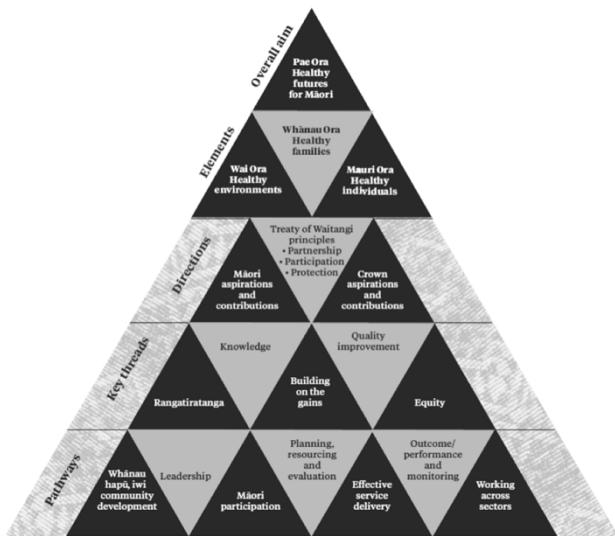
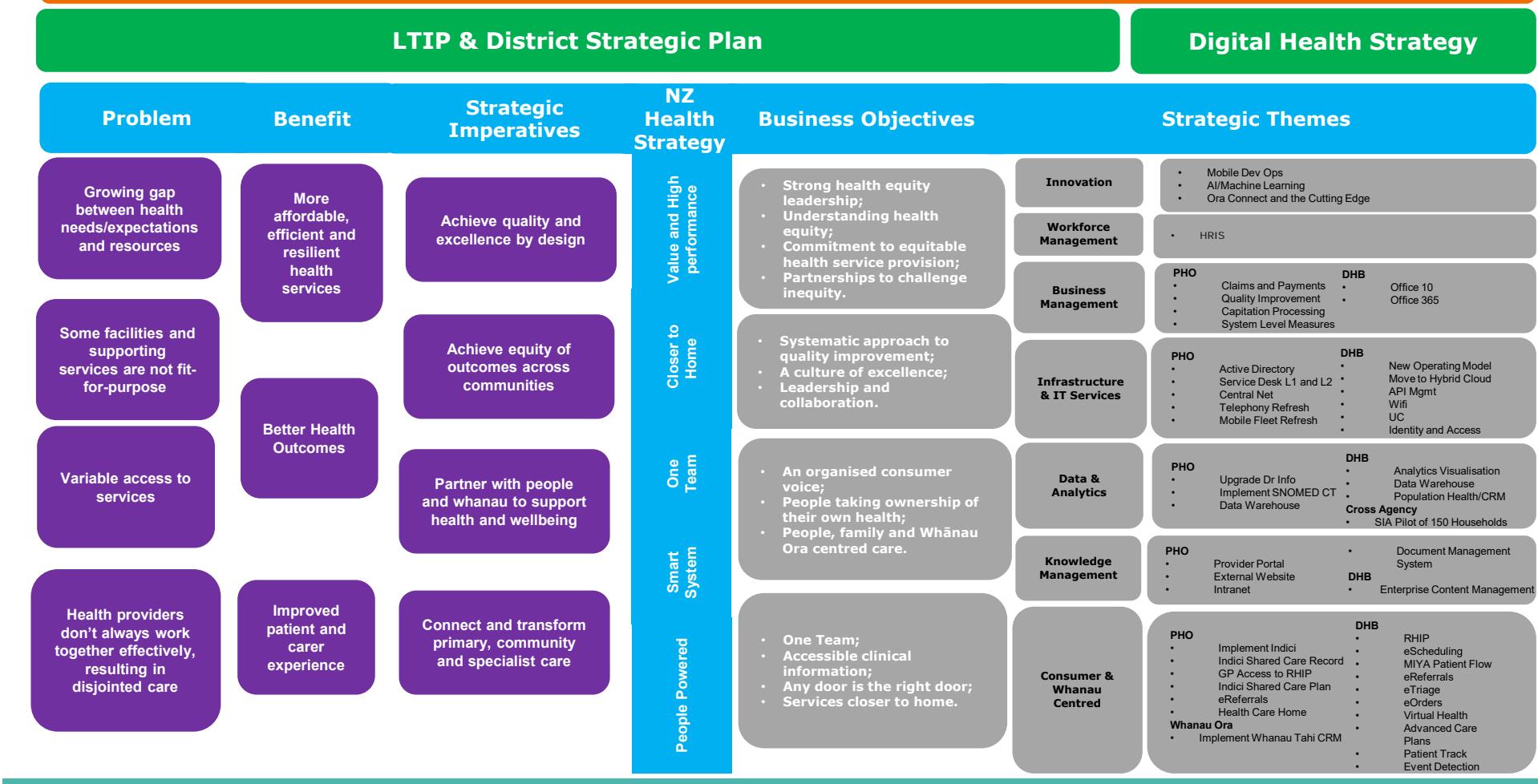

The Current State of Digital Health in the MidCentral District



National Context



Investment Logic Map, Aligned with LTIP & Business Strategy

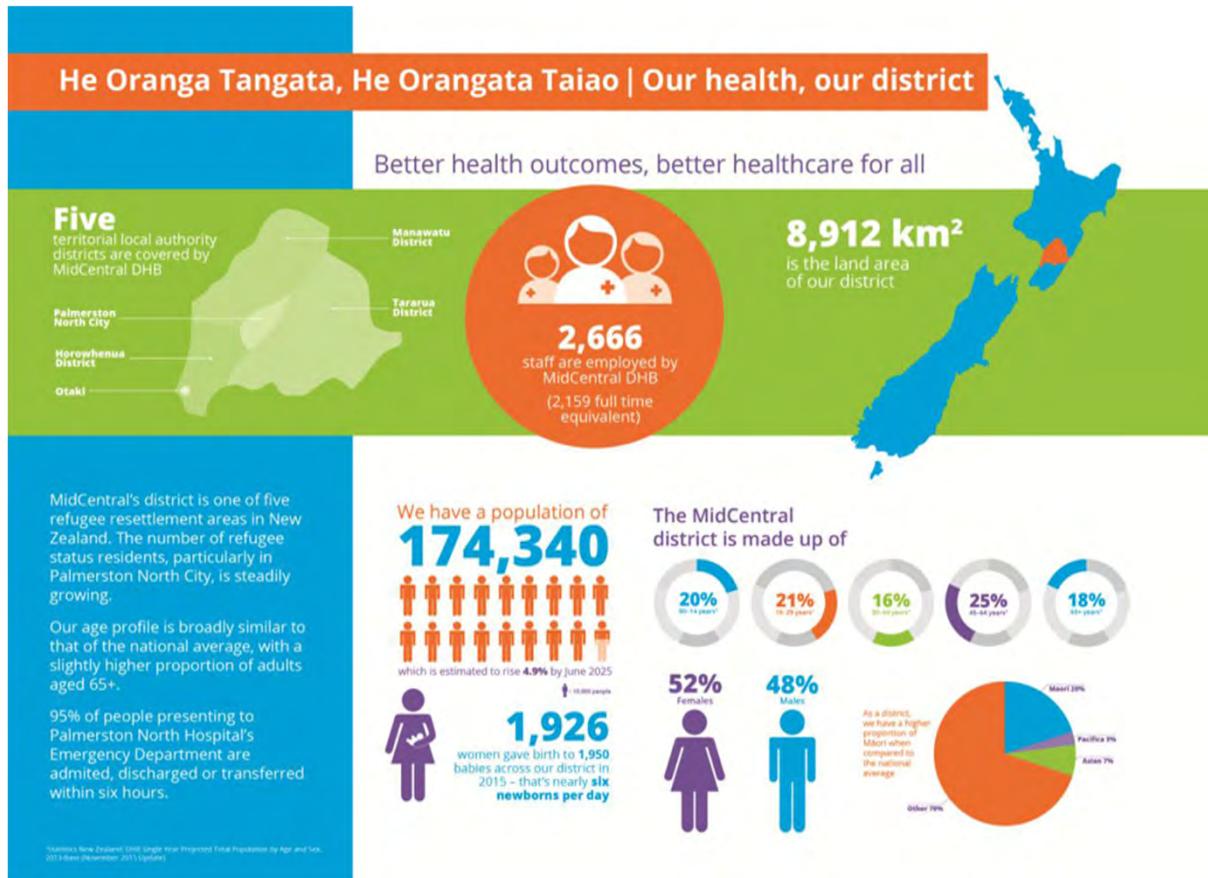


Themes

Whanau Centred

- - Enhanced consumer, whanau and provider creation of and access to digital health and wellness information
- Data and Analytics
 - *Health analytics is the use of data, technology, and quantitative and qualitative methods to make informed and evidence-based decisions to improve health outcomes, and health system planning and performance.*
- Innovation
 - *Creating a culture of digital innovation and collaboration including the co-ordination across the district*
- Knowledge Management
 - *The "knowledge" of an organisation/district refers to the collective know-how contained in its people, processes, policies and information resources. Knowledge management is about providing the capabilities (including tools, processes, ways of working etc.) to ensure all people in an organisation have easy access to relevant information and expertise to support their work; and the continual growth and development of the organisations knowledge is captured*
- Workforce Management
 - *Workforce Systems provide the tools to enable us to attract and retain the best talent and effectively utilise our workforce*
- Business Management
 - *Business management systems provide the tools to maximise our capacity to deliver patient care and effectively*
- Infrastructure and IT Services
 - *The implementation of Digital Health solutions across the district requires a robust minimum standard of infrastructure, network and IT Services capability so that solutions are reliable and secure across the district .*

Local Context: The District by Numbers



Local Context: The District by Numbers



Local Context: Health Inequity

Health inequity example

"Children in families with the highest levels of socio-economic deprivation are more likely to be admitted to hospital with respiratory illness than children in families who are financially and materially better off".

This is inequity in health.

Children in families who have fewer resources are more likely to be living in housing that is inadequate for the family's needs and are less likely to be able to access health care in the early stages of an episode of ill health. The differences in health outcomes between children living in poorer and wealthier families occur as a result of underlying differences in access to necessary resources for good health such as shelter, income, transport, and affordable health care.

Health inequality example

"Women who have a BRCA gene mutation are more likely to develop breast cancer than women who do not have a BRCA gene mutation".

A health inequality exists between these two groups of women.

But this is not an inequity in health – the genetic differences between these two population groups cannot be changed and therefore it is not avoidable.

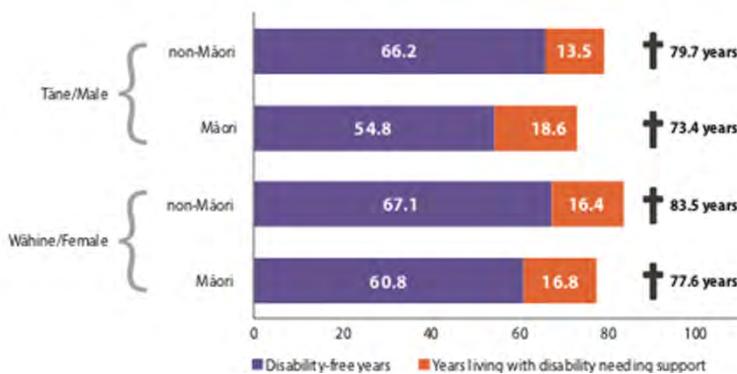


*Relatively affluent neighbourhoods³
2.77 deaths per 1,000 babies in the first 12 months of life*



*Relatively poor neighbourhoods⁴
7.93 deaths per 1,000 babies in the first 12 months of life*

Local Context: Health Inequity



Meatia ngā mea ka taea

As a health system we cannot address all of the causes of health inequity however we have a responsibility to take action in the areas over which we have some control or influence.

Local Context: Influences

Forces Influencing Health Care



Local Context: Locality Planning

HOROWHENUA POPULATION SNAPSHOT

Horowhenua Population 2017
32,500



25.1% were 65 years and over. This is compared to 15.1% nationally.

18.5% were 0-14 years. This is compared to 19.5% nationally.

66% Of people in the Horowhenua District live in areas designated as being among **the most deprived** in New Zealand.

Higher levels of deprivation are associated with higher mortality rates and higher rates of many diseases, as well as social problems such as crime, family violence, disengagement from education and risk-taking behaviours.

In the 2013 Census:
30.7% of families with dependent children in the Horowhenua District were single-parent families, 57.5% of single-parent families had a total annual family income of less than \$30,000.

By 2038 Statistics NZ predict that:

There will be a **55% increase** in residents aged **65 years and over**. (4000 more residents aged 65+ than there were in 2013)

These trends are important because Māori and older people are known to have poorer health status than other New Zealanders.

The proportion of residents identifying as Māori is expected to **increase** to **36.1%** (from 21.6% in 2013).

- The proportion of residents identifying as Pacific is expected to increase to 11.7% (from 4.6% in 2013).
- The proportion of residents identifying as Asian is expected to increase to 6.8% (from 3.2% in 2013).

Housing



Home ownership rates in Horowhenua are above the national average (2013 Census). 69% of households own their own dwelling in the Horowhenua District compared to 64.8% nationally.

\$255

Education

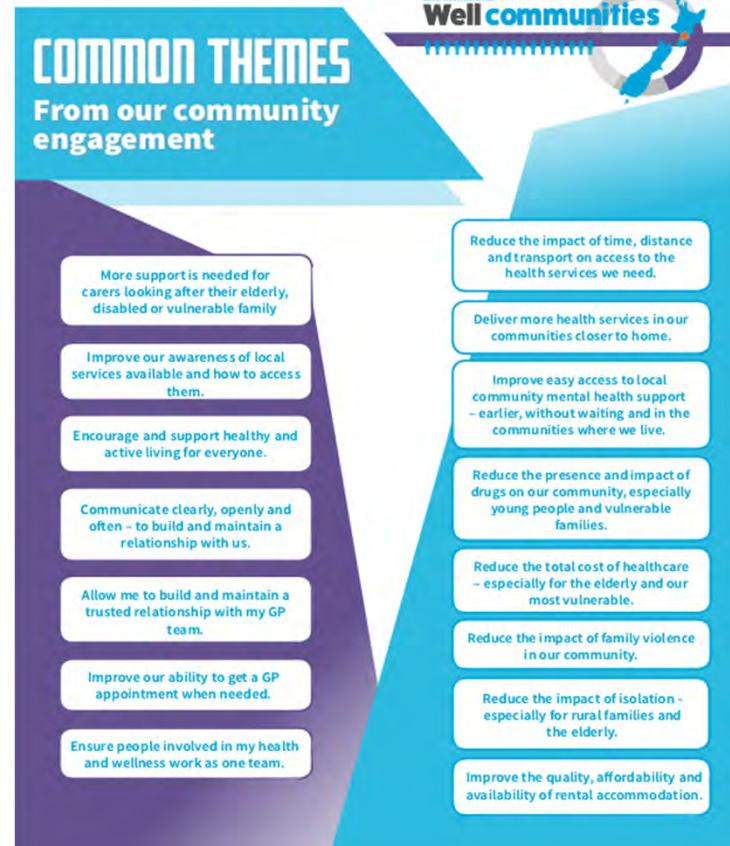
37-70% The increase for all Māori school leavers with NCEA level 2 or above since 2009

55-71% The increase for all school leavers with NCEA level 2 or above since 2009

Income

In 2013, 65.1% of people aged 15 years and over had an annual personal income of \$30,000 or less.

Local Context: Locality Planning



Local Context: Locality Planning

The top four identified priorities through this process were:

Community Priority #1 Access to Healthcare

Easy access to Healthcare when people need it

Community Priority #2 Mental Health and Addiction

Improved Mental Health and Addiction support in communities

Community Priority #3 Better Communication and Connection

A district that has quality communications and connections between health services, people, whānau and communities

Community Priority #4 Healthy Living

A well community where everyone is supported to have quality living and healthy and active lives

It is interesting to note that in developing Health and Wellbeing Plans for other localities within the MidCentral District area (Tararua District, Manawatū District and Ōtaki) the identified main priority areas were consistent, however, there were differences in the focus areas within these priority areas.

Horowhenua District Health and Wellbeing Plan

Community Priority #1: Access to Healthcare

Common things heard from Horowhenua District residents:



Local Context: Locality Planning and Digital Health

- Mental Health
 - MDHB mental health and addiction services will increase the use of tele-health.
- General Practice
 - General Practices will implement new systems so people in need will be able to get appointments easier - including GP triaging.
 - General Practices will increase provision of consults over the phone or online (**excludes Ōtaki**).
 - General Practices will establish online tools for people to request repeat prescriptions make appointments and receive test results.
- Hospital
 - MDHB will increase the flexibility of the hospital booking systems to take into account people's circumstances (such as locality and family/ whānau responsibilities).
 - MDHB will improve IT systems to allow health providers to access the notes they need
 - MDHB will implement improved technology to allow people to access their health information

Local Context: Integrated Service Model Plan



What is the cluster model?

The cluster model is a structure that will enable MidCentral DHB to organise its services to deliver an integrated health model.

What is the Integrated Service Model?

The Integrated Service Model is a healthcare approach that ensures consumers' health and social care journeys are seamless, and transfers of care between providers are not noticeable to consumers or staff as we deliver the best possible outcomes.

Where is Digital Health Technology Heading?

Technology Trend	Impact and application	Timing to move to mainstream
 Telemedicine Remote diagnosis and treatment of patients using telecommunications technology.	Virtual consult/virtual visits – regional, national, international.	1-3 years
 mHealth Leveraging the power of mobile communication in health care services.	Real-time access to information, patient-centred engagement, self-management support.	1-3 years
 Wearables Wearable health devices are capable of tracking medically useful health information.	Monitoring support e.g. heart rate, personal health information e.g. fitness trackers.	1-5 years
 Social and health integration Integration of social care and healthcare services for patients and whānau that require support from multiple agencies.	Better coordination of care and alignment of service delivery to need across setting and provider.	1-5 years
 Internet of things Use of data captured remotely from sensors on 'things' to inform decisions and improve outcomes, remote monitoring to self-regulating medication.	Remote monitoring of people e.g. frail elderly, medications, equipment function, location, home environment e.g. child asthma.	2-5 years
 Analytics/Machine Learning/AI Forms of real-time data analysis and decision-making undertaken by machines (e.g. reasoning, planning, learning, decision making) within a business process.	Identify out of range activity and recommend action, recommendation of patients for treatment/prioritisation, assessment of drug/treatment efficacy, environmental analysis and prediction.	2-5 years +

Where is Digital Health Technology Heading?

	Business Model disruption Disruptive business models enabled by technology that change the way services are delivered.	Buy home and community care services directly rather than through an agency; casual staffing, equipment and consumables.	1-5 years +
	Virtual Reality The adoption of Virtual Reality and Augmented Reality technologies in a clinical context.	Clinical education, patient education, simulation and modelling.	2-5 years +
	Precision medicine Precision medicine uses enhanced diagnostic capability using individual variability in genes, environment and lifestyle to tailor medical treatment to those characteristics.	Preventive or therapeutic interventions can be concentrated on those who will benefit, sparing expense and side effects for those who will not.	1-5 years
	Big Data, including Social Analysis of large sets of data, including data generated by social media, other consumer-generated health and non-health data to identify patterns, trends and insights.	Inform strategic decisions about a population – identification trends and impact of interventions. Improve operational effectiveness e.g. rapid response to precursors to cold/flu.	3-5 years
	Connected Home/Portable Diagnostics The increasing sophistication and reliability of home-based/community-based diagnostic platforms and their integration with the diagnosis and treatment process.	Ability to use home-collected data to inform treatment and management of care in combination with new models of care e.g. telehealth. Transition some hospital diagnostics to the community.	2-5 years

Summary of Current State

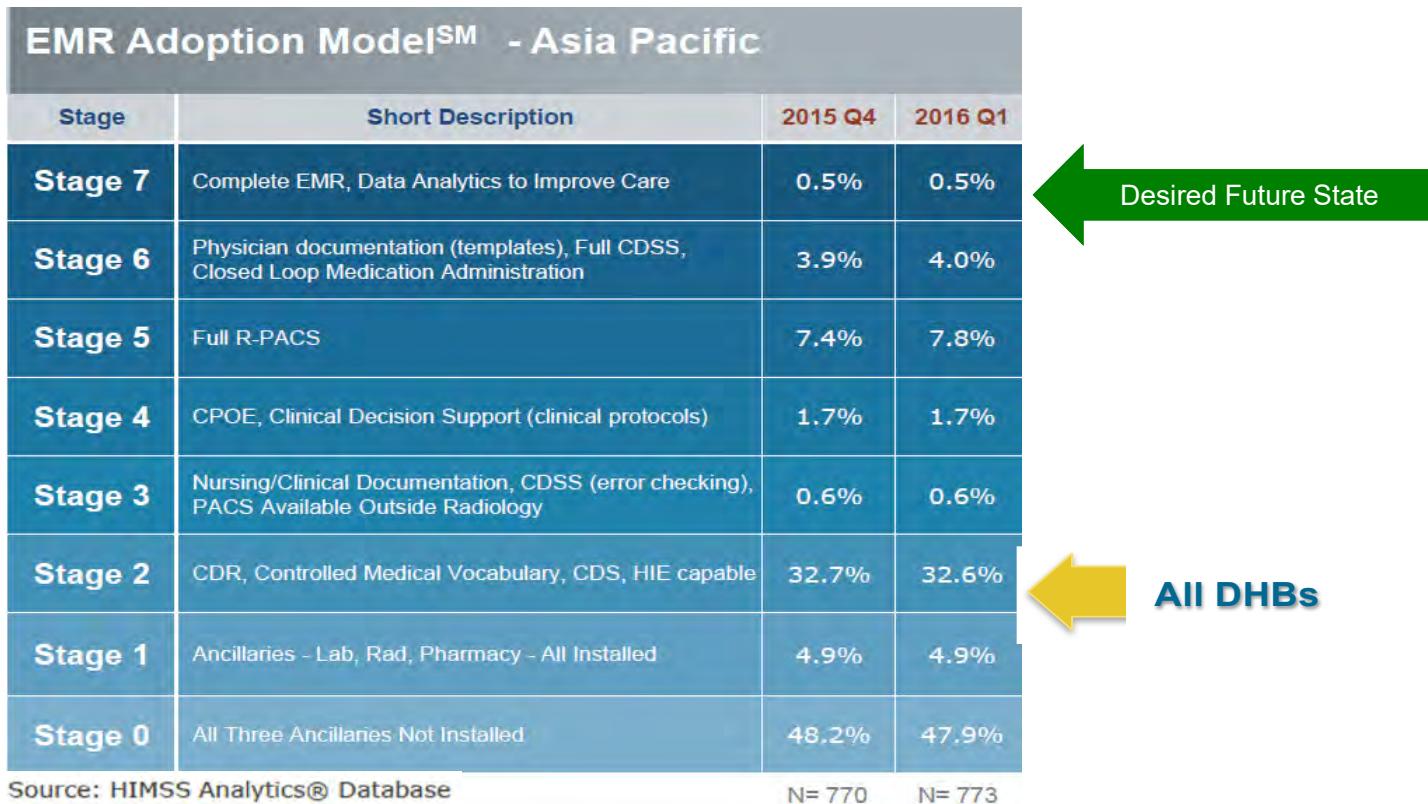
	National	Regional	DHB	PHO	Whanau Ora
Consumer & Whanau Centred					
Digital Hospital (EMRAM)	G	Regional Health Informatics Programme	Digital Hospital EMRAM 2.2 2016. Full use of Regional Clinical Portal, RIS, PACs and PAS. Access to SCR and Regional Eclair. Hospital Operations Centre and Advanced Scheduling projects underway NZULM/Formulary/ePharmacy in use, ePA IPS being scoped, NZ ePS subject HealthShare pilot	Ambulatory Care EMRAM 5.0 Well deployed PMS solutions, with Primary Care SCR, Regional éclair. Transition to Indici	Whanau Tahi CRM
Shared Clinical Information	G		Exact scope of business case unclear	NZULM/Formulary/ePharmacy in use, ePA	
Medicines Management	G		District Digital Health Strategy development underway	Digital Transition Plan in place	
National Electronic Health Record	NP		Limited Telehealth in Mental Health	Some use of virtual consults	
Digital Health Strategy	NP		Some compliance with National Patient Flow		
Telehealth	G				
National Patient Flow	G				
Electronic Oral Health Record	Y		Oral Health Record solution (Titanium) in place		
Newborn Hearing Screening	Y		MDHB Audiology - no technology solution in place		
National Screening Solution	Y		Green field site for Bowel Screening solution		
Maternity	Y	Regional Cancer Service Strategy Mental Health Information Strategy Central Region Stroke Network Central Region Trauma Network	Neonatal and Perinatal solutions in place		
Cancer Information Strategy	Y		Regional Cancer Service provider		
Mental Health	Y		Regional Telestroke program		
Stroke Services	Y		National Trauma Database - Waikato DHB		
National Major Trauma Data Collection	Y				
National Digital Services and Collections	Y		Various Digital Services in use and Collections compliant	Various Digital Services in use and Collections compliant	
Integration Services	NP		Awaiting national capability local integration Services in use	Awaiting national capability local integration Services in use	
IT Security Maturity Enhancement	G		Collaborating actively	Aligned to DHB	
National Programmes, Collections & Solutions		Regional & District Current State Maturity			
Data & Analytics					
National		Regional	DHB	PHO	Whanau Ora
<ul style="list-style-type: none"> EMRAM Analytics: 2 – 3 New National Standards for Interoperability (Information Sharing) being developed 	<ul style="list-style-type: none"> Regional Application & Data Access (RADA) solution replicating regional solutions for DHB 	<ul style="list-style-type: none"> EMRAM Analytics rating : 2 – Data reporting siloed and largely SQL based Data warehouse with manual scripting, limited use of advanced analytics tools and foresights 	<ul style="list-style-type: none"> EMRAM Analytics Rating: 4 – measuring & managing variation in care and the provision of best practice, some elements of stage 5 are in place 	<ul style="list-style-type: none"> TBC - EMRAM Analytics Rating 1 – Foundation building and data aggregation SIA Pilot for 150 Households 	

Summary of Current State

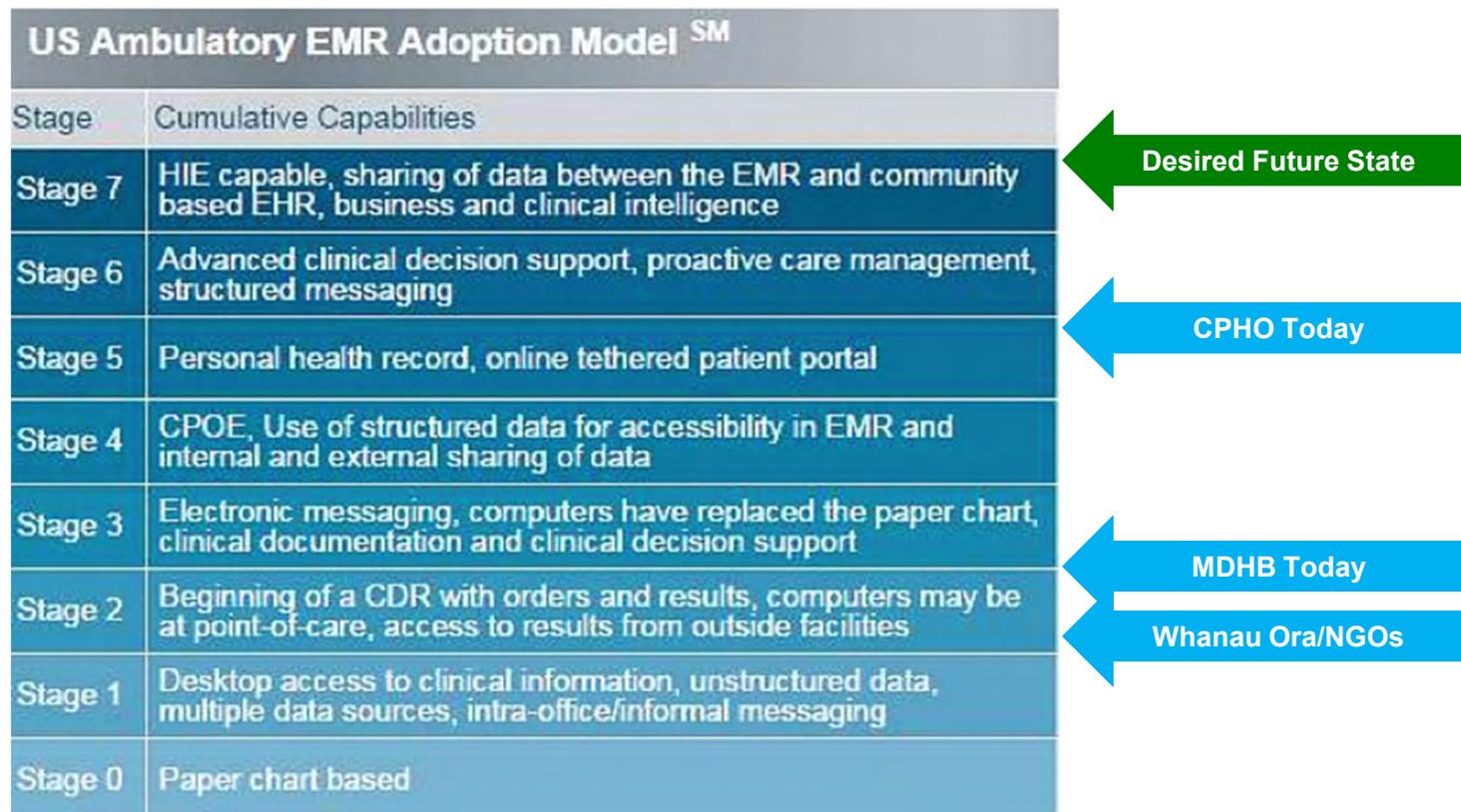
	National	Regional	DHB	PHO	Whanau Ora
Business Mgmt	<ul style="list-style-type: none"> NZ Health Partnerships: National Oracle Solution 	<ul style="list-style-type: none"> NZ Health Partnerships: National Oracle Solution 	<ul style="list-style-type: none"> Solid financial solution Upgrade to Office 365 	<ul style="list-style-type: none"> Quality Improvement Projects Looking at improving Claims and Payments 	<ul style="list-style-type: none"> TBC
Workforce Mgmt	<ul style="list-style-type: none"> TBC 	<ul style="list-style-type: none"> TBC 	<ul style="list-style-type: none"> Trendcare and MicRoster in place but limited workflow integration, eLeave management. No pervasive electronic rostering Considering a Human Resources Information System (HRIS) 	<ul style="list-style-type: none"> TBC 	<ul style="list-style-type: none"> TBC
Knowledge Mgmt	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Sharepoint and controlled documents however no enterprise content management strategy or capability 	<ul style="list-style-type: none"> PHO Provider Portal upgrade External Website upgrade Intranet upgrade Document Management System replacement 	<ul style="list-style-type: none"> TBC
Infrastructure& IT Services	<ul style="list-style-type: none"> New National Standards for Connected Health and Identity Management being developed 	<ul style="list-style-type: none"> CTAS in place Working on improving Regional Disaster Recovery Solutions 	<ul style="list-style-type: none"> Low ITIL maturity, sub-level 3 3PM just implemented, phase 2 APM Significant under investment with limited tools to manage and optimise 	<ul style="list-style-type: none"> Refreshing core infrastructure CentralNET (Network), Active Directory, Mobile and Telephony Improving Service Desk Level 1 and Level 2 	<ul style="list-style-type: none"> TBC
Innovation	<ul style="list-style-type: none"> Approach to Digital Innovation outlined in the Digital Health Strategy 	<ul style="list-style-type: none"> District Led 	<ul style="list-style-type: none"> Cutting Edge programme but innovation not ingrained Mobile DevOps planned AI/Machine Learning project planned 	<ul style="list-style-type: none"> Virtual Assistants 	<ul style="list-style-type: none"> Ora Connect

Current State: Hospital Digital Maturity

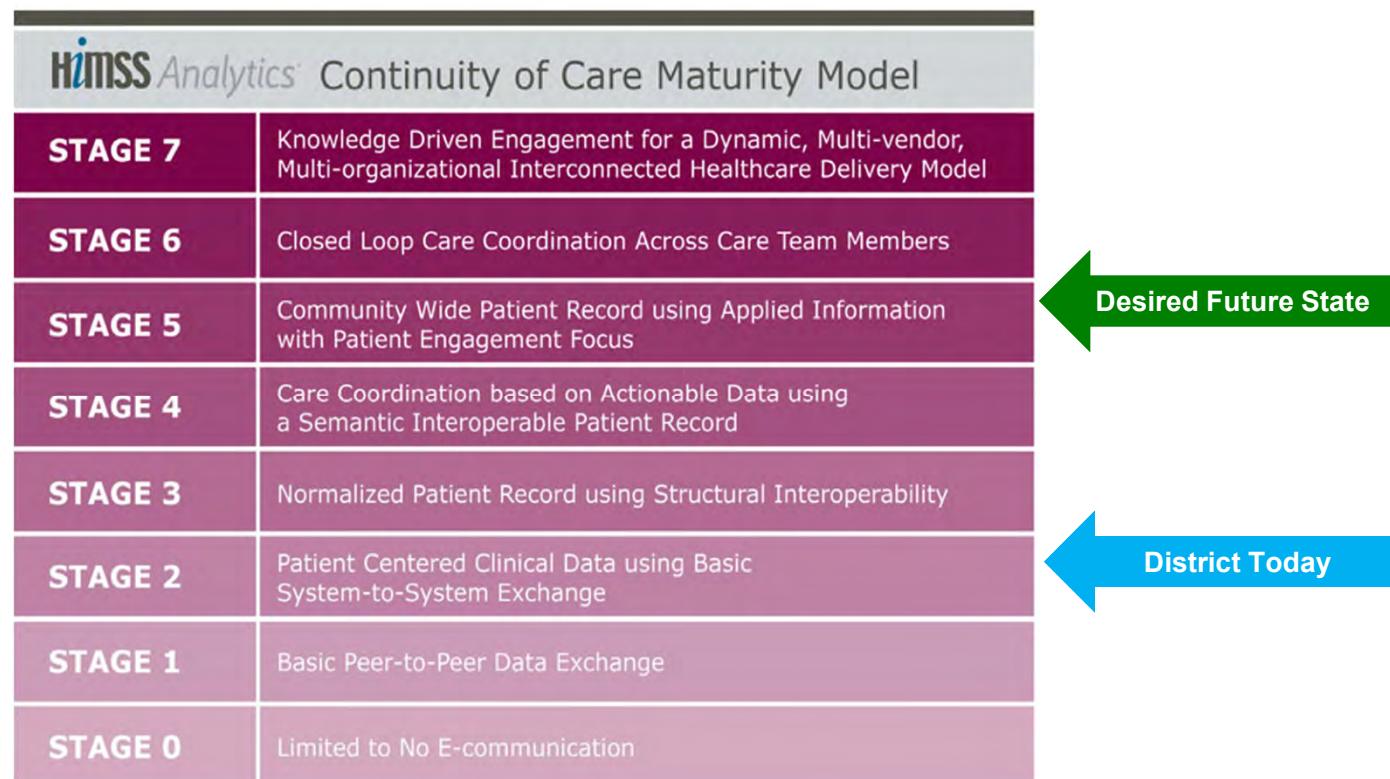
Central Region EMR Capability



Current State: Primary Care and Community Care Digital Health Maturity



Current State: Consumer Engagement



Current State: Analytics Maturity

The Five Stages are defined as follows:

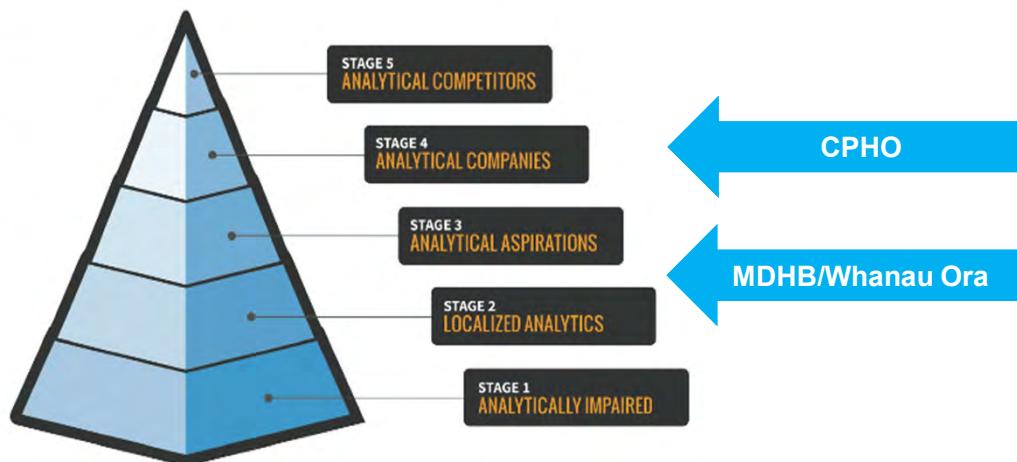
Stage 1: Analytically Impaired: Organizations at this level are “not data driven.” They rely on gut feel and plan to keep doing so. They aren’t asking analytics-driven questions and/or lack the data to answer them.

Stage 2: Localized Analytics: Organizations at this level are primarily “using reporting.” They are doing analytics or reporting in silos.

Stage 3: Analytical Aspirations: Organizations at this level “see the value of analytics.” They are still struggling to mobilize the organization and become more analytical.

Stage 4: Analytical Companies: Organizations at this level are “good at analytics.” They are highly data oriented, have analytical tools and make wide use of analytics. They are still working on commitment to use analytics strategically.

Stage 5: Analytical Competitors: Organizations at this level have reached “analytical nirvana.” They use analytics broadly and deeply across the enterprise as a competitive differentiator.



Current State: MDHB Infrastructure Maturity

Maturity	Cumulative capabilities 1
Stage 4	Infrastructure focus on becoming a catalyst for innovation; Infrastructure is considered a strategic asset; Prime driver in the delivery of service innovation; Infrastructure as an enabler of mobility solutions; Adaptive communications supporting organisational structure change; Communications infrastructure interoperability between the organisation and its partner entities and individuals as necessary; Unified Communications, video and collaboration services are ubiquitous; Services are delivered to a range of virtualized end user devices.
Stage 3	Infrastructure focus is on achieving efficiencies through optimization of deployed standards; Infrastructure is considered a service and its supply is both proactive and accountable; Continual improvement of supported services is undertaken; Service ordering and provisioning is fully automated; Enterprise architecture migration to virtualized platforms for communications, UC, server and storage, end user devices; Communications' platforms adopt a service provider framework to focus on delivery of services. Partner organizations can access internal services and information to which they have the right to access; Consolidation of UC platforms across the enterprise.
Stage 2	Infrastructure focus on standardisation; Implementation driven through requests against agreed standards; Complete infrastructure services definition with increased automation of service ordering and provisioning, services catalogue populated ; Enterprise wide infrastructure architecture; Communication services support a range of access mediums ; Virtualisation of WAN and Data Centre; Standardisation of server and storage solutions; Standardization of Unified Communication solutions; Standardisation of operating environments/devices; Virtualisation for end user computing solutions.
Stage 1	Infrastructure focus on gaining control through rectification of identified problems. Primarily reactive with limited planning Commence basic services definition with limited manual processes; Initiate services catalogue Unstructured cabling implementation with limited standards; Obsolete and antiquated passive infrastructure replacement Communication approaches utilise multiple carriage environments and no virtualization, information sharing through agreed protocols. Consolidation of communications equipment; Physical Consolidation of servers and storage silos with minimized replication; Limited SOE and no virtualisation for end user computing solutions, solutions replicated for multiple end user devices
Stage 0	Infrastructure focus on minimizing and reducing downtime. Reactive approach; Infrastructure services not defined; No services catalogue; Localised geographic based solutions; Limited mobility; Disjointed solutions across the organisation Unstructured cabling implementation with limited standards; Obsolete and antiquated passive infrastructure; Multiple carriage environment communication approach; Servers and storage silos replicated in multiple areas

- Based on the Gartner IT Infrastructure & Operations (I&O) Maturity Model and the NHS Infrastructure Maturity Model (NIMM), adapted for NSW Health context.
- 1 Infrastructure elements: Passive Infrastructure, Connectivity, Server and Storage, Unified Communications and Collaboration, Middleware, Video conferencing, streaming and on demand, and End user devices.

Current State: What does MDHB IT do today?



Desktops/Laptops (2000+)



Databases (520 Physical
2000+ Access DBs)



Applications (200+)



Telephony



Mobile Phones/Tablets (800)



www (18.5 TB per year)



Email (\$13.4m per month)



LAN/WAN



(10k Fibre
215k of copper)

Fibre/Cabling



Cyber (Firewall attacks 800+
per week)
(120+ Threats detected
& blocked per week)



Service Desk (1800 Incidents per month)

(1600 Users Requests pa)



Team/Business Partner
30+ Staff

What are our constraints in moving forward with Digital Health?



- Change is required to get us where we need to be in 5 years time.
- The single most important factor in progressing the District Health Strategy is a commitment to operating effectively as a district and the collective leadership alignment to that goal.
- New ways of working across the district need to be developed.
- Our processes, systems, and governance for Digital Health and investment are not set up to deliver district outcomes effectively.
- Although there is not a lot of new money at this stage, there is room to do a lot better with the money we have if we change the way we do things. Working better together to get better results from the money we currently have will...
 - Build confidence that we can deliver and will...
 - Lead ultimately to greater confidence, more investment, better outcomes and better value.

