AMS

Simplifying Complexity

How can we use technology to empower the NZ health workforce?

Insights, challenges, and future thinking.

Based on conversations with over 150 health sector professionals as part of the HiNZ Digital Health Leadership Summits in Auckland, Wellington and Christchurch 2021

INTRODUCTION

Over the period of a week in March 2021 the AMS Workforce Management team had conversations with just over 150 health sector workers and influencers as part of the HiNZ Digital Health Leadership Summits. We took a lot of accurate notes (not recordings) from the discussions' which have formed the basis for this overview.

Our topic was: **How can new technologies, including AI, change the way our people systems work to give us the workforce we need to transform our health systems?**

While people management (rostering, timesheets, payroll, training, core HR) is often positioned as "back office" activity - in the health sector it sits right on the frontline. Particularly when it comes to the kind of transition New Zealand is looking to make over the next few years. We need workers with the right skills, in the right places to make any digital transformation happen.

Health NZ hadn't been announced at the time of these discussions yet there was a strong view of the need for a more national approach to how the health workforce is managed, tracked, engaged with and compensated.

This led to some strong themes that form the basis for this paper:

• how people-based data and records are managed, which leads to

• how health sector workers are trained, which then takes us to

• getting the right skills in the right place at the right time, which finally takes us to

• how we are going to make this transition happen.

Along the way we got some interesting "What If?" future thinking ideas plus great quotes from those who took part – better you hear it in their words, not ours.

So please join us on this journey. We have taken onboard what has been said and are looking at how we can build out our AMS collaboration and co-design programme to bring more of these ideas into fruition.

Finally – a very big thank you to everyone who took part in these discussions. Your insight, knowledge sharing, and thoughtfulness will hopefully bring about the positive change we're all looking for.

Joseph Yip
Chief Executive
AMS

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CONTENTS

EMPLOYEE ENABLEMENT: PEOPLE-BASED DATA AND RECORDS

Data may seem a very dry and impersonal topic to start with. But what came through very strongly in the discussions was the need for data to empower those employed in Health. There appears to be a digital divide in how patient data versus employee data is being treated and a real desire for that to change.

"We need to put data under staff control. We put a lot under patient control, but we don't enable staff to manage their own. We need to be able to do this to get staff to engage more effectively."

"We need to look at adopting the same approach to patient and employee data. The same frameworks and thinking. The same system approaches that work for one, work for both. The approach and the navigation concept should be the same. For example, you define your own whanau and who can act on your behalf. Use that same methodology across all our people systems."

"We talk a lot about being patient centric but nothing about being employee centric."

One of the biggest issues raised was the need for everyone in the health sector to have a single employee record they could call their own – across both the public and private health sectors. A person would be uniquely identifiable as a single entity in all Health systems. That one record would contain all the relevant information around employing a health worker. Not just their contact information and certifications.

''DHB transfer doesn't exist beyond a letter, you can't take your benefits package with you, and you need to do a complete re-onboarding process every time.

Would be great to just change access to the file and give permission for 'new' to view 'old'.''

''Clinician learning records are held within institutions to show we're professionally qualified but all the other stuff around systems training etc. isn't held or transferred. We need a record to go with an employee, on their permission, including their portfolio and appraisals.''

''Clinician learning records are held within institutions to show we're professionally qualified but all the other stuff around systems training etc. isn't held or transferred. We need a record to go with an employee, on their permission, including their portfolio and appraisals.''

Empowered by the Privacy Act, employees would be able to manage access and permissions to this record. This would allow richer data to be captured and appropriately applied. Enabling employees to securely update their own data directly was seen to remove a considerable administrative overhead and significantly improve data accuracy.

''Any system you use needs to be baked in NZ data privacy from the start. Opt-in needs to be upfront and verification at every point along the process. There also needs to be levels of consent - it can't be an overarching policy – just because the information is used for HR it can't be assumed the data can be used for other processes.''

''Employees should be able to choose how they are contacted re certain issues. We need layers of consent versus blanket consent e.g. 'I consent to my next of kin being notified in X circumstance'. 'I consent to my lung condition being notified in Y circumstance to selected managers'.''

''If we have the ability for employees to enter and maintain data, they can choose to give enduring consent (visible to everyone) on something - or enable consent on a case-by-case basis. You would then be able to see where your data has been shared and with whom.''

Having a single employee record would enable more holistic and accurate tracking of hours worked across different organisations, training being completed, etc. It also would be to the employees' direct benefit to keep the record up to date and as comprehensively completed as possible – alerts could be raised upon log-in for any information that is yet to be provided or is out of date.

The importance of keeping data updated was highlighted by a heartfelt example. While working in a UK hospital someone had the experience of a young doctor dying while at work. Tragically no one could immediately identify who to contact to advise them of his death as the next-of-kin record wasn't updated.

"Make it to the employees' advantage to keep all that data up to date. They only enter it once in their life in the health system database then manage it - as you do for social media systems data."

"If you make a personal choice to share your data then it is up to the individual. It is about giving employees the choice of who can access that information and use it. We should enable data sharing across organisations and just manage the privacy piece."

Unique identifier

Having one uniquely identifiable employee record would support single sign on across the Health sector – across multiple devices and multiple systems. If you work across multiple organisations you would no longer have multiple records and logins - just one.

"Data governance and access to systems is an issue. If your identity in the system is an email address and you have different email addresses for the different organisations you work across, you end up with multiple versions of 'you'."

"People appear in systems three to four times as different people in different entities, with different email addresses. They are costing us as we are paying for separate licences for each of the different logins into systems."

"One of the most important things would be having one unique identifier for someone across the health systems. One of the challenges we currently have is data governance and data quality. If you shift somewhere else, then your employment record is immediately out of date. An individual needs to own and access it so they can keep it up to date."

WHAT IF?
Future thinking on using biometric logins

Traditionally managers need to sign off on timesheets, but we question whether this is needed if we can do biometric log-in and log- out with finger print or facial recognition software.

An alert could be raised on mobile if shift has ended but not signed off: "Are you still working Y/N?" If Yes – then you are asked to estimate how long and sent another reminder.

With managing electronic time sheets in this way everything would be accounted for, including the tracking of breaks which is important. All you would need to do is put exceptions in front of a manager lightning their load and letting them focus on more important issues than signing off an accurate timesheet.

We all need to talk the same language

Another barrier to putting a nationally standardised solution in place, was identified as getting everyone to talk the same 'language' in the fields used to collect employee related data.

"We run different systems with no common standards in HR or Payroll. Even down to what we call them; it may be the same thing, but we give it a different name. Before we do anything, we need common standards, data structure and language. Data collected for individual purposes can even talk a different language in the same DHB."

"Need a standard and consistent look and feel to the systems being used and need to have geographic consistency around the systems view."

> "We do agree on clinical standardisation but on the workforce side it is a bit of a Wild West around what things are called."

Making better use of the data we collect

Some of our deeper discussions were around how the data we collect against employee records could be better used. Given that appropriate permissions were granted, how could the data be used for good? There were some excellent suggestions for setting benchmarks and using the data to better inform the deployment of staff.

But in addition to a lack of consistency around naming and formats, the consensus was there would be a number of gaps in the data.

This was an area where Artificial Intelligence (AI) – and process mining, in particular – was seen to be able to be put to good use. To both apply data cleansing to rapidly improve the quality of the data being collected but also to use process mining in the interim to fill those gaps and bring together data from disparate sources into some useful analysis.

"Can we use AI to do a lot more with imperfect data? What we already have might be a small and incomplete data set, but can we use AI to help close those gaps?"

"Data sits in totally disparate siloes that can't talk to each other and (we) are reluctant to invest in that technology to connect. Can we use AI to apply process mining to create end-to-end process view for improvement?"

BRINGING YOUR WHOLE 'SELF' TO WORK

Another major advantage of having a single, secure, well-managed employee record was the ability to bring your "whole self" to work. That was articulated as not only capturing data that related to clinical skills and training but additional information that could make a difference to how and when someone was deployed.

While Covid-19 vulnerability was top of mind, this thinking extended beyond any health risks an employee may be exposed to. Things like second language skills, religious beliefs, musical or other competencies were raised. On a different tack, personal preferences around where someone might work, with whom, or when – particularly for those with other dependencies, were also noted.

"One thing that would be amazing, would be something that focused on the individual not the organisation. If my HR record could follow me wherever I went to work. In that record would be confirmation I could work with vulnerable children, immunisation or any relevant training. It needs to work across public and private systems and be able to travel with you. Clinical staff work between different organisations and those organisations need to talk at an employee record level."

DIGITAL LITERACY AND EQUITY

To put a single employee record with unique identifier into practice, it needs to be accessible to everyone. That includes all health workers, not just clinical staff. While we hear a lot about digital literacy and the lack there of, across the general workforce - in the health sector this appears to be even more profound and evident.

"Orderlies for example may not have access to tools that enables them to use the system or even an email address. We need to move to a digital system (for people management) but before we make any changes, we need to make sure everyone can access it."

"We can't deliver online training as so many don't have that access. Nor can we introduce scanning off a phone when not everyone has a phone with that capability, and we don't provide them to people. Part of the equity as well is the need to ensure we all have the right tools to do what we're being asked to."

Not only does paper-based management appear to largely remain as the operational default, but the Health workforce is also both diverse and aging. It is also one thing to identify the gaps in technical skills but given how busy everyone is, it's quite another thing to provide the needed training. As a result, instead of a solution providing optimal benefits it is being used at a minimal level or being avoided.

"We keep thinking in thirty years' time it won't be a problem... but technology moves even faster than we do. In thirty years the workforce will be just as out of date as it is today – if not more so."

"We have a number of nurses over 65 and vision can become challenging, plus not everyone is comfortable with technology. If you've got to spend a lot of time using it we need to make it a highly usable system for everyone. So many systems are separate and siloed and that just adds to the load."

As a result, training was reportedly often done in an employee's own time so they could meet the requirements to continue working in an area. This seems neither fair nor equitable. It is also limiting the digital transformation as the shift onto new systems is delayed by employees' inability to train on them. This is further compounded by system upgrades and new functionality continually being introduced – but not used.

"We are not looking to teach people to code, but you need very specific skills around what they are required to do in each role. From day one you train them on a system but there are multiple upgrades over several years. If you don't train on the new features, how can it hope to better support what you do."

"It is getting better – but we aren't incentivized to be a super-user on the floor. We must find our own time to train and use the system and we aren't getting recognised for it. It is time off the floor to learn a new system and incredibly difficult to get someone to put their hand up. "I'm busy – I've got heaps on our plate."

Finally, we tend to talk about digital literacy as being a point in time problem we can easily solve. One luminary made the very valid point this is absolutely not the case. New technology is being developed and deployed all the time. If anything, this is going to continue to accelerate. If we cannot get on top of how we keep people engaged in digital training, then in five years' time the gap is going to be even bigger.

There is also a belief digital literacy is only an issue for "older people". As above, this is proving not to be the case. There are across the board literacy issues with digital projects being rolled out and these include those who are deemed 'digital natives' but may never have encountered the new-tech being deployed.

"Upskilling the workforce to become more data literate is also really important and building that literacy into their training. We need to educate students about the importance of information and data and how to read this. We need to make this more exciting and ensure they understand accurate data capture is really important - plus what they do with it."

TRAINING AND SKILLS

Maintaining an employee's competencies, skills, training, certification and qualifications is another important set of data for people management. At the start of the 2020 pandemic the health sector needed to immediately understand who had what skills and who was available – but it couldn't.

''No one got into health to be a super user or system user - it is to heal people''
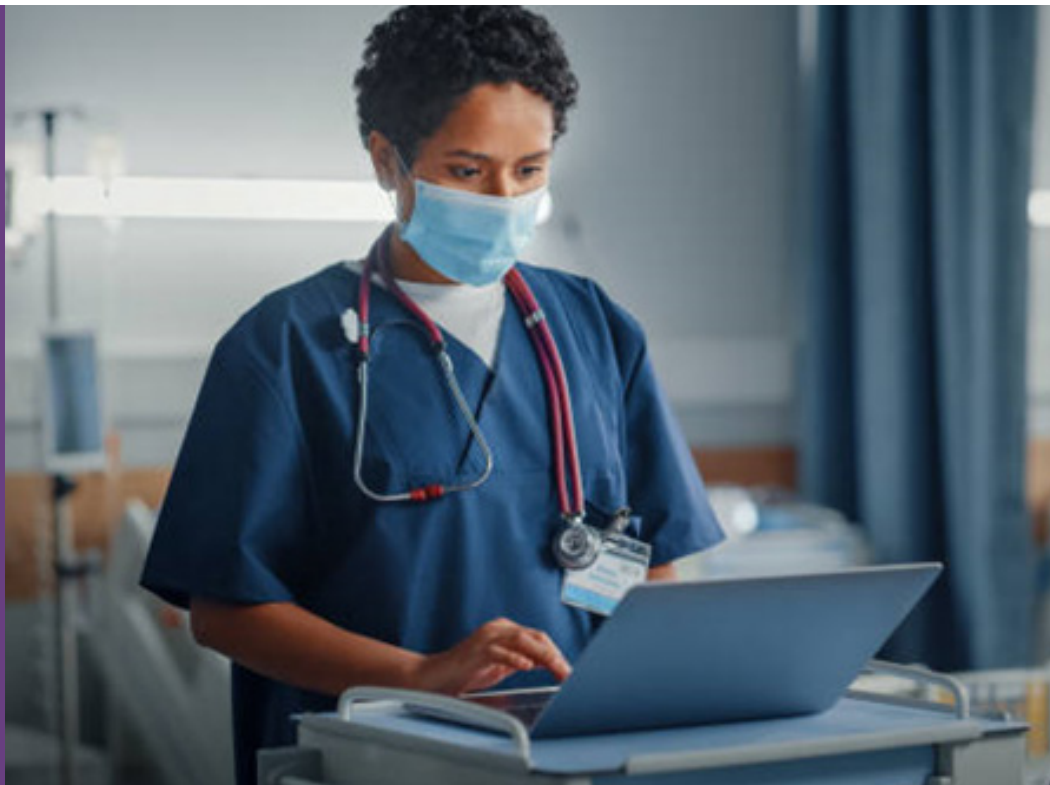
''We realised we knew very little about our workforce. We found one third couldn't work because they were high-risk, and we had to re-do the roster. It put a spotlight on how little we know about our workforce.''

''Being able to identify where we have pending skills shortages is important. We have known there would be a shortage of midwives coming for ten years. We should have had the ability to use data to plan for training replacements. We should be looking ahead at where and when retirements are happening and the gaps that will cause.''

We covered some of the skills training in the previous digital literacy section. But the need to correctly identify and track where skills sit, lies at a national and regional level as opposed to within an organisation. The point was also made that this isn't just limited to clinical staff, but cleaners and caterers, for example, also have standards that need to be met.

"Need to look at how long it takes to train someone to a point of proficiency and match this with an increased ability to predict shortages across the board. This includes admin and IT skills as well as clinical. It also needs to be incentivised and have better matching at a national level as to how many positions needed across the board."

Location a limiting factor

Location, itself, can be another limiting factor to everyone getting the training needed and it was identified as an area where technology definitely could have more of a role to play.

"We need to backfill for rural practitioners to do their competency training so they're not trying to do it in their spare time."

"Skills training needs to be available to meet all of the rosters. It is really hard if you're on night shift to do training that is only scheduled during the day. You end up having to do it in own time and not be paid for it, when others are. "

"There is an issue around freeing someone up to enable professional development. Need to build that into the everyday. It is a real challenge for managers to create that time away from BAU."

Having identified the challenges this was one area where technology was definitely seen as an enabler.

"Can technology help people to connect people to the right training? Could some skills be acquired using virtual reality training? We are still very caught up in training being face-to-face, particularly for upskilling on practical skills and knowledge-based stuff that would go into."

"We need to connect skills learning into our systems to make it more easily accessible and then store the data. This includes how often that skill needs to be updated and what is the process to prompt recertification."

"We carve out time for lunch...but don't carve out time to do other things that are equally important."

"It would be great to have a dashboard to see when training expires etc. so you can visualise the trends and how things are tracking. Give greater predictability around when we can schedule training and being able to predict months ahead."

There are some good things happening across Health in this area with machine learning being used to take the historical data to predict what the workforce needs are in the future. It is taking into consideration things like:

- Increasing complexity of care

- Expanding services

- Patients becoming more complex so taking longer time to treat

- Seasonal variations

This data is being used to predict what demand looks like from training and retirement perspective. Taking this one step further is to use AI to model what the resourcing needs will be in the years ahead so we can train to fill potential gaps.

Skill versus competency

Finally, there was also some robust discussion around the need to track competency as well as simply having a skill or certification. This logically sits with the employee's record. This was deemed to be particularly important in working across multiple DHBs.

"Do you just get employed at a level that will satisfy all DHB / health sector requirements so you can work across them all?...That is where the skills have to have meaning in terms of competency."

"There is a safety aspect around just having the skills versus demonstrating competency in it and how we assess that."
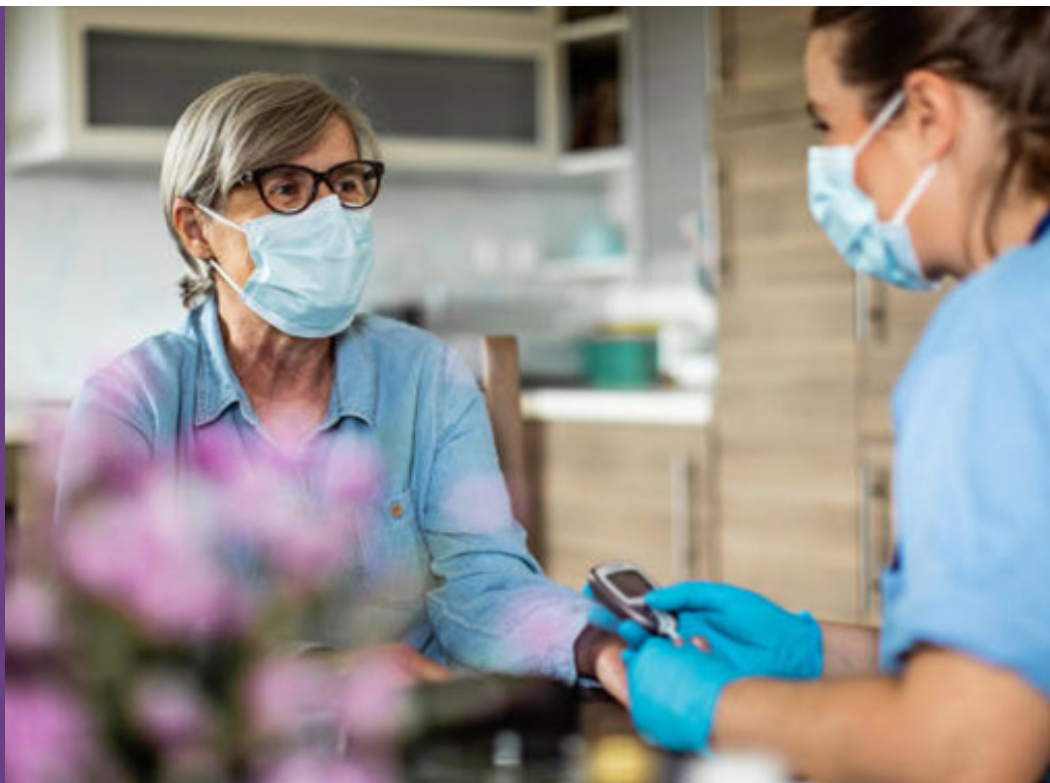
RIGHT PERSON,
RIGHT PLACE, RIGHT TIME

Fundamental to delivering an effective national Health service for New Zealanders is getting the right people, in the right place, with the right skills, at the right time. This is the culmination of everything we have discussed to date and for all the issues we have identified so far is not easy to do.

You need to have:

Accurate data that makes sense to all that need to use it

- One version of the 'truth' for an employee so there is no duplication

- Integrated systems across all entities so employees can move from one to the other

- A level of digital literacy and the tools needed to execute dynamic rostering

- Comprehensive, accurate, up-to-date capture of skills and competency

- The ability to predict where need is likely to occur with reasonable accuracy

- An organisational, local, regional, and national view of the eco-system

"We need to be able to use our people management systems to enable community care and help support equity."

"It can be there is a hospital that is short of staff in one area and one two kms down the road has more than they can use. How do we connect that kind of supply and demand?"

"If 20 people turn up with flu at a GP does one person turn up in hospital with a lung infection. Some of that planning is useful and being done but the challenge is matching that demand and sometimes we just don't have enough resources to do that."

"Don't look at the backend- we need to manage demand at the front end. We have a lack of visibility across all staff – including orderlies. If we want to get someone discharged to free up a bed, we need to consider all the component parts of that from clinical, to transport to cleaning."

This in turn created a number of different themes that lead to ensuring you are not just in right place, but with the right patient and have the right tools. Let's explore some of them now.

Rostering in general

There was a real desire to use the single employee record to put the power into the hands of employees. Automating the rostering to identify people's availability and skills so that it can be more dynamic and responsive to demand.

This was one clear area where Artificial Intelligence and Machine Learning was seen as having a key role to play. The ability to continuously improve accuracy of rostering using automation then connect this into predicting demand before it happens was seen to deliver the ultimate right place, right time engine.

However, there were some words of caution around needing human monitoring to ensure bias didn't creep into the AI outcomes and the results being unecessarily skewed to one set of circumstances or outcomes.

WHAT IF?
Future thinking for 24/7 monitoring

What if you could put all the monitors for ICU on a screen. Have them connected so you could change the settings on the machine, summon help, get patient records and many other monitoring and management tasks all from the one screen.

Then what if it didn't even have to be centrally located. It wouldn't matter what time zone or location you're in. Means we have 24/7 resolution by using the tech to provide remotely accessed services.

"It's crazy we force staff to make life and death decisions in middle of night when someone could do it on other side of world in their natural day time. It could also enable more physically constrained or disabled individuals to work in healthcare as no physical component to the engagement."

Within a hospital environment

Some unique conditions were identified for those working within a hospital environment. These were around the additional demands of literally not being able to operate if a single team member was absent and the on-call cover this requires. And the physical hospital environment with the additional challenges or opportunities this creates.

"Reality is that a hospital is in a different world to general practice – particularly in the theatre. You need the whole team to be there, or they can't operate. Lot of different structural elements and workforce knowledge required to roster this correctly."

The physical tracking of staff came up a number of times. Using the employee's unique identifier and then connecting that to identified locations.

"If you're swiping in anyway, why aren't we capturing that information to connect to rostering and time sheeting so there is automatic confirmation we're in the right place at right time?"

"For example, it would be hugely valuable to physically track junior doctors across departments. Some have patients on nine different wards and it can be a good twenty minutes' walk between a ward. This all needs to be factored into rostering."

"The big thing is being able to (physically track) people without them feeling their privacy is invaded and design how you're capturing the information so that it is accurate. Then use that information to better predict resourcing needed to meet clinical demand."

Connected into this was the desire to capture very granular tasks around what people are doing. In so many places it is still all about paper based reporting. Areas of inefficiency and potentially inaccuracy, need to be captured to understand how to optimise and automate the various associated people management processes.

"You can spend two hours of your shift walking between wards and still have to meet your clinical commitments."

Mobile workforce

Having considered rostering within the hospital environment, the conversation invariably turned to the increasing mobility of our health workforce and the additional requirements remote working brings to bear on people management.

The concept of 'bringing your whole self' to work was seen as even more important in this environment as layering in where someone lives was seen as critical to scheduling. Taking an Uber-like approach to this was raised several times but the Multi Employer Collective Agreements adds a layer of complexity other industries don't experience.

"We need better planning around skills and needs matching and efficient use of time. Particularly around Home Care it is: skills, needs, location and time, plus matching language, gender, cultural heritage, religion etc. Could AI take this data and history to help us have that intelligence to identify the number of people available and best match."
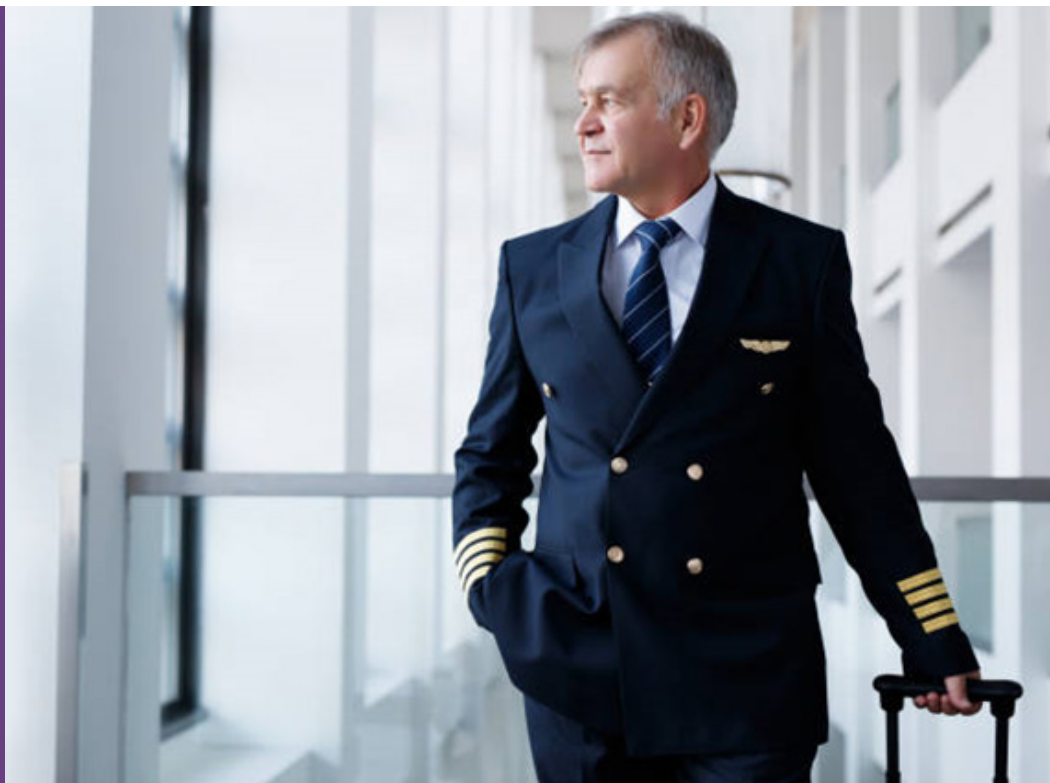
Having said that, it was thought a lot could be learnt from trades and others who have made complex scheduling of a mobile workforce an art form - reinventing the wheel on this shouldn't be necessary.

"We should be able to use AI to make scheduling more dynamic, based on where patients are living and their distance from a hospital or the mobile employee's location."

"We should be able to use a mobile phone to tell me where my job is with a timesheet that pops up on my phone as well. I should be able to use that to get an 'OK' on payroll completion, including overtime. This shouldn't be limited to phones – it should extend to any end-user device."

"So many industries are already doing this.

The technology exists for bus drivers, train drivers, pilots – why not Health? It isn't a problem that is unsolvable."

Personalised messaging

One group took this even further and looked to explore how AI could be used to create more personalised messaging based on the knowledge captured against an employee record and your tagged location. An app on your phone could tell you what you need to know to do your job for the day, personal updates, other environmental factors (such as parking and rest room location) plus reminders around any training, certifications, sign off or other employee related requirements.

Mapping to workforce trends

Finally, there was a desire to take the "right person in the right place" concept to identify how we can better cater for people who want to work part-time? This was seen as a way of keeping people in the workforce longer. The ability to predict and manage this was seen to have a positive impact on the transition for those reaching retirement age and for working parents.

It also emphasised the need for a broader perspective across environmental factors influencing recruitment and skills training. We should be using the people data we collect to ensure our clinically trained staff are doing the most valuable work they can do. Then enabling those who have the time and capability to do less demanding work – especially what is seen as pure admin.

"If we can make a 1% cut of people costs what is the impact? Improving productivity using artificial intelligence."

WHAT IF?
Future thinking for addressing skills shortage

We need to look to manage skills nationally, as opposed to locally, and make the location of the specialist irrelevant. We should be able to use technology to deliver those specialists services anywhere at any time.

It makes better use of resources and potentially a better level of care as patients don't have to be transported in an unstable condition. This further supports the need to better identify skills and competency so they can be deployed where they are needed most.

But this approach can also be used to empower other members of the health community to fill gaps where specialist nursing skills aren't needed. It could create a whole new community of workers who could be empowered to take photos of wounds, check blood pressure etc. taking the pressure off staff with more specialised skills that could more valuably be deployed elsewhere.

CHANGE MANAGEMENT

There was limited confidence from those around the tables for the desired changes to be realised any time soon. This wasn't because the technology isn't available or a perceived lack of capability within the NZ technology sector to deliver on this (in many cases the solutions discussed already exist).

It was largely around the internal ability to change and put any prioritisation on the workforce management piece of health sector operation. It would be interesting to canvas this view post the announcement of Health NZ and a more consolidated approach to sector administration. But unless workforce management is actively prioritised it is unlikely to have any immediate impact.

Ownership is a problem

One of the key causes of project failure was seen as people management projects not being owned by those using them and a lack of involvement by operational staff in their co-design and adoption. This was backed by an expressed embedded "fear of change" and questioning whether the pain of implementation was in fact worth the benefits delivered.

"We are really good at funding a project and allocating resource up front, but we need to make sure educating, implementing and training those using the solution is included in the funding."

> *"Implementing the right technology at the right time in the right place is critical. Most of the time it is a top-down decision. However, a surgeon can't take time out of their day to co-design but we need all stakeholders to be involved in the design process. That is the only way we get buy in but also no surprises in how it operates."*

In saying this, it was also acknowledged many technology-based improvements don't realise their potential due to lack of ongoing upgrades and training. The need to take people on a journey to understand why the solution is being introduced and the outcomes they can expect from using it, was emphasised.

It also needs to make sense from a user-interface perspective to those who are using it. No point testing a system on a nurse if it is primarily to be used by admin staff, orderlies or surgeons. But that, in itself, is an identified challenge in getting the right people involved in the design process to ensure the required outcomes are delivered.

It is seen that many Health related projects fail due to the above but also this can be why a lot of time and money is wasted doing business cases that are never going to fly. There was a strong desire to "get money to the edge" so those using the tech have more say and control over what is purchased and invested in.

"There is a fear of change. We need advocates and influencers involved from the start that can link back and champion the solution internally. The end-user has to be part of the design of a solution and how you measure what success looks like."

"It is a resource commitment, and we need to make the training appealing. We need champions internally who really understand the benefits of what is being delivered! "

There is so much change coming – we need to look at the change challenge and how we can do it successfully. Co-design has become a bit of a buzzword around this but there needs to be both the funding and commitment to releasing those involved to take part in system and solution design.

Co-design is incredibly important for people systems, and we need to think carefully about who we need around the table.

They should include:

- Champions in the workforce

- Not just doctors and nurses but everyone who touches the system

- Need to make sure all the different learning and working styles are covered

- Right knowledge and skills to contribute"

"Implementing the right technology at the right time in the right place is critical. Most of the time it is a top-down decision. However, a surgeon can't take time out of their day to co-design but we need all stakeholders to be involved in the design process. That is the only way we get buy in but also no surprises in how it operates."

THE LAST WORD –
WHY NOT MAKE IT KIWI?

We've left the last word to a health sector member who sat around the table and said it far better than we credibly could:

"We have all this amazing technology being produced in New Zealand, instead, what do we do? Buy from offshore. 'If we haven't done it overseas, your tech isn't any good'. We need to work differently with our technology departments, so they try New Zealand built tech."

AMS (Advanced Management Systems) currently pays 50% of the New Zealand health workforce. Its software solution covers payroll, rostering, timesheets and core HR. It also offers an outsourced payroll bureau plus a comprehensive range of professional services. Having been founded over 40 years ago AMS continues to innovate and grow. To find out more about AMS visit **ams.co.nz**