora's test sample site with lengthwise up down motion using an alcohol swab. Allow the area to air dry. **Do not blow or fan to dry**.

Open your lancet, remove the safety cap exposing the needle and prick the finger. If an auto safety type, place over site and press the button. If a manual type, use a fast-piercing motion allowing the needle to go full depth, remove quickly.

Immediately discard the lancet in your sharp's container.

Never use the same lancet more than once, even on the same patient.



Using your gauze swab, wipe away the first drop of blood.

Gently squeeze your wai ora's finger and allow a drop of blood to form. This is best done with our wai ora hand below the level of their heart, forearm flat or on a slight downwards angle. This does take some practice, we don't want a running stream, just a nice drop. If it runs, wipe away and gently squeeze again to get that drop forming.

Once there is a healthy drop of blood formed, **gently squeeze the end of the pipette and bring the tip to touch the blood**. Slowly release the pressure to collect the drop of blood.
Ensure that the blood fills to the fill line indicated on the pipette. Filling is **NOT automatic** so you do need to pay some attention as the sample fills the pipette. Again, some practice may be required. **If the sample is under the line or not an adequate sample, reattempt**.

Press either a gauze or cotton wool ball to the site and have your wai ora **elevate their hand** (holding their hand above the height of their heart is suffice) and get your wai ora to hold the gauze or cotton wool ball with **gentle pressure against the sample site for a few minutes**. Until the timer goes for the sample and test is generally a good length of time. Note, once the pressure is let off and gauze or cotton wool removed, **if the sample site is still bleeding reapply pressure for another 5 minutes**. If still bleeding apply a band aid or dressing over the gauze or cotton wool keep elevated and seek medical advice.

POCT RDT Sample application and start test

Duration:

- Twenty (20) minutes

Course Materials:

- Nil

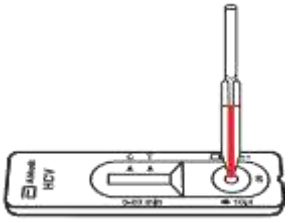
Links in lesson:

- Nil

Content:

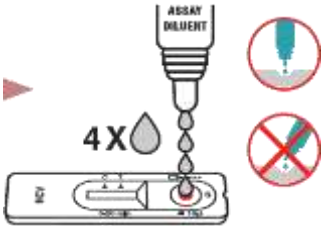
You should have pressed **next** on your Health Network Collective mobile app following completion of the sample collection in the previous screen.

To place the sample and start the test follow the below steps.



Dispense the whole blood sample from the pipette into the round specimen well of the test device. Once the sample is squeezed out and into the round well of the test device, keep squeezing the end of the pipette as you move it away from the test device to avoid back suction. Dispose of the pipette into the sharps box immediately.

Add four (4) drops of the Assay Diluent into the round specimen well of the test device. Ensure the Assay Diluent bottle is in an upright position centred over the round sample well to ensure correct placement and that you can accurately count four (4) drops of diluent are placed in the well.



- Set your timer for a minimum of five (5) minutes and wait for the coloured line(s) to appear after adding the Assay Diluent.
- The test is readable after five (5) minutes to twenty (20) minutes.
- Do not read after twenty (20) minutes, reading outside of this timeframe may produce incorrect or false results.
- The next section will explain and discuss reading and recording results.

POCT RDT Read result and record

Duration:

- Forty (40) minutes

Course Materials:

- https://www.globalpointofcare.abbott/ww/en/product-details/bioline-hcv.html, (Poster) Abbott Pharmaceuticals, *"QUICK REFERENCE GUIDE"*
- https://www.globalpointofcare.abbott/th/en/product-details/bioline-hcv.html (Video) Abbott Pharmaceuticals, *"How to Use Fingerstick Whole Blood Bioline HCV Test"*
-

Links in lesson:

- link (Abbott, n.d.) (Abbot how to video)

Content:

- Once your timer reaches five (5) minutes you can take an initial reading of the test device and your wai ora test result.
- Again, the **test is readable after five (5) minutes and up to twenty (20) minutes** following addition of the Assay Solution.
- **Do not read after twenty (20) minutes, reading outside of this timeframe may produce incorrect or false results**.

- This technically is "interpretation" of the test results. These types of tests make interpretation very simple. Effectively we will read the result and record it.
- **T.** The T is for **Test**. **A positive test will be indicated by any red line appearing next to the T**. Any indication, even a faint red line, is considered a positive result. Clarity and visibility are not of importance, **any indication of a red line is recorded as a positive result**.

- **C**. The C is for **Control**. The **Control line MUST indicate as a red line or the test device, and the test, is INVALID**. In this event the test must be repeated using another complete test set up and equipment.
- **C Only** indicates red; **Non-reactive or Negative result**.
- **C & T** indicate red; **HCV Reactive or Positive result.**
- **No red lines**; Invalid test device and **Invalid test result**.
- **T indicates red, C no red indication; Invalid Test Result**

Within the Health Network Collective mobile application, the lower section for recording test results will not be visible or accessible until the timer has completed a full 5-minute minimum countdown cycle.

- Time and date are automatically recorded when you enter the test results.
- **Control**; enter **Yes or No** for the indication of a red line next to **C on the test device**
- **Negative** or non-reactive; enter **Yes or No** for the indication of a red line next to **T on the test device**
- **Positive** or reactive; enter **Yes or No** for the indication of a red line next to **T on the test device**

Congratulations, now that you have gone through our Health Network Collective step by step lesson in HCV POCT, follow this link (Abbott, n.d.) to view a short video by Abbott demonstrating the complete test process. Once on the Abbott page scroll down to the videos section and you will find the videos.

You will also find for download from the course materials section on this page, an Abbott Bioline HCV Fingerstick Quick Reference Guide. If you can print it out and carry with you.

POCT RDT Inform patient and follow-up actions

Duration:

- Thirty (30) minutes

Course Materials:

- https://www.cdc.gov/hepatitis/HCV/PDFs/HepCGeneralFactSheet.pdf (CDC, 2020a) (Fact Sheet) Centre for Disease Control, *"Hepatitis C General Fact Sheet"*
- https://www.cdc.gov/hepatitis/hcv/pdfs/FactSheet-PWID.pdf (CDC, 2016) (Fact Sheet) Centre for Disease Control, *"Hepatitis C & Injection Drug Use Fact Sheet"*
- https://www.cdc.gov/hepatitis/Populations/PDFs/HepGay-FactSheet.pdf (CDC, 2013) (Fact Sheet) Centre for Disease Control, *"Viral Hepatitis Information for Gay and Bisexual Men"*

Links in lesson:

- Nil

Content:

The Results

In our previous lesson **we conducted an HCV antibody Pint of Care Test** (POCT) and achieved a result. Remembering that **the result will have one of three (3) outcomes**.

1. **Control negative**; the test is ***not valid*** and inaccurate
    a. The test needs to be conducted again, before retesting rechecks the expiry on the batch or box of test kits, check the packaging for any signs of obvious damage such as water marks. If in doubt use a test kit from another batch, if possible.
    b. Another possibility is that your wai ora, person seeking health, has overcome some of their hesitancy around medical procedures and accessing health care through interactions with you. If a local option for definitive RNA PCR type testing is available it may be worth the conversation for getting your wai ora to get this test.
2. **Control positive**, **Test negative**; in theory you wai ora ***does not have HCV antibodies*** present.
    a. Ensure your wai ora understands that as of the time of the test being conducted, they have no antibodies evident in the test. The antibodies can take 1 to 12 weeks to show, possibly longer.
    b. Any at risk activities causing exposure in the previous weeks (possibly months) may have not produced antibodies at the time of testing.
    c. Any further at-risk activities may still cause exposure, if any such activities are undertaken or your wai ora suspects any exposure, they should seek a further test.
3. **Control positive, test positive**; The test has indicated that ***HCV antibodies are present*** in the blood sample taken.
    a. This does not mean that your wai ora has an acute or chronic infection, it simply ***indicates past exposure*** to the hepatitis virus that has resulted in the body producing antibodies.
    b. Your wai ora needs to have **further testing, an RNA PCR test**.
        1. Subject to Health Network Collective arrangements and agreements at local or national level; when you entered the result into the Health

Network Collective app an automated request for further testing has been sent to the appropriate organization. This request should be responded to via the applications messaging system, and or email. Both yourself as tester, and your wai ora should receive notification.

2. In certain settings where mobile RNA PCR testing services are utilized, such notifications may be subject to the mobile units' schedules and availability.
3. Organizations you may part of or have collaborative arrangements with; might be in a position to assist with obtaining such testing. Ideally these are conversations you have already had with these organizations prior to the need arising.

Conversation and informing our wai ora, or person seeking health

We are not here as doctors, nurses or clinicians, so keep it simple, clear, concise and to the facts that we know and have learnt here.

Bearing in mind our wai ora might (or might not) fall into any of the following states;

- **Nervous;** they have been affected by stigma or simply have hesitations in engaging with health-related matters
- **Anxiety**; Again stigma, anxiety around the impact of possible positive results and having to inform family or friends, and the questions around 'how and why' that might arise. And as with many of us, not wishing to be unwell or having a positive diagnosis of any condition.
- **Stress**; in relation to undergoing a medical procedure or process. Or a combination of all these factors.
- **Denial**; that an at-risk activity they have been partaking of does have a reality of contributing to ill effects and health compromise.
- **Anger**; again, possibly a combination of all these factors, and potentially capable of directing this anger towards you. As with **fear**, **sadness**, and so many more spectrums of **emotional response**.
- Some may rapidly progress through the stages of **grief**; **denial**, **anger**, **bargaining**, **depression** and acceptance. Many will just show acceptance. Think of the principles of Phycological First Aid (PFA) that we covered in an earlier lesson.

    - **Look**, your wai ora appearance can be a great indicator of their mind state and help guide us in our interactions.
    - **Listen**, let them speak if they wish. However, this may be a time that from the point you can identify the test result you maintain a clear concise factual flow of conversation. Your wai ora needs the information so keep it simple and brief, the questions will follow.
    - **Link**, in cases where the wai ora has acknowledged at risk exposure behaviours, suggesting linking them to appropriate support networks or organizations may be of benefit. In some of our addiction populations risks of multiple comorbidities (other conditions) are often present; this may be an opportunity to encourage a visit to medical clinic, facility, community nurse or

similar. Dependent on you, you might choose to offer to accompany your wai ora, that is your choice.

It's important we keep this conversation to the facts, explaining the practical steps needed from this stage to ensure our wai ora have the best opportunity to get the health they seek. Some conversational ideas, though scripted response from you may not be the most favourable as everyone is different and each conversation will have a different conversational bent. The key messaging and themes won't change that significantly.

Control negative; the test is ***not valid*** and inaccurate

1. *Thank you so much for coming in for this test today, unfortunately the control indicator has not shown this test as a valid test for the presence or absence of the hepatitis antibodies. This could be for a range of reasons. We will need to conduct a further test and there are a few options;*
    a. *We can arrange for a PCR test with you (doctor, GP, community nurse, laboratory...). This would be a single blood test that not only shows antibodies, but can also check if active virus is present and if treatment is required. Or...*
    b. *We can simply conduct another test here, now, with another test kit. (If that the test is positive you will need to have the further PCR test to confirm if virus is present in your blood.)*

Control positive, **Test negative**; in theory you wai ora ***does not have HCV antibodies*** present.

1. *Thank you so much for coming in for this test today, this test is indicating that you **do not** have hepatitis C antibodies present in the blood sample we tested. This would suggest that you **have not** been exposed to the virus. As a matter of course we always like to mention that if you have been exposed in the last few weeks or months the antibodies may not show as yet. If you feel you may have had an exposure risk over that time, please feel free to come back for another test after another 6 weeks, or in any case that you suspect you may have been at further risk of exposure.*
2. *Can I give you or send you any information regarding hepatitis C, risk factors, testing or treatment for yourself or family or friends? And please do let us know if you'd like information or links to any support organizations such as mental health, addictions, sexual health and the likes.*
3. *Do you have any questions?*
4. Can I make a follow-up test booking for you in say...6 weeks' time?

Control positive, test positive; The test has indicated that ***HCV antibodies are present*** in the blood sample taken.

*Thank you so much for coming in for this test today, this test is indicating that you **do** have hepatitis C antibodies present in the blood sample we tested. This would suggest that you **have been exposed** to the hepatitis C virus in the past however this does not tell us if you*

have actual hepatitis virus currently in your system. Antibodies are formed by your body to fight the HCV virus, so we know the virus has been in you at some stage. We will need to get another test done to see if the active virus is still in your body and how much of it if so. This is called a PCR test which is another blood test that can take longer for the results to come back. That will inform if the 8-12week treatment to possible cure is required

1. **If PCR services are available locally and mobile app is linked**

   You will receive a notification via your Health Network Collective app and or email letting you know when and where for your PCR test. I will also receive a notification, would you like me to follow up with you prior to this test, or come with you?

2. **If PCR services are available locally and mobile app is not linked**

   You will need to see your doctor / GP / community nurse / local lab and arrange for a RNA PCR test. **Or, ideally**... *I am happy to arrange for this test for you if that suits, great let me get back to with a time and location* (unless that can be arranged on the spot).

3. **If PCR services are available via scheduled mobile service only**
   a. *We will need to reach out and contact the mobile testing services and see when they are scheduled to be in the area. You'll either receive a notification via the app or email, or I will let you know.*
   b. *If you need or want any support for the following test,* or *any information regarding hepatitis C, risk factors, testing or treatment for yourself or family or friends please do let us know. Same with information or links to any support organizations such as mental health, addictions, sexual health and the likes.*
   c. *Any questions?*

Please consider having printed information available for your wai ora who have tested positive (and negative or invalid). Failing that take a few moments to run over the mobile app and FAQ sections.

In the event of the **RNA PCR indicating viral load** a prescribing **nurse or doctor** will need to **approve a script for treatment**. How this arrangement is made in your region will be made clear via communications and updates via the app and email notification to you.

Post Notifications of initial test result(s)

For many undertaking this course of training in Point of Care Testing for HCV, your ties into the community and supporting organizations very likely lead to your much more personalized involvement with you community. Hence your ability and want to ensure your wai ora, those seeking health, can be assisted by you and your networks in navigating their journey to potential cure and improved health. The Health Network Collective app can assist in this with communications, calendar and appointment scheduling and general information

and communications. The app is only a tool though and ultimately your involvement is your choice.

Health Network Collective encourage utilizing local peer and community networks with such support. The links and relationships you have formed with local medical systems and structures is also of vital importance. Community nurses and local NGO's (Non-Governmental Organizations) are very important links in this ongoing navigation of care. Your wai ora may have direct links and relationships that develop over time, we don't need to remain in charge or be the director of the journey, more that we are available for support as needed and as indicated.

There will also be relationships that are difficult to maintain, if at all possible. Please remember your personal safety is of most importance, if you ever have doubts step away and seek advice or help.

Please download, read and familiarize yourself with the course material for this lesson. The fact sheets are designed for general information with fact sheets specifically designed for PWID populations and men who have sex with men.

POCT RDT Disposal of by-products, & Tikanga

Duration:

- Ten (10) minutes

Course Materials:

- Nil

Links in lesson:

  - Nil

Content:

Disposal of by-products

Defining by-products: For our purpose, we will define by-products as blood and any item contaminated with blood from our testing. We will extend this to any bodily fluid or sample that may have been produced from the testing session(s). These are, together with our personal protective equipment (PPE), biohazardous materials.

In lesson 25, *Disposal of Personal Protective Equipment,* we discussed biohazardous materials and disposal of such items. In this lesson we will explore some aspects of cultural and ethnic implications on body waste materials and matter.

In very broad general terms, speak to your local medical professional, hospital, community nurse team, pharmacy or health providers and follow their process and procedure for disposal of by-products. In most instances they will be able to provide assistance if not disposal.

In the context of Aotearoa, New Zealand: For Māori, all genetic material is tapu (Moorfield, 2024) (sacred)in Māori tikanga (Moorfield, 2024) (custom, tradition). Some may consider samples following testing tākoha (Moorfield, 2024) (a gift with tapu (sacred) connotations) that you will dispose of respectfully. In other instances, your wai ora may request the samples for their own disposal in accordance with their tikanga. As a tester this is something you will need to have awareness of and be prepared for in advance.

- Sharps are always disposed of in the sharp's container.
- The test cassette, pipette, and any contaminated swabs, gauze or Band-Aids can be placed into a suitable container, such as a sealable plastic bag, and taken by your wai ora for their disposal.

Potential conflict: Let's set a scenario.

Your wai ora has come in for a test accompanied by family. At the end of the test, you ask if they wish to take their test by-products for disposal and they say "no thank you". A family member say's "no actually we will take them so we can respect our tikanga"

Here is the conflict, we want to respect the family wishes, it fits with our Health Network Collective kaupapa (Moorfield, 2024), (purpose, policy). **We must respect our patient rights**, (section 2 lessons 6 and 7), in particular;

- From the Four Pillars; referenced from The Principles of Biomedical Ethics (Holm, 2002)
  - **Autonomy**; giving the patient the freedom to choose freely, where they are able
  - **Non-maleficence**; to do no harm

    - **Beneficence**; doing good
    - **Justice**; ensuring fairness
- From Medical Ethics; referenced from Te Toihau Hauatanga (HDC, n.d.-a) (Health and Disability Commissioner New Zealand)
    - **Right One** (1) The right to be treated with respect.
    - **Right Two** (2) The right to freedom from discrimination, coercion, harassment, and exploitation.
    - **Right Three** (3) The right to dignity and independence.
    - **Right Four** (4) The right to services of an appropriate standard.
    - **Right Five** (5) The right to effective communication.
    - **Right Six** (6) The right to be fully informed.
    - **Right Seven** (7) The right to make an informed choice and give informed consent.
    - **Right Eight** (8) The right to support.
    - **Right Nine** (9) Rights in respect of teaching or research.
    - **Right Ten** (10) The right to complain.

The **important issues** here are **Autonomy**; giving the patient the freedom to choose freely, where they are able. And **Right Seven** (7) The right to make an informed choice and give informed consent. **Essentially this is the patients right and their decision**.

This may be a time where you inform the wai ora and their family "*let me give you a few moments to discuss and I will be right back*".

This could be labelled as very clear medicolegal issue where the patient's decision is final. And it really is. However, the family can be given some time to discuss the issue and arrive at a decision that still allows our wai ora to be the consenting (or not) individual that are entitled to be.

Consider pre-empting this scenario, make some time to have a chat with your local marae, or in the case of other cultures and ethnic populations find out who is the knowledgeable persons(s), and have a conversation. As a side note, these community interactions and conversations may open doors for other wai ora to testing and improve their health access and general population education around HCV and more.

Allowed time:	Forty-Five (45) minutes
Questions:	Ten (10) varied formats
Passing Grade:	Eighty (80%) Percent
Instant Check:	On submitting answer, correct or incorrect
Retake:	Two (2) retakes, previous quiz must be completed in entirety
Review:	Full review on completion of test
Show correct answer:	Visible with review on completion
Hints:	Yes, with each question

Introduction: Welcome to your fifth of six quizzes towards **certification in antibody Point of Care Testing (POCT)**.

- Again, our quizzes have **many different styles** of questions and ways of answering. You may have **noticed hints in the questions** themselves?
- Overall (over the **6 course sections and 6 quizzes**) you will need to **achieve 80% or greater to gain certification** and access to the Health Network Collective mobile application to conduct testing.
- You will have the **opportunity to review your questions and answers** (with correct answers shown) **on completion** of the quiz.
- You have **45 minutes to complete** this quiz.
- **Retaking tests is possible, up to a limit of 2 repeats**.

POCT Section 5. Question 1.

Description / Question
We may need to conduct testing in the field, as opposed to in a clinical room. Which of the following statements is true
Answers
- We are in the field so the work surface we use for testing is as important to keep clean as it would be in a clinic. CORRECT
- We are in the field so the work surface we use for testing is not as important to keep clean as it would be in a clinic.

Hint: Read the question carefully
Explanation: TRUE. "We are in the field so the work surface we use for testing is as important to keep clean as it would be in a clinic". Regardless of where we test the work area and test surface must be as clean and as sterile as possible.

POCT Section 5. Question 2.

Description / Question
We discussed test equipment, what other items of equipment and principles are required for or apply to effective safe testing procedure.
Answers
- [Five (5) moments of hand hygiene CORRECT
- A timer or device capable of timing CORRECT
- A complete set of medical reference guides
- Personal Protective Equipment (PPE) CORRECT

Hint: Think of essential versus might be helpful
Explanation: While "a complete set of medical reference guides" would be helpful, they are not essential to safe and effective conduct of a test. Your other three options are correct.

POCT Section 5. Question 3.

Description / Question
Which of the following are applicable to the Health Network Collective Mobile app
Answers

- The Mobile app provides a step by step guide to test conduct CORRECT
- The Mobile app is a great way to generate income
- The Mobile app is available to anyone. CORRECT

Hint: Think Health Network Collective Overview, Guidelines, and Obligations form the beginning of this course
Explanation: The mobile app does give a step-by-step guide and is available to anyone. The Mobile app is not for use to generate income.

POCT Section 5. Question 4.

Description / Question
When testing using the Health Network Collective Mobile app as a guide, the app will ask you to read a "Test informed consent" to your wai ora followed by a verbal question "have you understood the consent and agree to the consent and being tested". Which of the following apply
Answers

- Wai ora not giving consent indicates a technicality, just test.
- Wai ora not giving consent indicates we must stop the procedure and not conduct testing. CORRECT
- Wai ora not giving consent indicates lack of mental competency so we need to gain permission from a family member.
- Wai ora not giving consent indicates they are nervous so we must conduct the procedure slowly and conduct testing.

Hint: Think of ethics and patient rights. Time for a conversation...
Explanation: True "Wai ora not giving consent indicates we must stop the procedure and not conduct testing." No other explanation required.

POCT Section 5. Question 5.

Description / Question
How important is it that the test device pouch is not expired, and what must we do if it is expired. Select the correct answer.
Answers

- It is somewhat important that the test device is not expired, if expired use only if no other test device available.
- It is very important that the test device is not expired, if expired do not use CORRECT
- It is not important that the test device is expired, expirations are just medicolegal conventions for packaging.

- It is very important that the test device is not expired, if expired use and note that was expired.
- Technical details. We just need to conduct tests.

Hint: Hopefully no hint needed

Explanation: True. "It is very important that the test device is not expired, if expired do not use" - An expired test device may produce invalid and inaccurate results. Do Not Use.

POCT Section 5. Question 6.

Description / Question

Five (5) minutes after testing, your wai ora is still bleeding from the finger prick sample site, what do you do. Select the correct answer

Answers

- Apply a dressing with direct pressure, elevate the limb and send them home.
- Apply a single suture to the finger prick site, elevate the limb and monitor your wai ora.
- Apply a dressing with direct pressure, elevate the limb and seek medical advice. CORRECT
- Inform your wai ora it will stop over time and not to panic.
- Apply a dressing with direct pressure, elevate the limb and consider applying a tourniquet.

Hint: Basic first aid principles here, if you are struggling with finding the correct answer, please consider taking a First Aid course or refresher.

Explanation: Some medications can cause the blood to not clot effectively, if this is the case further medical advice and possible treatment is required.

POCT Section 5. Question 7.

Description / Question

The test device is readable after Five (5) minutes form when the diluent is added, and must not be read more than twenty (20) minutes from when diluent is added. True or False

Answers

- False
- True CORRECT

Hint: 50 / 50 on this one

Explanation: True: The test device is readable after Five (5) minutes form when the diluent is added, and must not be read more than twenty (20) minutes from when diluent is added.

POCT Section 5. Question 8.

Description / Question

For reading the test result, the CONTROL reading must show a red line (positive) or the test is invalid. True or False.

Answers

- True CORRECT
- False

Hint: Again 50/50 ...

Explanation: True. For reading the test result, the CONTROL reading must show a red line (positive) or the test is invalid.

POCT Section 5. Question 9.

Description / Question
The test device is only a guide, we need to decide what the result of HCV antibody presence really is. True or false
Answers

- False CORRECT
- True

Hint: What's to decide
Explanation: False. The device indicates one of three (3) results. Invalid; the control does not indicate red. Negative; control indicates red, T has no indication or color. Positive; Control and T both indicate red.

POCT Section 5. Question 10.

Description / Question
Cultural and ethnic implications may have an effect on how test by-products are disposed of, which of the following are true.
Answers

- If your wai ora requests their own test by-product samples for disposal we can let allow this, as long as the by-product is managed safely as a biohazard less sharps. CORRECT
- If family of your wai ora request the test by-product samples for disposal we can let allow this, as long as the by-product is managed safely as a biohazard less sharps. We don't need the wai ora permission.
- If your wai ora or their family requests the test by-product samples for disposal we can't allow this,
- If family of your wai ora request the test by-product samples for disposal we can allow this, as long as the by-product is managed safely as a biohazard less sharps. And your wai ora gives permission. CORRECT

Hint: two (2) correct answers
Explanation: Ultimately, we need the permission of your wai ora to give the samples regardless of who requests the samples.

- True: "If your wai ora requests their own test by-product samples for disposal we can let allow this, as long as the by-product is managed safely as a biohazard less sharps." and
- True: "If family of your wai ora request the test by-product samples for disposal we can let allow this, as long as the by-product is managed safely as a biohazard less sharps. And your wai ora gives permission."

Section 6. Administration

POCT Communications

Duration:

- Five (5) minutes

Course Materials:

- Nil

Links in lesson:

- Nil

Content:

Etiquette

As we established in section 1, lessons 1 to 5 of this course. We always act in a kind courteous manner in respect of the guidelines and obligations set for collaborating with Health Network Collective.

It's crucially important we maintain good, if not great relationships with other organizations and establishments to ensure we can maximize our contribution to bettering health access and our communities.

It is good to understand that many of the health providers and organizations we will need to interact and collaborate with have their own guidelines, rules and expectations. We do what we do for the community and for our wai ora and need to respect other providers constraints. In doing so we can ensure longevity in enduring relationships and greater acceptance of our skillsets and capabilities in enhancing and complimenting their services.

Internal

Within your local network and national structure, you will have the ability of internal communications via the Health Network Collective Mobile app. This will accommodate links and communications with your wai ora, and provide channel for wai ora test requests for new app users. These app-based communications are secure and will limit who can contact who and when. For example, someone requesting a test will not be able to message you directly, they can only submit a request. Once, and if, the wai ora tests positive, then further options for their communications capabilities will become available. Likewise with testers, your communications will remain limited to local networks and your wai ora.

Social networks will be available on media such as Facebook, WhatsApp and more.

National and or local

National and local arrangements may give further options for communications.

POCT Re-Certification

Duration:

- Five (5) minutes

Course Materials:

- Nil

Links in lesson:

  - Nil

Content:

Your Health Network Collective certification gained from completion and passing of this course holds a validity of eighteen (18) months.

You will receive messaging or emails 3 months prior to expiration of your certification at which time you will need to complete this course in entirety again.

It is important to note, once your certification expires your access to the Mobile app will be limited, and recognition as a tester invalidated until such time as you recertify.

Health Network Collective are working with national providers to establish other, simpler, requalification criteria and will update as these eventuate.

POCT Recommended Courses

Duration:

- Fifteen (15) minutes

Course Materials:

- https://kaiawhinaplan.org.nz/wp-content/uploads/2022/09/Kaiawhina-Health-and-Disability-Workforce-Pathway-2022_September.pdf , (Poster) Career force Kaiawhina Plan, *"Kaiawhina Health and Disability Workforce Pathway"*

Links in lesson:

- Kaiawhina Health Pathways Plan
- AcademyEX (Micro-credential course offering available internationally)
- here (NZQA list of First Aid course providers in Aotearoa)

Content:

Recommended Courses

Health Network Collective absolutely encourages further education learning and enabling individuals to better prepare themselves for helping out in the community. Be that in volunteer capacity or choosing career pathways.

A great starting point is always First Aid courses. In Aotearoa we have many providers, with St John and Red Cross / Red Crescent national societies offering First Aid courses in most international locations. A list of the 1116 First Aid providers in Aotearoa can be found here.

For career options in health the New Zealand Career Force Kaiawhina Health Pathways Plan (Ora, 2022), downloadable in this lessons course material section, shows New Zealand Qualification Authority endorsed or approved training options. For many these courses can be available as a part of the zero fees scheme.

Internationally courses and career pathways differ, you will need to research and discover what is on offer.

Many other options exist, as an example micro-credential type courses can be a great short introduction to higher education and give you a taste of new fields or disciplines without having to enter into longer term diploma or degree education options. Check out AcademyEX (AcademyEX, 2024) who offer international courses across many exciting fields.

Health Network Collective are in the process of having this course endorsed for equivalency by the New Zealand Qualifications Authority (NZQA) and are working on add on modules for various other community prevalent conditions and issues. Watch this space...

POCT Accessing the Health Network Collective Application

Duration:

- Five (5) minutes

Course Materials:

- Nil

Links in lesson:

- Nil

Content:

Accessing the Health Network Collective Application

At the time of writing this course lesson, as of April 2024 the course and the Mobile Application are still in Minimal Viable Product (MVP) stage of concept. The intentions for the developed and market ready Mobile Application as a product is that the mobile application will be freely available for download by anyone; with

- **Functionality limited to (for those who have not conducted training)**
  - General information and FAQ viewing
  - Visibility of locally available test locations, including RNA PCR sites
  - Booking a request for HCV antibody RDT testing
  - Receiving messaging only (Pending partial registration process)
  - Possible request for training as a tester
- **Once tested (and have not conducted training)**
  - The testing process will complete registration and enable login
  - Enable access to messaging (with tiered limitations that change with various access rights)
  - Enable further access to and use of calendars
  - The testing process will also issue an invitation to complete this course
- **On completion and qualification of this course**
  - 'Tester' level access to the app functions, including testing
  - Increased usability of messaging and calendar functions
  - Access to logistics / ordering functionality.
- **High level functionality (Managers, National level)**
  - GIS / Heatmapping capability (for logistics of mobile PCR testing and similar)
  - Regional or national data visibility (exception personal data)

API and dating sharing capabilities will be subject to local regional or national level arrangements and data regulations / legislation and agreements.

POCT Ordering Equipment

Duration:

- Five (5) minutes

Course Materials:

- Nil

Links in lesson:

  - Nil

Content:

Ordering Equipment

Logistics and equipment ordering is subject to local and national arrangements.
You will be informed of how the process works and logistical components (such as receiving or collecting equipment) on completion of and qualification of this course.
In general terms, initial orders of equipment for testing will be an automated process along with app login issue on completion of and qualification of this course.
Further equipment will be available for ordering via the Health Network Collective Mobile app.
All orders will be moderated against testing and performance, significant discrepancies may result in removal of service or actions as deemed appropriate under local regional or national arrangements and agreements.

POCT Support

Duration:

- Fifteen (15) minutes

Course Materials:

- Nil"

Links in lesson:

  - Nil

Content:

Support

Once you have completed this course support will be available via the Health Network Collective app.
Other supporting resources may include clinical support under local regional and national arrangements. That information and relevant contact information will be made available to you. And will be visible on your Health Network Collective Mobile app.
For national level and organizational support appropriate pathways for support will be made available once respective arrangements for deployment have been decided and actioned.
Meantime questions can be made by email to Hello@HealthNetworkCollective.com (HealthNetworkCollective, n.d.)

POCT Misc

Duration:

- Fifteen (15) minutes

Course Materials:

- Nil

Links in lesson:

  - Nil

Content:

Miscellaneous

No content, for updating.

To include course feedback section.

Quiz POCT Section 6. Administration

Allowed time:	Forty-Five (45) minutes
Questions:	Ten (10) varied formats
Passing Grade:	Eighty (80%) Percent
Instant Check:	On submitting answer, correct or incorrect
Retake:	Two (2) retakes, previous quiz must be completed in entirety
Review:	Full review on completion of test
Show correct answer:	Visible with review on completion
Hints:	Yes, with each question

Introduction: Welcome to your final of six quizzes towards **certification in antibody Point of Care Testing (POCT)**.

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- Overall (over the **6 course sections and 6 quizzes**) you will need to **achieve 80% or greater to gain certification** and access to the Health Network Collective mobile application to conduct testing.
- You will have the **opportunity to review your questions and answers** (with correct answers shown) **on completion** of the quiz.
- You have **45 minutes to complete** this quiz.
- **Retaking tests is possible, up to a limit of 2 repeats**.

POCT Section 6. Question 1.

Description / Question
When we communicate (with anyone as Health Network Collective representatives) we should act strict, in charge and be all knowing because we have done this course. True or False
Answers
- False CORRECT
- True

Hint: No hints...
Explanation: False. Be kind. Maintain the relationships we might need them. Not to forget our Health Network Collective principles.

POCT Section 6. Question 2.

Description / Question
Completion and qualification on this course does not qualify you for life. You will need to recertify. True or False
Answers
- True CORRECT
- False

Hint: No hint...

Explanation: True: Completion and qualification on this course does not qualify for life. You will need to recertify. You will receive notification 3 months from the 18month expiration and will need to complete this course again prior to the 18-month expiration date.

POCT Section 6. Question 3.

Description / Question
The United Nations Universal Declaration is something we (select the correct answer)
Answers

- Don't really care about, it's just lots of words
- Is very interesting for Health Network Collective but not something we practice.
- Is central to Health Network Collective principles and way of being. CORRECT

Hint: A hint shouldn't be needed here
Explanation: Correct; Is central to Health Network Collective principles and way of being.

POCT Section 6. Question 4.

Description / Question
Your wai ora finger prick sample site keeps bleeding after five (5) minutes. You should… (Select the correct answer)
Answers

- Apply a dressing tell your wai ora to go home take an aspirin and call in the morning.
- Apply a dressing with direct pressure, elevate the limb and seek medical advice CORRECT
- Why would I check after 5 minutes, it's just a finger prick...
- Apply a tourniquet like dressing and they will be alright.
- Suture the wound site dress and elevate

Hint: Basic first aid principles
Explanation: Correct; Apply a dressing with direct pressure, elevate the limb and seek medical advice. If your wai ora is taking blood thinners the bleed could potentially become life threatening, they need medical advice and possible assistance.

POCT Section 6. Question 5.

Description / Question
The difference between your test work surface and set up in the clinic vs in the field, is that in the field hygiene and cleanliness does not matter. True or False
Answers

- True
- False CORRECT

Hint: Hygiene and cleanliness...
Explanation: False; The difference between your test work surface and set up in the clinic vs in the field, is that in the field hygiene and cleanliness does not matter. - Hygiene and cleanliness are equally as important in the field, if not more important considering the environment.
POCT Section 6. Question 6.

Description / Question

HCV antibodies are created by the body... (select the correct answer)

Answers

- HCV Antibody formation is a genetic response to DNA disruptions.
- In response to the hepatitis virus having been in the body. The presence of antibodies means that the virus is still present in the body.
- In response to the hepatitis virus having been in the body. The presence of antibodies does not mean that the virus is still present in the body. CORRECT

Hint: Antibodies need something to be anti against at some stage

Explanation: True; In response to the hepatitis virus having been in the body. The presence of antibodies does not mean that the virus is still present in the body.

POCT Section 6. Question 7.

Description / Question

Once we complete an HCV antibody RDT finger stick test that is positive, we then need to have an RNA PCR test to see if the virus is still present. From there the cure is 100% effective. True or False

Answers

- False CORRECT
- True

Hint: Very little in life is guaranteed

Explanation: False; Yes, once positive we need RNA PCR testing. The cure however is up to 98% effective for cure. It is important our wai ora understand there is a possibility the initial treatment may not work and further treatment may be required.

POCT Section 6. Question 8.

Description / Question

Our five (5) moments of hand hygiene are important factors in... (select the correct answers)

Answers

- Contamination and transmission control CORRECT
- Reducing the risk of spreading microbes CORRECT
- Helping keep us safer from unwanted disease and illness CORRECT
- So boring and really a waste of time
- Phycological winning of hearts and minds in a clinical setting

Hint: bugs, nasties...

Explanation: The three (3) correct answers are; Contamination and transmission control, Reducing the risk of spreading microbes, and, Helping keep us safer from unwanted disease and illness

POCT Section 6. Question 9.

Description / Question

- Hand washing with soap and water is (select the correct answer)

Answers

- The preferred and more effective means of hand hygiene. CORRECT
- No where near as good as using hand sanitizers.

- Another boring waste when we can just put on gloves.

Hint: No help here, should be something you know.
Explanation: Correct; The preferred and more effective means of hand hygiene.

POCT Section 6. Question 10.

Description / Question
Hepatitis C is a prevalent community condition.
Answers

- False
- True CORRECT

Hint: Think, why are we doing this course...
Explanation: True; Hepatitis C is a prevalent community condition. And we hope that your help in the community with Health Network Collective can make a contribution to the World Health Organization 2030 elimination goals.

Course specific frequently asked question's

- **Who and what is Health Network Collective?**

Health Network Collective is a project to bring formalised skills and a supportive systemised approach for our non-regulated workforce in navigating pathways to cure in our community. The project brings the ability to complete online micro-credential training & qualification, screen those in need, link to treatment and navigate to possible cure. Health Network Collective is an emerging global entity adaptable and scalable to any global context with a focus on marginalized, low socio-economic, ethnic and general populations, supplementing existing health structures and systems.

- **Who can be a tester?**

Anyone has the potential to become a tester. Ideally testers will be part of an existing entity that has access into or works with marginalised, low income, PWID or challenging to access populations and individuals. Ethnic and equity health providers are welcomed. Health network Collective does need to be active in your country although exceptions for certain entities working with vulnerable populations is always a welcomed consideration for support.

- **My organisation in interested, how do we get involved?**

To enquire for services or further information please go to https://hoopernewton.com and complete the online contact form.

- **Can I charge money for this service?**

No. Notification or discovery of individuals, groups, organisations or any entity charging money, goods or exchange of services for access to the service(s) offered or provided by use of, or through, this application will result in immediate deletion of account.

- **How does the structure work, who is in charge?**

Health Network collective as a project is owned and managed by HooperNewton.com. Deployments of the application may be managed by national or local services managing health in the deployment area of operations. This national or local deployed instance management is limited to clinical supervision and provision of links to definitive testing and supply of treatment. This may extend to monitoring, national or local deployment arrangements will dictate the level management.

- **Can I use this app for other uses or purpose?**

No use of this application, associated data or the application for any use other than intended use is permitted. The application and associated use of the application is monitored. Any misuse, attempt at misuses or associated activities will result in deletion of account and deletion of accounts of individuals or groups suspected of involvement.

- **What data is collected and how is it used?**

  Name, email, mobile, general location (country, district, town) and test result personal details requested. This data is used by us for this application access. This data is shared (with your permission) to enable definitive RNA tests and access to treatment with local laboratory and or health services. Strictly no other sharing of data occurs or is permitted. This application and respective data is covered under HNC Privacy Policy, GPDR, CCPA, and New Zealand Privacy Act 2020 located at https://hoopernewton.com/privacy For copies of or deletion of your data email admin@hoopernewton.com

- **How do I get a login for this app?**

  To be issued a login for this app the application and system needs to be active in your country. For those being tested a positive test result will generate a login that will be sent to you with test results and next steps. For those interested in being testers, you will need to apply for, start and complete the online micro-credential training in this application. Qualification will generate your login.

- **How do I get an HCV test?**

  Where ever possible we encourage you to visit a GP or medical facility where a PCR or RNA type test can be conducted, this is the definitive single test that can lead to diagnosis and treatment. Where this is not possible, or you do not wish to engage with medical people or practice, you can use the Health Care Network app to request an antibody Point of Care Test (POCT) by one of our community testers. That is where the service is available. In the event your antibody POCT test is positive you will need another test, either finger prick or venous blood sample, to have a definitive diagnosis and get linked to treatment.

- **How do I get Health Network Collective in my country?**

  To enquire for services or further information please go to https://hoopernewton.com and complete the online contact form. Health Network Collective advocates for access to health care and the elimination of community prevalent as public health threats, and are willing to undertake appropriate level discussions to help facilitating this. Health Network Collective will ensure that appropriate links to care and supporting elements are in place prior to any deployment of this application.

- **What is Hepatitis C (HCV)**

  Hepatitis C, or HCV, is an inflammation of the liver caused by the hepatitis C virus. The virus can cause both acute and chronic hepatitis, ranging in severity from a mild illness to a serious, lifelong illness including liver cirrhosis and cancer. The hepatitis C virus is a bloodborne virus and most infection occur through exposure to blood from unsafe injection practices, unsafe health care, unscreened blood transfusions, injection drug use and sexual practices that lead to exposure to blood. (World Health Organization, WHO)

- **What is an HCV antibody test?**

  An HCV antibody Point of Care (POCT) test is a finger prick test that takes a drop of your blood and mixes with a reagent on a small cassette. The result, positive or negative, is available in as little as 5 minutes on the spot. The test is looking for antibodies to the Hepatitis C virus in your blood. Antibodies are chemicals released into the blood when someone gets infected. Once exposed to the virus you will have antibodies, so a positive test may not mean you are currently infected, just that at some stage you have been exposed. Hence a further RNA or PCR test will be required if positive.

- **What is an RNA test**

  A Hepatitis C RNA test (sometimes called a PCR test), is a laboratory-based test using either a large "finger prick" sample of blood or venous blood sample detecting whether the Hepatitis C virus is present in the blood stream or not. A positive test indicates the virus is present and indicates treatment is required.

- **Can HCV be cured**

  The current available treatment(s) have a 95-99% success rate in curing Hepatitis C (HCV) infection.

- **How often should I get a test**

  We encourage everyone to get at least one test in their lifetime, and sooner rather than later. If you are engaged in any at risk activity, we recommend you get tested every 6 months to yearly. Such activities include sharing drug taking equipment (including utensils used for snorting drugs), unprotected sexual activities with multiple or different partners, tattoos with questionable hygiene or equipment, possible medical contamination or questionable medical procedures (such as developing countries medical facilities where contamination may be possible). If you're in doubt get a test. Easy.

- **If I have HCV and don't know, what can happen?**

  This could be likened to Russian Roulette. Chronic hepatitis C infection (that is having undetected HCV infection long term) can remain undetected for years, decades, even lifetime if left untreated. This can lead to serious health issues including, but not limited to, liver damage, cirrhosis (scarring of the liver), liver cancer and even death. (Centre for Disease Control and Prevention, CDC)

[Return to Navigation to care pathways, design considerations]

[Return to Challenges, a review]

23. Social media strategy; Health Network Collective

Return to Challenges, a project management review

BY DUVAL DIGITAL through Creators Aotearoa

Introduction

The Health Network Collective (HNC) aims to democratise access to healthcare through Point of Care Testing, leveraging Emerging Disruptive Technologies (EDT) to formalise qualifications and provide a systemised supported framework for facilitating HCV care navigation by kaiawhina and peers. This strategy will help amplify HNC's mission, enhance community engagement, and drive participation in their initiatives.

Objectives

1. Raise Awareness: Increase awareness about HNC's mission, goals, and activities.
2. Engage Community: Foster a supportive community through engaging and informative content.
3. Drive Action: Encourage participation in HNC's programs and initiatives.
4. Build Credibility: Establish HNC as a thought leader in democratising healthcare access.

Target Audience

- Primary Audience: Healthcare professionals, community leaders, policymakers, and potential volunteers.
- Secondary Audience: General public, particularly communities impacted by HCV.

Social Media Platforms

1. Facebook: For community engagement, events, and detailed posts.
2. LinkedIn: For professional networking, sharing research findings, and collaborating with other organisations.
3. Instagram: For visual storytelling, behind-the-scenes content, and community highlights.
4. YouTube: For educational videos, webinars, and success stories.

Content Strategy

Content Themes

1. **Educational Content:**
   - Posts: Infographics and articles explaining HCV, EDT, and the importance of democratising healthcare.
   - Videos: Short explainer videos and webinars on HCV care navigation and EDT.
   - Webinars: Live sessions with experts discussing healthcare innovations.
2. **Community Stories:**
   - Posts: Success stories of individuals and communities positively impacted by HNC's initiatives.
   - Videos: Interviews with kaiawhina and peers sharing their experiences and the benefits of HNC's programs.
   - Articles: Detailed blog posts highlighting community efforts and achievements.

Health Network Collective
linking to care

3. **Research and Insights:**
    - Posts: Summaries of primary and secondary research findings.
    - Whitepapers: In-depth reports available for download.
    - Infographics: Visual representations of key statistics and research outcomes.
4. **Event Promotions:**
    - Posts: Announcements and reminders for upcoming events, webinars, and training sessions.
    - Live Streams: Real-time coverage of HNC events.
    - Recaps: Highlights and summaries post-event.
5. **Call to Action:**
    - Volunteer Recruitment: Posts encouraging community members to join as testers or volunteers.
    - Donations: Campaigns to raise funds for HNC's initiatives.
    - Partnerships: Posts inviting collaboration with other organisations and stakeholders.

Posting Frequency

- Facebook: 3-4 times a week
- LinkedIn: 2-3 times a week
- Instagram: 3-4 times a week
- YouTube: 1-2 videos per month

Engagement Strategy

1. **Interactive Content:**
    - Polls and Surveys: Engage the audience with questions and gather feedback.
    - Quizzes: Educational quizzes about HCV and healthcare innovations.
2. **Community Management:**
    - Respond to Comments: Engage with followers by responding to comments and messages promptly.
    - User-Generated Content: Encourage followers to share their stories and experiences.
3. **Collaborations:**
    - Influencers and Advocates: Partner with healthcare influencers and advocates to spread HNC's message.
    - Cross-Promotions: Collaborate with other healthcare organisations for mutual promotion.

Analytics and Measurement

- Engagement Rate: Track likes, shares, comments, and overall interaction with posts.
- Reach and Impressions: Measure the number of people who see the content.
- Follower Growth: Monitor the increase in followers across platforms.
- Website Traffic: Analyze traffic to the HNC website from social media channels.
- Conversion Rates: Track the number of volunteers, donors, and event participants driven from social media campaigns.

Sample Content Calendar

Day	Platform	Content type	Description
Monday	Facebook	Educational post	Infographic on the importance of HCV testing
Tuesday	Instagram	Community story	Photo and story of a kaiawhina and their impact
Wednesday	LinkedIn	Research insight	Share key findings from recent research
Thursday	Facebook	Event promotion	Post about an upcoming webinar on EDT in healthcare
Friday	Instagram	Call to action	Post encouraging followers to volunteer and make a difference
Saturday	YouTube	Educational Video	Upload a short explainer video on Point of Care Testing
Sunday	Facebook	Research article	Share an in-depth article on HCV care navigation

Examples Instagram/Facebook Posts

Post 1: Educational Content

Instagram:

- **Image**: An infographic showing the importance of HCV testing.
- **Caption**: "Did you know that 56 million people worldwide are unknowingly infected with Hepatitis C (HCV)? Regular testing can save lives by providing early detection and treatment. #HealthcareForAll #HCVawareness #HealthNetworkCollective"
- **Hashtags**: #HealthcareInnovation #PointOfCareTesting #CommunityHealth #EDT

Facebook:

- **Image**: Same infographic.
- **Caption**: "HCV is a silent epidemic with 56 million people unknowingly infected. Early detection through regular testing can lead to timely treatment and save lives. Learn more about how we are working to democratise access to healthcare. #HealthcareForAll #HCVawareness #HealthNetworkCollective"
- **Link**: Include a link to a blog post or webpage with more information.

Post 2: Community Story

Instagram:

- **Image**: A photo of a kaiawhina (community health worker) with a community member.
- **Caption**: "Meet Mary, one of our dedicated kaiawhina. Mary has been instrumental in navigating HCV care in her community, providing support and reducing stigma around testing. #CommunityHeroes #HealthNetworkCollective #HCVcare"
- **Hashtags**: #HealthcareChampions #CommunitySupport #HealthHeroes #EDT

Facebook:

- **Image**: Same photo.
- **Caption**: "Mary, a kaiawhina with the Health Network Collective, has been making a significant impact in her community by navigating HCV care and reducing stigma. Her

dedication is a testament to the power of community-driven healthcare. #CommunityHeroes #HealthNetworkCollective #HCVcare"
- **Link**: Include a link to a detailed article about Mary's work and impact.

Post 3: Research and Insights

Instagram:

- **Image**: A visual summary of key research findings.
- **Caption**: "Our recent research shows that integrating Emerging Disruptive Technologies (EDT) can significantly improve HCV care navigation and reduce healthcare burdens. Discover the potential of technology in healthcare. #HealthTech #ResearchInsights #HealthNetworkCollective"
- **Hashtags**: #HealthcareInnovation #EDT #HCVcare #CommunityHealth

Facebook:

- **Image**: Same visual summary.
- **Caption**: "Leveraging Emerging Disruptive Technologies (EDT) in healthcare can transform HCV care navigation and alleviate healthcare system burdens. Explore our latest research findings and see how technology can pave the way for better health outcomes. #HealthTech #ResearchInsights #HealthNetworkCollective"
- **Link**: Include a link to the full research report or a summary page.

Post 4: Event Promotion

Instagram:

- **Image**: A promotional graphic for an upcoming webinar.
- **Caption**: "Join us for our upcoming webinar on leveraging Emerging Disruptive Technologies in healthcare. Learn from experts about the future of HCV care navigation. Date: [Insert Date] Time: [Insert Time] #HealthcareWebinar #HealthNetworkCollective #EDT"
- **Hashtags**: #Webinar #HealthTech #HCVawareness #HealthcareInnovation

Facebook:

- **Image**: Same promotional graphic.
- **Caption**: "Don't miss our upcoming webinar on leveraging Emerging Disruptive Technologies in healthcare! Gain insights from industry experts on the future of HCV care navigation. Date: [Insert Date] Time: [Insert Time] Register now! #HealthcareWebinar #HealthNetworkCollective #EDT"
- **Link**: Include a registration link.

Post 5: Call to Action – Volunteer Recruitment

Instagram:

- **Image**: A group photo of volunteers at an HNC event.
- **Caption**: "We are looking for passionate volunteers to join our mission in democratizing healthcare access. Make a difference in your community by becoming a kaiawhina. #VolunteerWithUs #HealthNetworkCollective #CommunityHealth"
- **Hashtags**: #VolunteerOpportunity #HealthcareVolunteers #JoinUs #MakeADifference

Facebook:

- **Image**: Same group photo.
- **Caption**: "Join our team of dedicated volunteers and help us democratize healthcare access! As a kaiawhina, you can make a real difference in your community. Learn more about how you can get involved. #VolunteerWithUs #HealthNetworkCollective #CommunityHealth"
- **Link**: Include a link to the volunteer sign-up page.

Post 6: Educational Video

Instagram:

- **Video**: A short explainer video on Point of Care Testing.
- **Caption**: "Point of Care Testing is revolutionising healthcare by bringing diagnostics closer to patients. Watch this video to learn how it works and its benefits. #HealthTech #PointOfCareTesting #HealthNetworkCollective"
- **Hashtags**: #HealthcareInnovation #EDT #HCVcare #CommunityHealth

Facebook:

- **Video**: Same explainer video.
- **Caption**: "Point of Care Testing brings diagnostics closer to patients, making healthcare more accessible and efficient. Watch our explainer video to understand how this technology works and its impact on community health. #HealthTech #PointOfCareTesting #HealthNetworkCollective"
- **Link**: Include a link to a detailed article or webpage about Point of Care Testing.

Post 7: Success Story

Instagram:

- **Image**: A before-and-after photo collage of a community member who benefited from HCV care.
- **Caption**: "John's life changed for the better after accessing our HCV care services. Early testing and support helped him get the treatment he needed. Read his inspiring story. #SuccessStory #HealthNetworkCollective #HCVawareness"
- **Hashtags**: #HealthcareSuccess #CommunityHealth #PatientCare #EDT

Facebook:

- **Image**: Same before-and-after photo collage.
- **Caption**: "John's journey from diagnosis to recovery highlights the importance of accessible HCV care. Our services provided him with the support and treatment he needed. Read his full story and see the impact of our work. #SuccessStory #HealthNetworkCollective #HCVawareness"
- **Link**: Include a link to John’s full story on the HNC website.

Post 8: Research Article

Instagram:

- **Image**: A cover image of a research article or whitepaper.

- **Caption**: "Our latest research article explores the benefits of integrating EDT in healthcare. Discover how technology is shaping the future of HCV care. #Research #HealthTech #HealthNetworkCollective"
- **Hashtags**: #HealthcareInnovation #EDT #HCVcare #CommunityHealth

Facebook:

- **Image**: Same cover image.
- **Caption**: "Explore our latest research on the integration of Emerging Disruptive Technologies in healthcare. This article provides valuable insights into how technology can enhance HCV care and improve health outcomes. #Research #HealthTech #HealthNetworkCollective"
- **Link**: Include a link to download or read the full research article.

These posts should align with your overall strategy, ensuring consistency in messaging and branding across all platforms. Regularly update your content based on feedback and engagement metrics to continuously improve your social media presence. Also make sure each post stays on brand using the same colours and fonts so it is easily recognisable.

Social Media Strategy Conclusion

Implementing this social media strategy will help Health Network Collective build a strong online presence, engage with the community, and drive meaningful action towards improving healthcare access. Regularly analysing the performance and adjusting the strategy based on insights will ensure continuous improvement and success.

Return to Challenges, a project management review

24. My Why

Click here for Conclusion, my personal journey (the text for this image)

Thank you

Health Network Collective
linking to care

25. Letters of support for ongoing project and research

William (Bill) Remak. MSc, MT, BScPH

CALIFORNIA
HEPATITIS C TASK FORCE
149 Wyndham Way, Suite 223
Petaluma, CA 94954-3875
(707) 347-9163
Fax (415) 276-5893
(EIN) TAX ID number: 92-0193770
www.californiahcvtaskforce.org

Health Research Council of New Zealand
South Tower Level 1/110 Symonds Street
Grafton, Auckland 1010, New Zealand

Friday, July 19, 2024

Re: ***Democratising Access to Healthcare through point of care testing; Validation of systemized framework for Hepatitis C test to treat in place and navigation of care***

Dear Members of the Health Research Council of New Zealand (HRC) Review Panel,

The California Hepatitis C Task Force is a 501(c)3 incorporated in 2003. At that time, there was no highly effective cure for hepatitis c nor reliable treatment. While scientific advancements led to the approval of new drugs to treat the hepatitis c virus (HCV) in late 2013, we are still struggling in 2024 to achieve total hepatitis C elimination in the United States. As such, we remain committed to driving removing barriers to viral hepatitis treatment and promote best practices for the delivery of evidence-based treatments by raising awareness, promoting partnerships, and mobilizing resources to improve education, prevention, screening, and reporting. We function as a voice for hepatitis patients, and that is why we must express our support for the implementation of, and further research validating the Health Network Collective initiative "*Democratising Access to Healthcare through point of care testing*".

While the California Hepatitis C Task Force is committed to making health care more affordable and accessible, we also stress the importance of doing so without risking innovation. Community based initiative's improving access to health while supporting and enhancing existing health systems and service are innovation's we, as patients and organizations serving vulnerable patients, need and deserve.

We endorse the leveraging of Emergent Disruptive Technologies (EDT and associated technologies (such as emergent low cost, potentially self-use, lateral flow medical devices) and associated technologies, within the proposed framework providing training, testing, linking to, (and navigation of) cares. Significant health access, health, and financial benefits can be realized with this community model of care.

With the support of the California Hepatitis C Task Force, I offer support for the Health Network Collective project and ongoing research with advisory preceptor support; including as a co-author, or reviewer, as requested or required.

Sincerely,

William M. Remak

William M. Remak, BSc, BPH, MS, MT, SGNA, AHCJ,
EASL Chair, California Hepatitis C Task Force Chair,
International Association of Hepatitis Task Forces
.wmremak@IAHTF.net
Cell +1 707 364-1802

Health Network Collective
linking to care

Professor Ed Gane. MBChB, MD, FRACP, MNZM | AME

Te Whatu Ora
Health New Zealand
New Zealand Liver Transplant Unit
15th Floor Support Building,
Auckland City Hospital
09 307-4949 ext 22922
021 548371 or 021-LIVER-1
edgane@adhb.govt.nz

27 August 2024

To whom it may concern,

Health Research Council of New Zealand

Dear Sir or Madam,

Re Funding Application for Health Delivery Research Activation Grant

I am Professor of Medicine at the University of Auckland and Chief Hepatologist at the New Zealand Liver Transplant Unit. I am also the author of the National Hepatitis C Plan for Aotearoa.

I am writing to support Mr Gavin Newton's application for funding for his project entitled "Democratising access to health through Point of Care Testing."

The aims of this research are to evaluate the viability of developing and deploying a systemised supported framework for facilitating Hepatitis C (HCV) care navigation by non-regulated workforce, kaiawhina and peers.

This would address a huge need in the current National Hepatitis C Elimination strategy. Although new oral antiviral therapies provide a universal cure, the number of New Zealanders dying from liver cancer from hepatitis C has not declined because the treatment uptake has dropped 90% over the last 5 years (from almost 4000 people treated in 2019 to less than 400 in the last 12 months). This reflects the reduction in diagnosis and testing for hepatitis C. In order to meet the WHO 2030 elimination goals that our Ministry of Health sign up to in 2017, we must dramatically increase treatment numbers at least 6-fold. This can only be achieved through provision of wider access to testing in the community. This research will help define those innovative practices which can deliver this goal, including point of care testing by peer workers, which should remove stigma and improve linkage to care. Wider testing will also provide better estimates of the epidemiology of hepatitis C in this country.

Mr Netwon has considerable experience in this space in his previous role as Programme Manager for Te Whatu Ora Hepatitis C Elimination Strategy in 2022-2023. I worked closely with Gavin in my role as Chair of the Te Whatu Ora Hepatitis C Oversight Committee and am sure that he has the understanding and skill set required to complete this important research .

Ngā mihi,

Ed Gane MBChB, MD, FRACP, FAASLD, FRSNZ, MNZM
Director | New Zealand Liver Transplant Unit
Deputy Director | New Zealand Liver Transplant Unit
Park Road, Auckland 1142, New Zealand
Tel: +64 9 3074949 ext 22922 | Mob: +64 21 548371
TeWhatuOra.govt.nz

Doctor Graig Hilton. PhD, MSc, MFA

From: Craig Hilton <craig.hilton@academyex.com>
Sent: Tuesday, 27 August 2024 5:45 pm
To: hello@healthnetworkcollective.com
Subject: Re: Gavin, Letter of support

27/08/2024

Dear Health Research Council,

I write this in order to support Gavin Hooper-Newton's application for funding support from the HRC for his project, entitled ***Democratising access to health through Point of Care Testing***, a project that aligns to seven of the ten action points from the World Health Organisation's *Global Hepatitis Report 2024*.

I have been Gavin's Academic Advisor for the duration of his ***Master of Technological Futures*** alongside other advisors (who would whole-heartedly agree with my endorsement of support for Gavin's application). The advisor (supervisor) role has a mentoring aspect, which includes connecting a masters' candidates to others who can provide additional expertise and guidance for the applied master's project. In this highly applied Master's program, Gavin has robustly researched the viability of developing and deploying a systemised supported framework for facilitating Hepatitis C care-navigation by non-regulated workforce, Kaiawhina and peers. This provides a good foundation for the proposed project.

In my prior role as Academic Director, assessment moderator, and ethics panel representative, I have been able to adjudicate Gavin's work in the context of his and other masters' cohorts and I have always been impressed by Gavin's ability to complete innovative work against the expected timeframe. It would be remise not to mention Gavin's ability to learn and adapt to new challenges with his very ethical mindset, and how this informs his approach to working with his key stakeholders.

The current project is important and a viable research activity with the potential to improve our understanding of effective testing to treat wai ora in the community. And the development of a robust and sustainable mechanism for epidemiological data collection enabling further research and improved understanding of active infection in the community.

From my perspective Gavin's abilities, dedication, and importantly his ideas, warrant support including funding.

I fully endorse Gavin's HRC funding application. If you have any queries, please feel free to contact me.

Sincerely,

Craig Hilton (PhD, Biochemistry)

021 545243

Doctor Geoff Noller. PhD.

From: Geoffrey Noller <geoff.noller@otago.ac.nz>
Sent: Wednesday, 28 August 2024 12:33 pm
To: hello@healthnetworkcollective.com

Health Research Council of New Zealand

To whom it may concern,

Re: ***Democratising Access to Healthcare through point of care testing; Validation of systemized framework for Hepatitis C test to treat in place and navigation of care***

I am a Research Fellow at the Department of General Practice and Rural Health, Dunedin School of Medicine, University of Otago and also a research consultant with a long-standing association with the New Zealand Needle Exchange Programme.

I am writing to support Mr Gavin Hooper-Newton's application for funding for his project entitled "Democratising access to health through Point of Care Testing."

The proposed research aims to evaluate the viability of developing and deploying a systemised supported framework for facilitating Hepatitis C (HCV) care through navigation by a micro-credentialed non-regulated peer and kaiāwhina workforce.

This project would engage with a significant issue currently facing Aotearoa New Zealand's obligation to eliminating HCV by 2030, following our commitment to the WHO global HCV elimination strategy. While the new and now fully-funded direct acting antiviral drugs have revolutionised HCV treatment, testing and navigating affected individuals into treatment has recently slowed considerably. Annual treatment rates have fallen from a high of nearly 4000 in 2019 to less than 400 in the previous 12-months. Barriers to diagnosis and treatment are particularly salient for people who inject drugs (PWID), who are one of the key populations most at risk. PWID represent a difficult to reach population, suffering significant stigma as well as socioeconomic constraints. One proven means to increase diagnosis and treatment is to utilise the kaiāwhina and particularly peer workforce to reach those most at risk. Research in Aotearoa has previously established that these non-regulated workforces can effectively use point of care tests (POCT) for identifying affected individuals and supporting them into treatment. However, developing inventive strategies for training and capacity building of this workforce will be crucial to expanding test and treat capability.

As a Needle Exchange researcher and former member of the National Hepatitis C Oversight Committee, I have previously worked with Gavin during his time as Programme Manager for Te Whatu Ora Hepatitis C Elimination Strategy in 2022-2023. I was impressed by his ability, work ethic and commitment to this important work and am delighted to see this now being extended to a research role.

Additionally, as an independent researcher, I strongly encourage the HRC to support an emerging researcher presently unaligned with a specific institution. This will facilitate the growth of research capacity in Aotearoa and further develop innovative research practices.

I have no doubt that Gavin will harness his considerable determination, skill and innovation in undertaking the proposed research.

Kā mihi,

Geoff Noller

Geoff Noller, PhD
Research Fellow, Department of General Practice & Rural Health • Te Tari Mātauranga Rata Whānau me te Hauora Taiwhenua, Dunedin School of Medicine, PO Box 56, Dunedin 9054
DDI: +64 3 479 4134 • Mob +6421471042
www.otago.ac.nz/dsm/gp • geoff.noller@otago.ac.nz •

Jo de Lisle. RN.

Te Whatu Ora
Health New Zealand
Ta Manawa Taki Region
Hepatitis C Team
Jo.Delisle@TeWhatuOra.govt.nz

10 October 2024

To whom it may concern,

Dear Sir or Madam,

Re Health Network Collective Micro-credential

I am the Regional Program Manager for the Hepatitis C program Te Whatu Ora-Ta Manawa Taki. I am also an Aotearoa New Zealand registered general and obstetric nurse, and was awarded the 2020 Coalition for Global Hepatitis Elimination (CGHE) Global Hepatitis Elimination Champion award.

I worked closely with Gavin during his time as National Programme Manager for the implementation of the national hepatitis C strategy and found his experience beneficial to the programme.

I have reviewed the clinical content of Mr. Gavin Hooper-Newton's micro-credential course developed for his project entitled "Democratising access to health through Point of Care Testing" and his charity Health Network Collective. Continued clinical governance and oversite will be required.

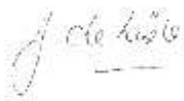
I have had significant involvement in education around Hepatitis C, notably with kaiawhina and non-regulated workforce. This self-managed online micro-credential training will be of value in Aotearoa and will contribute to achieving the current National Hepatitis C Elimination strategy goals of 2030.

Over the last 5 years there has been reduction in diagnosis and testing for hepatitis C, reflected by lowered treatment rates. Through training and supported systemized frameworks, this will enable kaiāwhina and the non-regulated workforce wider access to testing in the community.

When implemented, this project will be of benefit to our communities. With the research and outcomes of this project it will enable community-based practice across other community prevalent conditions. It may also increase the opportunity for health care access by our marginalized and vulnerable population.

I wish Gavin all the very best with this endeavor.

Ngā mihi,



Jo de Lisle RN
Regional Program Manager | Te Whatu Ora-Te Manawa Taki
TeWhatuOra.govt.nz

Return to Delivery & Development – supporting solution delivery

26. Memberships

- **International Network on Health and Hepatitis in Substance Abusers** (INHSU); We are a global network dedicated to improving the health of people who use drugs, with a specific focus on hepatitis C, infectious diseases, and harms that can occur from drug use.
    - Member
    - https://inhsu.org/

- **World Hepatitis Alliance** (WHA); We are an international network of organisations working in over 100 countries towards the goal of eliminating hepatitis by 2030
    - Member, profile https://www.worldhepatitisalliance.org/member/health-network-collective/

- **Coalition for Global Hepatitis Elimination** (CGHE); The Coalition serves as Secretariat to the UN Group of Friends to Eliminate Hepatitis, founded in 2019 as a program of The Task Force for Global Health.
    - Member
    - https://www.globalhep.org/

- **European Association for the Study of the Liver** (EASL); EASL's mission is to be the Home of Hepatology so all who are involved with treating liver disease can realise their full potential to cure & prevent it.
    - Member
    - https://easl.eu/

- **Health Research Council of New Zealand** (HRC); The Health Research Council of New Zealand is a Crown agency and principal funder of health research in Aotearoa New Zealand
    - Member
    - https://www.hrc.govt.nz/

- **ORCID**; which stands for Open Researcher and Contributor ID, is a global, not-for-profit organization where all who participate in research, scholarship, and innovation are uniquely identified and connected to their contributions across disciplines, borders, and time.
    - Researcher, 0009-0005-5813-9907
    - Member profile https://orcid.org/my-orcid?orcid=0009-0005-5813-9907

- **Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine** (ASHM); ASHM is a peak professional body representing healthcare professionals in **HIV**, BBV, and sexual and reproductive health.
    - Member
    - https://ashm.org.au/

- **International Liver Cancer Movement** (ILCM); The **International Liver Cancer Movement** is a global incubator and connector facilitating community building and exchange in the field of liver cancer around the world.
    - Member
    - https://www.ilcm.global/

- **International Liver Cancer Association (**ILCA); ILCA's mission is to lead a **global** community of physicians, scientists and allied professionals through education and research, with the goal to better prevent and treat **liver cancer**.
    - Member
    - https://ilca-online.org/

- **Health and Disability Ethics Committees** (HDECs); Ethics applications and approvals for entities not under a recognised ethics approver.
    - Registered user, applicant
    - https://nz.forms.ethicalreviewmanager.com/

- **The Hepatitis Fund**; The Hepatitis Fund is a global funding platform dedicated to ending viral hepatitis.
    - Registered user, funding applicant.
    - https://thehepatitisfund.org/

Return to Challenges, a project management review