Health IT Programme
2015 – 2020
Discovery Workshop

Strategic conversation
3-4 December 2015
**Context**

The Ministry of Health is embarking on its Health IT Programme for the next five years, with four areas of focus: eHealth records, digital hospitals, health data, and preventative care.

The purpose of this workshop was to describe the desired future experience of an EHR system in New Zealand and consider requirements across the four key areas of the Health IT Programme. The Ministry has been working closely with clinicians and consumers to ensure the proposed EHR experience understands and meets the basic needs and preferences of those who will interact with it.

**Our success measures for this session were to:**

- describe the future health journey and what success would look like
- explore the functionality and minimum requirements for a desirable and possible EHR system and digital hospitals
- develop the outline of a narrative or messaging that communicates the journey
- engage in a productive, robust and human-centred conversation that focusses on the needs experiences and desired outcomes for users.
Participants

Health IT Programme 2015-2020
Discovery workshop participants

Dr Bev Nicolls – GP, Nelson-Marlborough DHB (NMDHB)
Patrick Ng – Chief Information Officer, NMDHB
Stuart Bloomfield – CIO, Waitemata DHB
David Ryan – Pharmacist, Auckland DHB
Dr Will Reedy – CEO, Nautilus Health
Chris Hendry – National Health IT Board (NHITB) member
Dr Peter Gow – Chair, National Information Clinical Leadership Group
Stephanie Fletcher – Chair, NHITB Consumer Panel
Dr Marc Gutenstein – Emergency Department physician, Canterbury DHB
Rob Ticehurst – Principal Pharmacist, Auckland DHB
Martin Wilson – General Practitioner, Canterbury DHB
Deb Boyd – Southern Cross

Participants referred by their peers

Maddy Matthews – Nurse, Capital & Coast DHB
Dr Brian Yow – Counties Manukau DHB
Dr Matthew Mackey – Medical Registrar, NMDHB
Dr Joshua Chamberlain – Auckland DHB
David Bassett – Final year medical student and President, NZ Medical Students Association
Dr Sasha Kljakovic – Waitemata DHB
Sarah Clark – consumer

Ministry of Health

Graeme Osborne – Director, NHITB and Information Group
Murray Milner – Chair, NHITB
Sadhana Maraj – eHealth Clinical Lead
Tony Cooke – Manager, Health IT Investment and Standards
Alastair Kenworthy – Principal Sector Architect
Judy Eves – Sector Portfolio Manager
Cristina Samson – Senior Advisor

ThinkPlace Facilitators

Jim Scully - Managing Director
Steph Mellor - Executive Designer
James Nisbet - Digital Designer

Pre-reading materials:

- Minister Coleman’s speech during the Health Informatics NZ Conference: http://www.beehive.govt.nz/speech/health-informatics-new-zealand-conference-christchurch
- The Bell Curve by Dr Atul Gawande: http://www.newyorker.com/magazine/2004/12/06/the-bell-curve
Intent and context

Reflecting on successes

New perspectives

Design the future experience

Key shifts & possible functionality

Journey narrative

Flow for our two day session
Two frameworks that guided our session

We are striving to create an experience which is desirable for users (customers and clinicians), viable for government and service providers, and leverages the possibilities of what technology can offer.

We are taking a co-design approach which values the four voices – intent, experience, expertise and design – throughout the initiative.

Source: Doblin Group

What’s Desirable?
From a user perspective

What’s viable?
From a government or business perspective

What’s possible?
From a technology and perspective

Source: ThinkPlace ©
Graeme Osborne, Director of the Ministry of Health’s Information Group and National Health IT Board, shared his excitement with the group about their key role in co-designing the Health IT Programme. He also provided some context for the workshop, including the Health Minister’s stated goals.

- **Empower the consumer to be actively involved in their experience**
- **Treat people as people, not a series of events**
- **Understand the consumer and be customer centric**
- **Collect data so we can make strategic decisions**
Passion, experience and game changers

We connected by sharing our passion for change, collective experiences and aspirations in the form of game-changers.

**Game-changers**
- All DHBs working together to improve the patient’s experience
- Cross system communication
- Patient education + self directed healthcare
- All services and records in one place
- Safe use of medications
- Electronic admission of patient journey
- Seamless info sharing across continuum of care
- Working with a single EHR system-wide
- Confidence that the health system has the right info at all times
- Digital hospitals
- Integrated health records
- Mobile platforms
- Personalised medicine, enabling better patient outcomes and improved quality of life
- Digital disruption that is non-invasive
- Consumers leading health improvement
- EHR API to pull data to or from consumer health apps
- Better consumer care coordination
- Empowered clinicians
- Up-to-date health info at your finger tips
- No mistakes
- A single source of truth
- New Zealand acknowledged as ‘cracking the eHealth challenge’
- Solving the human-ehealth interface
- Digital enabled workflow replacing paper for operating clinicians
- Engaging the consumer more in their own health care
- Clinical decision support fully integrated

**Our passion**
- Consumer involvement in service / system improvement + policy development
- Fresh ideas and philosophy
- Tenacity
- Structured, standards based info
- FREE sustainable healthcare
- Reducing inequality
- Nationwide electronic prescribing
- IT to empower human behaviour, not replace it
- Sharing good news about progress
- Customer-focused healthcare enabled by technology

**Our experience**
- Change management with e-systems implementation
- Finance, operations, technology
- EHR director + Middlemore doctor
- Multi-organisation connections
- Millenial
- Coal face reality + patient perspective
- Overview of current health provision + function
- Digital native + intuitive design
- Long term condition management
- Fellow doctor + business owner
- Failure + success
- 25 years of health IT experience

We connected by sharing our passion for change, collective experiences and aspirations in the form of game-changers.
Edge Talks

Ian McCrae, CEO, Orion Health
Deb Boyd, Executive Management Consultant, Southern Cross
Herwig Raubal, Chief Risk and Actuarial Officier, ACC
Key points from Ian McCrae’s presentation on Precision medicine

Ian covered the possibilities that are emerging from Precision medicine in the present and near future, and what this might mean for our individual medical experiences and also EHR design considerations.

- Significant amounts of data to be stored in future (150mb+ per person)
- Genomic analysis and personalised medicine is a “once-in-a-generation” step change in medicine
- More and more use of mobile devices to access services (iPhone etc) or track data (FitBit etc)
- Can utilise the cloud and machine learning to aid people
Edge Talks

Key points from Deb Boyd’s presentation on St Stephen’s Hospital and its digital hospital initiative

Clinical Infomatics
- Use of data to inform decisions for care or service delivery
- Emerging field (HINZ)
- Starting to use information in Hervey Bay tracking medication, administration times, bar code scanning for compliance, etc.
- Theatre start/finish times (efficiency measures) to enable improvements

EHR Integrations
- Pathology orders and results
- Radiology orders and results
- Patient entertainment system
- Nurse call system
- Meal ordering system
- Dispensing cabinets
- Patients have access to their own monitoring machines
- Wifi-enabled mobile gadgets (such as nurse call button)

Design considerations
- Keep the patient at the centre
- Patient safety is the primary objective
- Design principles: 80% can be used at any hospital; 20% site specific or tailorable
- Clinical-driven design
- Standardisation of clinical best practices

Key learnings
- Clinician engagement critical
- Include a broad skill and speciality mix in work redesign teams
- Development and transition from paper-based records to a fully integrated EMR should be treated as a change management piece, not an ‘IT’ project or rollout
- Some system users will never embrace the new state
- Some will fly and become super users
- Train more super users than you need
- Ensure any changes to clinical practice are educated and in use before including in an EHR
- Some workflows can’t be fully understood or perfected until in practice
- ROI is a work in progress

www.ststephenshospital.com.au
Key points from Herwig Raubal’s presentation on Health and Social Data Investment Thinking

Key Points

- The focus should be to improve social outcomes for vulnerable individuals
- Invest in people facing barriers to get them back to work
- ‘Liability Profile’ system to project estimated welfare payouts of an individual
- ‘Liability’ has negative connotations, prefer ‘Risk’ which leads to more investment focused terms and mindset
- Has been very successful; sole parents especially. Approach has been improving support networks and parental services.
- Rich data has given MSD a mandate to invest in this way
- We need to consider how people might react to what could be seen as ‘social manipulation’ by some, especially as health professionals in a privileged position
- How do we share these ‘investment opportunities’ with patients?
- Interconnected systems sharing relevant data would enable proactive notification of other agencies, and preventative action
- Rich information allows for better profiling, and in turn better outcomes
- Do we think about patients with enough of an ‘investment’ mindset?
- Social outcomes need equal footing when measuring success to reduce perverse incentives
- Begin with ‘known’ ways to improve outcomes, then use data to uncover and test new methods
- A ‘shared social investment plan’ on a per person basis that is shared across all organisations including health
- Doctors are in an inherently privileged position to provide advice beyond just health, but whether this role has an adverse effect on the trust relationship between patient and doctor
- An individual’s health is strongly intertwined with their social outcomes: e.g. the stress of financial hardship can cause mental and physical health issues, and vice versa.
- Do we take a holistic view of the true cost of an individual’s health issues? Are we best serving the customer by only providing a 9-5 service?
Our Journey

Exploring how well we have positioned ourselves for EHR. What is in place that will enable us and what may hinder our progress?
Our EHR Journey so far…

How far have we come? What is enabling us and what is hindering us? The outcome of the resulting discussion is captured on the following page but it is important to note here that some ‘above the line’ items are also reflected ‘below the line’ (an example being a computer literate workforce with potential while a lack of e-literacy at senior levels potentially acts as a barrier to adoption).

---

**Our successes**
- NHI HPI
- NZF
- NZULM
- Islands of automation
- Winds of change
- Successful pilots
- Electronic primary care
- Cancer networks sharing info
- Some forward-thinking leaders
- Computer literate workforce
- Patient portal
- GP2GP
- eReferrals
- NZ Medicines strategy
- Consumer involvement in service improvement
- Virtual consults
- Clinical involvement

**Our challenges**
- Lacking ability to invest in the future
- Too many bespoke solutions
- Business case mentality
- Updating HPI system
- Siloed work means reinventing the wheel
- Not ‘failing early’ enough
- Regional focus has had mixed results
- Inconsistent DHBs & systems
- Unit dose packaging
- Too much ‘territorialism’
- Competing priorities
- Lack of resources & funding
- Too much reactive spending
- Resistance to change
- Lack of e-literacy of senior leadership
- Inadequate sector leadership and governance
- Lack of system resiliency
- Lack of patient centricity
- Too many sources of truth

---
# Our EHR journey so far

The following are key points from our discussion on what is enabling and hindering us on our EHR journey.

## Aspects that are building momentum

- Strong general desire for improvement
- Some successful pilots
- Islands and pockets of automation
- Relatively rich data repository
- Moving towards single sources of truth
- Patient computer literacy is improving
- Primary GPs are great at using electronic systems internally
- Existing internal reporting tools are strong

## Aspects we can work on

- Agility of the hospital system is problematic (environments are paralysed, no ‘permission to innovate’)
- ‘Business case mentality’ prevents innovation
- Self-interest, patch protection and ‘territorialism’ are inhibitors
- Lots of data, but we aren’t able to easily use or access it (or are lacking the capability)
- Inconsistent treatment of patient tasks
- System statistics are limited or hidden
- e-Literacy at the leadership level is often low
- Resistance to change across the sector
- System reliability hasn’t been great so far
- Lots of existing bespoke systems that may not be able to be integrated, which means a lot of rework and investment
- Fear of patient ‘self diagnosis’ or misinterpretation and poor decision-making if they are given access to raw reports/results
- Lack of focus on change management requirements
On the journey - what we need to focus on

Consumers

- A focus on consumer experience and outcomes (‘understand me’)
- Integration of consumer services / systems
- Consumer-centric approach (a seamless experience)
- ‘Tell you once’: only having to tell one practitioner something, either by triggered sharing or access to data/shared systems
- Clinicians involved in my care have my current, relevant information when needed
- Empower me to manage my health better without being imposing.

Practitioners

- Patient safety and quality improvement are key
- Reduce fragmentation
- More decision support tools
- Support integrated care across continuum of care
- A ‘current view’ of a consumer’s conditions
- Standardisation of terminology
- Opportunity to rethink best practice when utilising an EHR
- Summarise info and be event/context-driven and intelligent
- Improve my workflow so I can spend more time with my patient
Mapping the Territory

Understanding the how the different work streams may relate
EHR is at the centre of all work streams

All work streams are inter-twined

All work streams rely on creating a single source of the truth

All work streams combine to create the new experience
What would an EHR look like?

- Data you can drill down into.
- A cloud that anybody can use.
- It looks kind of like an iPad interface with icons.
- "You want wisdom, not a blood pressure level" + interaction.
- We're all onto this and we've been thinking about it a long time.

- Patient + clinician tasks
- Recognise patient's health literacy & tailor the data + interaction.

Mapping the EHR space:

- Single source of truth
- Data analytics + historical data
- Fully integrated & shareable.
- Access is universal for those with need of permission.

Patient's participation in their own evolution of care.

- A system blueprint
- Articulating what things actually look like & interpret
- Alerts + automated data entry & updates
- Remove the茬ences around health services & data
- Start from looking back at history
- Looking forward & current

Where does the patient's story fit in amongst all this data?
Mapping the Territory – what is needed

- Patient safety is key
- A single source of truth, that’s fully integrated and able to be shared
- One size fits none: recognising the diversity of people’s circumstances and needs in order to deliver tailored treatments and outcomes.
- Privacy and security of information is paramount, and reassurances are needed
- Highly accessible AND highly secure: the balance between data sharing and information security
- A single source of relevant information for patients
- Have the system automate tasks to increase clinicians’ time with patients
- Integrated and automated analytics
- Preventative care becomes part of the user interface, part of the workflow (a layer of data)
- “Headline or dashboard view” with dig down functionality – simple on the surface and rich underneath
- Standardised language and statuses across all systems and disciplines
- Acute care/chronic care needs, allergies, alerts and medications
- A single source of truth, held in the cloud
- Looks better than what we have now
- Icons and visual design like an iPad: where they’re at right now (conditions), drill down into details of these conditions + reports, tasks for both clinicians and patients, the patient’s medical + event history
- “Wisdom” about a patient at a glance - curated summaries, optionally drill down
- All data is summarised for clinicians, but also automatically integrated with backend analytics for “bean counters”
- Patients can provide real time additions to their own EHR, including notes, reminders and tasks
- Common preventative platform can enable scheduling, task management, anticipating health status changes, predicting impending issues through analytics
- Where does the patient’s story fit into all this “data”?
- Clinical workflow is integrated across the entire journey within a single EHR system
- Real-time, accurate information
- Decision support tools enabling better outcomes
- Enhancing care coordination and multi-disciplinary care
- Accommodating consumer preferences regarding their health story
Creating the future experience

Taking an outside-in perspective to create personas and bring to life their experience once EHR is successfully in place.
Capturing the Essence of our Collective Aspiration in a 8 word story

I know me, my team knows me, sorted (bro)

What is success? Empty hospitals? Wellness vs illness?
Sharing + accessing my information?
Team is whoever you interface with.
Not just health, personal network as well.

Partners in knowledge and decision making (for life)

Being part of the social outcome improves decisions.
A conversation; more ‘social’ than ‘medicine’.
Turning healthcare into engineering.

Help us, help you, help yourself, be well

Consumer helps give us information → we take that information and use it to provide you with insight and advice → you take action to help yourself → your health improves.

“Help the ladies; save the babies!”

Share the information. Plan the outcome. Yeah right.

Building on strengths, rather than focusing on negatives.
Share the relevant information so that all agencies can work in collaboration to achieve good outcomes.
Give people the chance to be proactive, by empowering them with information.
The personas

These are the four personas that we chose to map

**DOMINIC**
*Recent Entrant into Primary Care*

Dominic is a 29 year old rural GP, who is relatively new, still gaining experience and learning on the job. He works long hours and is highly invested in delivering the best care he can to his patients.

**EAMON**
*Chronic Condition Patient*

Eamon is a long-term public servant who has congestive heart failure. He regularly visits a private cardiologist, but also has tests through the public system.

**CHARLOTTE**
*Frequent Flyer*

Charlotte is a mother of three in Auckland who has gestational diabetes. She is also midway through pregnancy with her fourth child.

**ANDREW**
*Caring for an Aging Parent*

Andrew has an elderly mother who is dealing with the onset of Alzheimer’s. He is currently her primary caregiver but is considering what her care into the future will entail.

We also had three ‘back-up’ personas which weren’t mapped on the day, but represent other key cohorts in the EHR ecosystem whose perspectives should be fleshed out in future design work.

**ROSA**
*Severe but Brief Connection*

Rosa presents at her GP with severe abdominal pains and is sent to the hospital with a suspected case of Appendicitis.

**ROBYN**
*Newly Diagnosed Patient*

Robyn is a newly diagnosed cancer patient. Her breast cancer was picked through a mammogram after she presented her concerns to her doctor.

**TAMMY**
*Sought-After Specialist*

Tammy is a sought-after mid-career Cardiologist, working out of a Private Hospital who is also active in the Cardiology research field. She splits her time between practice and education.
Dominic’s future experience

DOMINIC
Recent entrant into Primary Care

Dominic runs a far north Hokianga single GP practice. He has a young family and an unwell parent. They love the rural lifestyle even though it brings some challenges to his work environment.

The majority of his patients are Maori and many are ‘frequent flyers’ in the health system that live some distance away. Dominic uses a number of workarounds to help his patients such as Skype, SMS and home/marae visits.

Living in a rural area means that there is limited access to mobile surgical bus, unreliable internet broadband, colleagues are not nearby and he struggles to further his professional development.

A patient, Mrs Farmer, is recovering from an accident

A patient, Mrs Farmer, is recovering from an accident. Her wound develops an infection. She uploads photos of the wound to her EHR. A ‘wound alert’ is generated. A middle of the night call is made to the national telehealth centre. Her personal fitness tracker feeds real-time stats (heart rate, BP, etc.)

“eConsult at home, wow!”

Warm transfer to online/mobile nurse

Dominic responds in the morning

8-way video consulting with specialist virtual MDT

Video consulting occurs with mobile outreach nurse.

Nurse is on-scene in health van and immediate micro-sensitivities swabs are taken

Clinical pathway for all

A new splint is 3D printed at the scene

A new splint is 3D printed at the scene. e-Meds, matched to her biome for peak efficacy, are delivered by drone. Data visibility + patient information

Relevant data is synced via ACC & WINZ links

Diabetes advice and blood check provided

A notification of next check up is sent to Mrs Farmer’s phone and added in her calendar

Dominic: “That was easy – now I can go fishing!”
Eamon is a 55-year-old married man with two kids. He enjoys playing golf but can’t play more than 9 holes. Eamon is an ex-smoker and has a family history of premature cardiac death. The family does not have private insurance and as a result are financially stressed due to their private cardiology bills.

Eamon is also depressed and in denial of his condition. He doesn’t trust the public system and is worried about privacy. He is details-focused, likes control and visibility but doesn’t like to make decisions. He gets frustrated when people mispronounce his name.

Eamon starts playing golf again.

Concerned, his wife pressures him to seek help.

Sees John Kirwan TV ad

He finally visits a GP for his depression, an starts treatment.

While at the consult, the GP mentions the EHR patient portal

Eamon gains information/insight through the portal and increases his health literacy

Eamon starts playing golf again.

“Dealing with my GP is like internet banking. So easy.”

“Increasing trust and engagement”

His physical recovery is good but he but still fears dying prematurely.

He stops having to see a private cardiologist so often, which costs less and reduces his family’s financial strain.

Eamon, his GP and the rehab staff are all informed about his progress and can see his shared data

Feeling more empowered, Eamon starts a cardiac rehabilitation programme

A practice nurse flags his anxiety on his EHR

“‘I’ve stopped my depression meds because I feel so great.’”

Eamon agrees to a counselling referral (psychological) from his GP who sees the nurse’s note.

He is able to come off his depression medication

The portal gives me control.”

“I think I can beat this.”

“Increasing trust and engagement”

“Increasing trust and engagement”

Information is available on a need to know basis

Explicit privacy rules

E-referrals

Shared care record: private, public, nurses, GP, patient

Online resource portal

Risk assessment on KPIs

Clinical genetics

Care plans interlinked for family

Automated flu-vac. prompts when in proximity to providers

Best practice decision support

Skype support for practice team
Charlotte’s future experience

CHARLOTTE
Frequent Flyer

Charlotte is a stay-at-home mum in her mid 30s and is six months pregnant with her fourth child. Her husband is a truck driver and is often away. Before having children, Charlotte was a beauty therapist. She occasionally does some salon work from home for extra cash.

The family lives in a damp, two bedroom house in the provincial suburbs. They only have one car and use public transport often. They also engage with WINZ for community services.

Charlotte and two of her children have asthma. Her eldest child has a learning disability that is undiagnosed.

Charlotte often misses occasional clinic appointments.

Charlotte’s husband departs on another trucking job

She starts experiencing abdominal pain one day

She logs into the EHR patient portal which asks her a series of diagnostic questions, hands free

The system contacts a nominated support person for Charlotte

This key person calls:
• Childcare, who notify the school
• someone to look after Charlotte’s 16 year old
• Lead maternity carer (LMC)
• Work & Income NZ
• Charlotte’s husband (who logs onto the portal to keep track of what’s happening)

“I feel sick.”

“Pre-established clinical pathways”

“Childcare, who notify the school”

“I feel supported.”

“I feel really reassured”

“Skype follow up with LMC”

“UBER or an ambulance arrives at Charlotte’s house”

“I feel cared for.”

A care plan is outlined and updated in real time

Charlotte takes an UBER home (system pays) to her family.

LMC can be contacted if reassurance is needed

Charlotte is able to record her pain, contractions and other details onto the portal in real time.

There is a telehealth conversation between Charlotte and LMC via Skype

She is seen by an obstetrician specialist

Her contractions subside

She is prescribed with treatment steroids. Her contractions subside.

A care plan is outlined and updated in real time

Charlotte takes an UBER home (system pays) to her family.

LMC can be contacted if reassurance is needed

She is able to review any further medical instructions through the portal.

Her arrival at the hospital is expected

UBER or an ambulance arrives at Charlotte’s house

After 4-6 hours, she has a Skype follow up with LMC – they determine it is time for Charlotte to go to hospital

Charlotte is able to record her pain, contractions and other details onto the portal in real time.

There is a telehealth conversation between Charlotte and LMC via Skype

“I feel really reassured”

“Childcare, who notify the school”

“I feel sick.”

“It feels supported.”

“I feel really reassured”

“I feel cared for.”

A care plan is outlined and updated in real time

Charlotte takes an UBER home (system pays) to her family.

LMC can be contacted if reassurance is needed

She is able to review any further medical instructions through the portal.

Her contractions subside

She is prescribed with treatment steroids. Her contractions subside.

A care plan is outlined and updated in real time

Charlotte takes an UBER home (system pays) to her family.

LMC can be contacted if reassurance is needed

She is able to review any further medical instructions through the portal.
Andrew’s future experience

ANDREW
Caring for an aging parent

Andrew is married and has teenage twin daughters. He and his wife both work full time. Andrew’s mum is living with them in their Wellington home and they have safety concerns with leaving her alone during the day as she has Alzheimer’s.

Andrew has hypertension and high cholesterol. He is on medication for these conditions. His mum is allergic to penicillin (anaphylaxis). Andrew and his mum use the same GP practice but he can’t attend every visit with her due to his job.

Andrews’ siblings live in Auckland and Sydney. They want to stay connected and know what’s happening with their mum and her health.

Andrew’s mum felt drowsy and had a fall. An ambulance is already on the way.

Andrew receives an alert: it’s time for his half yearly annual GP check-up

A nurse checks mum’s vitals and enters them in the system for the GP to review.

Mum is diagnosed with a chest infection and associated fever

Andrew arrives at the hospital after work and knows exactly where to find his mum

Support levels for mum are continuously evaluated whilst input.

Andrew arrives at the hospital after work and knows exactly where to find his mum

Andrew’s mum is admitted to hospital for her chest infection while he is still at work.

He refills at the hospital pharmacy, and on returning, finds his mum is ready to be discharged

Andrew receives another alert: time to collect his regular prescriptions

Support levels for mum are continuously evaluated whilst input.

Andrew is admitted to CCU for emergency treatment

They have their house assessed and improved to meet mum’s needs

New healthcare providers are now involved in the care of Andrew’s mum

Some time later, Andrew’s digital fitness tracker indicates something is wrong and alerts the healthcare system

A heart attack is prevented

Andrew is married and has teenage twin daughters. He and his wife both work full time. Andrew’s mum is living with them in their Wellington home and they have safety concerns with leaving her alone during the day as she has Alzheimer’s.

Andrew has hypertension and high cholesterol. He is on medication for these conditions. His mum is allergic to penicillin (anaphylaxis). Andrew and his mum use the same GP practice but he can’t attend every visit with her due to his job.

Andrews’ siblings live in Auckland and Sydney. They want to stay connected and know what’s happening with their mum and her health.

Andrew receives an alert: it’s time for his half yearly annual GP check-up

His mum is taken to a GP practice (not their usual)

A nurse checks mum’s vitals and enters them in the system for the GP to review.

“A nurse checks mum’s vitals and enters them in the system for the GP to review.”

Andrew receives another alert: time to collect his regular prescriptions

“I can see she has Alzheimer’s and a penicillin allergy.”

Ambulance officer

Andrew receives an alert: time for his half yearly annual GP check-up

“I can see she has Alzheimer’s and a penicillin allergy.”

Ambulance officer

Andrew arrives back home with his mum and some additional information and support avenues

“They’ve arranged an appointment at the clinic.”

Andrew is married and has teenage twin daughters. He and his wife both work full time. Andrew’s mum is living with them in their Wellington home and they have safety concerns with leaving her alone during the day as she has Alzheimer’s.

Andrew has hypertension and high cholesterol. He is on medication for these conditions. His mum is allergic to penicillin (anaphylaxis). Andrew and his mum use the same GP practice but he can’t attend every visit with her due to his job.

Andrews’ siblings live in Auckland and Sydney. They want to stay connected and know what’s happening with their mum and her health.

Andrew receives an alert: it’s time for his half yearly annual GP check-up

“I can see she has Alzheimer’s and a penicillin allergy.”

Ambulance officer

Andrew receives another alert: time to collect his regular prescriptions

“I love how easy it is to connect to external supports in the community”

Occupational therapist

Andrew receives another alert: time to collect his regular prescriptions

“I’m worried about mum coming home. Things are fraught enough already”

Ambulance officer

Andrew sends a message to his siblings – he has the right information directly from his mum’s EHR

“Phew, I can see everything about this lady’s care and needs.”

Hospital Staff

Andrew receives an alert: it’s time for his half yearly annual GP check-up

“I can participate in mum’s care via Skype.”

Andrew sends a message to his siblings – he has the right information directly from his mum’s EHR

“Phew, I can see everything about this lady’s care and needs.”

Hospital Staff

Andrew receives another alert: time to collect his regular prescriptions

New healthcare providers are now involved in the care of Andrew’s mum

“I feel better after that treatment.”

Hospital Staff

Andrew receives an alert: it’s time for his half yearly annual GP check-up

“I can participate in mum’s care via Skype.”

Andrew receives another alert: time to collect his regular prescriptions

New healthcare providers are now involved in the care of Andrew’s mum

“I feel better after that treatment.”

Hospital Staff
## Design Principles

The Design Principles which will guide our efforts to deliver the future experience are...

<table>
<thead>
<tr>
<th></th>
<th>Principle</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Easy to use</td>
<td>Intuitive, accessible and simple</td>
</tr>
<tr>
<td>2</td>
<td>Future-proofed</td>
<td>Having the flexibility to be added to or adapted as technology evolves</td>
</tr>
<tr>
<td>3</td>
<td>Visible orchestration</td>
<td>Clear and meaningful visual feedback of data, progress and activity</td>
</tr>
<tr>
<td>4</td>
<td>Private and secure</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Citizen-centric</td>
<td>Designed from a user’s (customers and clinicians) point of view, not the platform</td>
</tr>
<tr>
<td>6</td>
<td>Interconnected</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Failsafe</td>
<td>Always available, reliable, robust, resilient</td>
</tr>
<tr>
<td>8</td>
<td>Ubiquitous</td>
<td>Available everywhere, and responsive across devices, disciplines and geography</td>
</tr>
<tr>
<td>9</td>
<td>Equitable</td>
<td>Acts to reduce health inequalities, overcome the digital divide, and affordable</td>
</tr>
<tr>
<td>10</td>
<td>Intelligent/smart;</td>
<td>Decision support systems facilitate better decision making for clinicians and patients</td>
</tr>
<tr>
<td>11</td>
<td>Accurate and efficient</td>
<td></td>
</tr>
</tbody>
</table>
Converging

What are the key shifts and functionality required to deliver the desired experience?
Back Casting via Press Releases

Converging on what it will take to be successful by ‘backcasting’ through creating an award narrative that captures the essence of key aspects on the collective journey.

We never wavered from the objectives. We kept our eye on the ball and had an exciting, enjoyable journey. We were up for the challenge. People wanted to be a part of it and we took the fans along. It was a huge challenge as we persisted and succeeded. We stuck to the game plan - it wasn’t pretty but we got the job done.

In Oct 2015, the Minister of Health challenged us to establish an electronic health record for NZers. Our guiding principles were that it needed to be easy to use and intuitive, accessible to all, secure and supports patient-centered health. We have created a way for consumers, health providers, and supporting agencies to work together to coordinate services with the person and their whanau. We brought together a range of people representing different parts of the health system and society. This has shifted the health experience for New Zealanders.

We started the journey with passion and vision. We knew that if we had the right people and the backing to invest with certainty, that we would create an agile, adaptable and scalable system that would align with our principles of patient centrality, intuitive design and interconnectedness.
Converging on Capability and Functional Shifts

The right environment
- Fully interactive NHI/HPI for developers and anybody, with easy access for all
- How might we build on the NHI to expand it?
- New innovation environment to make this happen
- An ecosystem to encourage third party innovation
- “A play pen” for innovative ideas

A data backbone in the cloud
- A “New Zealand cloud”: a national spine to store, channel and support all our aspirational ideas
- A national computing cloud
- Trusted data environment via an accessible interface
- An ‘app store’ for developers to introduce new ideas

Understand what we have
- Begin with a ‘stocktake’ to determine winning ideas
- Expand on what is working, and do not start from scratch
- Scale up from successful existing initiatives
- Get some practical examples from around the world to learn from others, build and improve on successes and learn from the ‘failures’

Strong Authentication and Permissions
- Unified authentication
- An authentication system that’s strong and flexible enough to support all kinds of innovation
- Permission management - the ability to control access and permissions

Design for the Future
- Next generation of gadgets and clinical tools will need to be integrated and authenticated
- Connecting to the ‘internet of things’ as it emerges

Education and Awareness
- Education in how to use and how to understand for both the consumer and health professionals
- Consider the end user to ensure innovative initiatives are responsive to user needs

Your ‘Face of Health’
- A landing page made visible for people
- A dashboard
Converge

Resilience and Security
• Prevent unauthorised access and have audit trails
• There will be leaks and security flaws; we should be realistic about designing a system that is technically resilient and focused on continuous security improvements
• High security and high trust in the EHR provider, with alerts and sophisticated security measures
• Break glass provisions for emergency scenarios and deaths

Personalisation
• Access and control
• Data and information
• Interface and interaction
• Dynamic over time
• Allow for user preferences
• Blacklist/whitelist contacts to provide control and visibility

Reporting and Alerts
• Confidence that all access is monitored and assessed, to reassure the customers: an activity log
• Ability to see the descriptions of both the accessor and the action
• Single sources of truth for the various aspects of the EHR, such as alerts, scans, medicines, etc.

Foundational standards
• Need standards that enable ease of use and ease of development, AND standards that support safety and assurance
• Standardisation of medical information (SNOMED)
• Aspiration for NZ to be considered the global leader in the usage of SNOMED
• Who’s going to call the shots on what standards we employ? We need to expand on SNOMED.
• Agree a common standard, then transition to it

Change management
• Ensure readiness from consumers and clinicians
• Processes and workflows are in place (beyond the technology)
• Users are informed and receptive

Funding
• How are we going to fund it? We need to talk about investment
• Sustainable funding to maintain and upgrade the system

Governance
• There is no one group with the power to decide at present
• Requires rigour, credibility and diversity
• A creative and healthy tension - the group needs to have both ‘brakes’ and ‘accelerators’ within it
I LIKE:

- Having future focused conversations
- Being surrounded by thought leaders in health
- That we agree on the Minister’s idea for a universal EHR
- Imagining the possibilities of sharing health data more broadly
- The common vision about where we are going with eHealth
- The process of working together
- The Ministry’s openness to third party innovation
- Having an EHR mandate at last
- The culture of change and creativity
- Meeting of like-minds, consistency of vision, and the will to succeed
- Cohesive thinking in the room
- Being motivated and encouraged to get these ideas off the ground
- The conversation
- The diverse group of people involved
- The thinking over the last day and a half
- The design process the Ministry is following
- The IT board’s co-design approach
- That we are committed to this goal as a country
- The opportunity to change the direction of this big ship

I WISH:

- This would be easier to implement
- We could have a quick and effective stocktake and an incentivisation of programs considered to be pushing towards the vision
- For an EHR that actually improves patient care and health professionals’ work
- We had one centralised cloud that collects data that we innovate from
- We could get on with it
- We could see changes soon
- We encouraged healthy lifestyles, not just doctor visits
- This would make health cheaper and more accessible for all
- I could work on this full time
- The talking would stop and the action would begin
- We will take bold and aspirational steps
- This will change patient life for the better and my life as a doctor
- We could start tomorrow
- We had the funding
- We had the functionality already
- The ideas will come to fruition
- We could focus on the benefits of the EHR
- For 2017 rather than 2018
- We could achieve this tomorrow

I WILL:

- Continue to push the boundaries and concepts of healthcare
- Support the Minister in this quest
- Propagate these ideas with others
- Bring lots of coffee and share ideas
- Check out the Chch version of the EHR
- Evangelise to fellow students
- Let my region know how we are working together
- Continue to push the vision in any way possible
- Work hard to make a difference
- Continue to solve hard problems
- Confidently talk about the reality of the EHR
- Have conversations about this with other ‘consumers’
- Promulgate these ideas with others
- Analyse the workflow of doctors and peers to see how EHR will improve things
- Work hard to establish technical standards
- Continue these conversations as I write and communicate our EHR journey
- Work hard to help make it happen
- Share the outcomes with Northern Region stakeholders
- Provide feedback to CCDHB and encourage the implementation of more electronic systems in preparation for EHR
- Be an early adopter

Health IT Programme Discovery Workshop
3-4 December 2015