**Quality improvement scientific symposium virtual session one: Rapid-fire presentation – Andrew Jones**

**Accessible transcript**

**Visual**

**White text in a blue banner across the top of a PowerPoint slide reads ‘Auckland District Health Board’. Beside this is the triangular logo for the Auckland District Health Board. The bold blue title in the centre of the slide reads ‘Estimated dates of discharge and elective surgery’. Smaller text below this reads ‘Andrew Jones’. Even smaller text in different colours runs along the bottom of the slide, reading, ‘Welcome – haere mai,’ in blue; ‘Respect – manaaki,’ in green; ‘Together – tūhono,’ in grey; and, ‘Aim high – angamua,’ in red.’ A video feed appears in the top right corner; in it, a bespectacled man wearing a blue, collared shirt.**

Audio

Kia ora. I'm Andrew Jones, and I'm an improvement programme manager at Auckland District Health Board. I have worked in health care for around 20 years, previously as a physiotherapist, and for the last number of years in the improvement world. I'm here today to share with you about some work we did here at Auckland Hospital on improving our estimated dates of discharge and their impact on elective surgical planning.

**Visual**

**The next slide is titled ‘Methodology’ in bold blue. Beneath this is a series of overlapping multicoloured, labelled arrows. The first arrow is red, labelled ‘Define’, which leads to an orange arrow labelled ‘Measure’, then a green arrow labelled ‘Analyse’, then a light-blue arrow labelled ‘Improve’, then a dark-blue arrow labelled ‘Control’. Black text underneath this reads, ‘If you’re interested, I’ll be tracking the DMAIC structure on each page.’**

Audio

So, for those of you who may have had contact with the DMAIC structure as part of Lean Six Sigma, I'm going to have a tracker on the screen that you'll see throughout the presentation, that you can see which phase that I am talking about.

**Visual**

**On the next slide, the multicoloured arrows appear much smaller in the top right corner. All but the red arrow, ‘Define’, are faded out. The slide is titled, ‘What is an estimated date of discharge?’**

* **Estimated date that the patient will be ready to be safely discharged from hospital.**

Audio

So, what is an estimated date of discharge? It's essentially the date that the surgeon, in this case, forecasts that a patient will be able to go home, based on what they estimate is to be a reasonable length of stay for that patient and for their condition.

**Visual**

**A bold blue title appears at the bottom of the slide that reads, ‘Why do they matter?’**

Audio

From a process perspective, why does that matter? Why does that matter to the organisation? And why does it matter to the patient?

**Visual**

**A photo of a smiling older woman wearing a hospital gown, sitting propped up in a hospital bed, fills the next slide. Text in a blue circle in the top left corner of the slide reads ‘Getting you home sooner’. White text in a grey box near the top of the slide reads, ‘Four questions every patient in hospital should know the answer to’. Four speech bubbles run down the right side of the slide, next to the smiling woman. Each speech bubble has a question in blue text inside it – ‘Why am I in hospital?’ ‘What is going to happen today?’ ‘When am I going home?’ ‘What needs to happen to get me home?’ There is a red rectangle around the speech bubble containing the question, ‘When am I going home?’ A grey oval at the bottom of the slide contains white text that reads, ‘No one wants to stay in hospital longer than they need to. You are part of the team – if you don’t know the answer to these four questions, please ask your doctor or nurse.’ The words ‘please ask your doctor or nurse’ are italicised and bigger than the rest of the text in this grey oval.**

Audio

So, it is often a significant concern for patients, so especially­— well, in any circumstances, whether you come in acutely or for planned surgery, knowing when you're gonna go home is part of your journey and being able to plan what next.

**Visual**

**The next slide is titled ‘The hospital is full?’ in bold blue. Bold grey text below this reads, ‘Electives are often cancelled.’**

Audio

And for the organisation, why are they important? Because electives are often cancelled.

**Visual**

**A pair of coloured boxes, one green and one red, appear on the slide. Text in the green box reads, ’85 percent accuracy for acute occupancy.’ Text in the red box reads, ‘Only 50 percent accurate for electives.’**

Audio

But it's because we don't have a good understanding of actually what our volumes are like. And we have a pretty good picture of what our acute occupancy is gonna be day-to-day, but at around 85 percent of the time, we're right about what that's going to look like. But unfortunately, it's only 50 percent of the time for elective surgery. And while that only makes up 20 percent of our inpatient volume, it does have quite an impact on our ability to plan when we are running really close to the line in terms of available bed capacity. And when our elective demand can swing from, like, eight patients requiring beds to 31, that can have quite a significant impact each day.

**Visual**

**The next slide is titled ‘Pilot Groups’. Bold grey text below this reads ‘Enhanced recovery after surgery’. Below this are two coloured images. One shows the large intestine, highlighted in orange, inside a see-through human torso. The other shows the left knee joint, highlighted in yellow, inside a see-through human leg.**

Audio

So, when we looked at this piece of work, we identified that going after services or conditions that are managed through an enhanced recovery process was a really good place to start. Those processes had a number of systems already built in, and planning components to their work. And we thought that that would be a good way to be able to sorta forecast length of stay.

**Visual**

**The next slide is titled ‘Baseline Data’. Bold grey text below this reads ‘Target services’. Of the multicoloured DMAIC arrows in the top right corner of the slide, the red and orange ones – ‘Define’ and ‘Measures’ – are not faded out. This slide shows two line graphs. The first is titled ‘Colorectal: EDD entered prior to admission, Ward 76 Colorectal ERAS Patients’. It has a red box pointing towards it, bearing the figure 2.6 percent. The second graph is titled ‘Orthopaedics: EDD entered prior to admission, Ward 62 Orthopaedic ERAS Patients’. It has a green box pointing towards it, bearing the figure 99.5 percent.**

Audio

So, the two services who use in-house recovery after surgery are Colorectal and Orthopaedics. And specifically within orthopaedics, we looked at total hip joint replacements and total knee joint replacements. As you can see from these charts, the colorectal patients very rarely had an estimated date of discharge entered into their booking on our PAS system, whereas Orthopaedics almost universally had that entered.

**Visual**

**A blank rectangle outlined in black appears under the Colorectal graph, and a third line graph appears underneath the Orthopaedics graph. This graph is titled ‘First EDD entered accurate at discharge, Ward 62 Orthopaedic ERAS Patients’. It has a red box pointing towards it, bearing the figure 8.7 percent.**

Audio

But the thing about that is – even though Orthopaedics had them entered into the system, they were rarely accurate. So while they were there, they were not that much help.

**Visual**

**The next slide is titled ‘Process Mapped & Root Causes Identified’. Of the multicoloured DMAIC arrows in the top right corner of the slide, the red, orange and green ones – ‘Define’, ‘Measures’ and ‘Analyse’ – are not faded out. The slide is filled by a large flow chart laid out over a table. Labelled rectangular and diamond-shaped boxes are connected by straight lines. Three boxes outlined in red are overlaid on three different sections of the flow chart.**

Audio

So, I guess, the first step we took was to map out the process and understand what were

the likely failure points when it came to EDDs. So while there are a number of other steps and other functions and processes that occur through elective surgery, the ones we wanted to look at were specifically related to estimated date of discharges.

**Visual**

**Three red boxes appear, pointing to the red-outlined boxes overlaid on different sections of the flow chart. The first, in the top section of the flow chart, reads, ‘1. No guidance from surgical team on LOS.’ The second, indicating a box halfway along the flow chart, reads, ‘2. Bookers do not have standard process.’ The third, indicating a box at the bottom of the flow chart, reads, ‘3. EDD entered not pulled through to ward whiteboard.’**

Audio

And we found three really clear root causes, the first one being that the surgeons didn't always enter a length of stay on to the booking form, making it hard for the booker to enter it into the system. The bookers didn't have a standard process, so there was real variability even within services. And the estimated date of discharge itself wasn't being pulled through from the booking system on to the ward whiteboards. So there wasn't that information available to the charge nurses when the patient arrived on the ward.

**Visual**

**The next slide is titled ‘1. No guidance from surgical team on Length of Stay’. Of the multicoloured DMAIC arrows in the top right corner of the slide, the red, orange, green and light-blue ones – ‘Define’, ‘Measures’, ‘Analyse’ and ‘Improve’ – are not faded out. Bold grey text under the title reads ‘Solutions considered’. Below this are three columns coloured lavender, purple and blue. Each column has a circle near its top and text beneath it. The circle in the lavender column has text inside reading ‘60-70yr THJR, 3.6 days’. Below this, white text reads ‘Standardised LOS’. The circle in the purple column shows a hospital form. Below this, white text reads ‘LOS estimate at booking’. The circle in the blue column shows an Auckland District Health Board brochure. Below this, white text reads ‘Personalised LOS at pre-admit’. A double-ended arrow runs along the bottom of all three coloured columns.**

Audio

So for each of the root causes, we looked at different solutions. And for the one where

there was no guidance from the surgical team, we had a range of different possibilities, starting with a table of standardised length of stays based on different factors – like age and procedure – through to a personalised length of stay that was completed at the pre-admission appointment, prior to hospital admission. The other option, which was sort of the middle ground, was that it was estimated at booking by the booking surgeon.

**Visual**

**The slide updates with bold grey text under the title that reads ‘Form modified to all for detail’. Below this, two parallel speech-bubble-shaped boxes point to an example of an Auckland District Health Board form. The speech bubbles contain checkable boxes. The top speech bubble features the label ‘Stay’ and checkable boxes that read ‘Day Case’, ‘Overnight’, ‘3-5 days’ and ‘Greater than 7 days’. A blue arrow points from the top speech bubble to the one below. This speech bubble features the label ‘Stay’ and checkable boxes that read ‘Day Case’, ‘Overnight’, ‘2’, ‘3’, ‘4’, ‘5’, ‘6’, ‘7’ and ‘Greater than 7 days’. The ‘4’ box is ticked and outlined by a red square.**

Audio

So, when we looked at why it wasn't being captured, as you can see, there was not the option for specificity. So the booking form itself had a day case option, an overnight but then had wide sort of ranges for completion, which – when you're wanting someone to enter a specific length of stay into the booking system – didn't allow for that capability. So the change was made to the booking form, and added in that specificity of having the number of nights, up to a week, because from that point, it was viewed that it was difficult to forecast, and that update could be made on the ward.

**Visual**

**The next slide is titled ‘2. Bookers do not have standard process’. Bold grey text below this reads ‘Standardised orientation’. Below this is the second speech bubble from the previous slide, with the ‘4’ box ticked. A table appears below this. It is titled ‘Attendances during this visit (ASC)’ and shows details on a patient’s stay, including site, location, room, nurse, start date, care complete/ready and end date. The example in this table shows a patient in Grafton began their stay on 9May 2017 and left on 13May 2017.**

Audio

The second thing was to standardise the process. So with the data actually coming through on the booking form, it allowed us to provide some training and quick sheet guides for the bookers to be able to use to ensure that they entered an estimated date of discharge against every patient when making a booking.

**Visual**

**The next slide is titled ‘3. EDD entered not pulled through to ward whiteboard’. Bold grey text below this reads ‘Issue resolved’. Below this is the ‘Attendances during this visit (ASC)’ table from the previous slide. The cell bearing the end date of 13 May 2017 is highlighted with a red border. A large, more complex spreadsheet appears under the table. A blue arrow points from the table to where the date appears on the larger spreadsheet.**

Audio

The third issue was even though, say, for orthopaedics, almost 100 percent of the bookings had estimated date of discharges, none of those were coming through on to the ward whiteboard. And there was rework occurring for the charge nurse, who was having to input, on the day, their best estimate. What we found was that there was a bug in the background, and that was readily resolved, allowing for the EDDs that the bookers entered to be pulled through on to the ward whiteboard, as you can see here.

**Visual**

**The next slide is titled ‘Improvements Clear’. Bold grey text below this reads ‘Target services**’. **Below this are four line graphs, two each for Colorectal and Orthopaedics. Coloured text boxes beside each graph shows a percentage change in results. For Colorectal, the EDD set prior to admission – monthly – increased from 2.6 percent to 79.3 percent and the first EDD set correct – monthly – increased from 0 percent to 22.5 percent. For Orthopaedics, the EDD set prior to admission – monthly – decreased from 99.5 percent to 89.5 percent and the first EDD set correct –monthly –increased from 8.7 percent to 14.8 percent.**

Audio

So, having made these three improvements, we had a look at the data again. And as you can see, for colorectal, there was a huge uplift in terms of estimated date of discharges being entered as part of the booking. However, for orthopaedics, we saw a drop. And while that was initially a surprise, we were able to clarify that, because of the original processes the bookers had been following – which was just to put in a standard planned length of stay of five days, regardless of what was on the booking form – that they had moved to entering in the forecasted length of stay from the booking form. And they found that actually not every patient had a length of stay on the form, so they were unable to do it for all patients. But what was being entered was more accurate. And so as a result for both of this, we saw an uplift in the accuracy of the first estimated date of discharge. And while they're not hugely successful in terms of forecasting, the change in process meant that we actually had the data available to start to think about what might be next steps and changes we could make in the process to ensure more accuracy of the estimated date of discharge.

**Visual**

**The next slide is titled, ‘Simple change had big results.’ Bold grey text below this reads, ‘Hospital-wide’. Below this are two line graphs side by side. The graph on the left is titled ‘Proportion of Elective Patients with Estimated Date of Discharge Prior to Admission, Jan 2016 - current’. Beside this, a green arrow pointing up is labelled ’10 percent’. The graph on the right is titled ‘Proportion of Elective Patients with Correct First EDD Set Prior to Admission, Jan 2016 – current’. The green arrow beside this points up and is labelled ‘6 percent’.**

Audio

What was really exciting was seeing the impact of actually having these two services. And these two patient groups, who— while they make up a significant number of patients who have surgery, they're by no means the majority of patients who are having elective surgery. But you can see we saw a 10% uplift in patients having an EDD entered. And we also saw an increase in the accuracy of that EDD across the whole system just by working on these two cohorts of patients.

**Visual**

**On the next slide, none of the multicoloured DMAIC arrows – including the dark-blue ‘Control’ one – are faded out. This slide is titled ‘EDD Principles Established’. Bold grey text below this reads ‘Best practice in planning’.**

* **Every patient gets an EDD, based on estimated LOS from the booking surgeon.**
* **It is the same LOS as what the patient is told.**
* **Booking forms allow for specific LOS to be documented.**
* **Bookers follow a consistent process, entering an EDD when inpatient stay is created.**

Audio

So, having gone through this learning journey, what we found was that there were some key principles that should be in place and some best practices to be established. We worked on these with the surgeons, the bookers, the charge nurses on the ward and clinic nurses. And really, there were just some real key points, which was every patient should have an EDD, and that should be based on the estimated length of stay that the booking surgeon puts on the waitlist form. This should also be the same length of stay that the surgeon discusses with the patient so that the patient has certainty – at least to whatever degree is possible at that point – to know what the plan is when they come in to hospital. The forms we changed allowed for a specific length of stay to be entered, and we identified that there were a number of other forms that had the same requirement to be changed, so that would be done in the future. And also to have the bookers following a consistent process so that they ensured that an EDD was entered whenever an inpatient stay was created.

**Visual**

**The next slide is titled ‘Monitoring’.**

* **Weekly reports for ward**
* **Monthly for service**

**On the right is a document containing eight different line graphs under the heading ‘Auckland DHB Inpatient Discharge Measures from 21 August 2017 to 26 August 2018, Ward 62’.**

Audio

To monitor this and to see whether it's been successful, a suite of measures were identified around discharge planning that included the two elective measures.

**Visual**

**A blue border appears around the last two graphs, highlighting them. These graphs are titled ‘7. Electives – percent with EDD set prior to admission’ and ‘8. Electives – percent of first EDD correct’.**

Audio

So every week, a charge nurse will receive a report showing how they're going against our key discharge-planning metrics. There is also service-level reports that are sent to the service clinical director, the business manager and to the booking manager to be able to identify where there are opportunities to improve.

**Visual**

**The next slide titled ‘Still Many More Services to Go’. Below this is a bubble plot graph titled ‘Bubble Plot of EDD Set Prior to Admisson vs EDD Accurate. Bubble size: Volume, January - June 2018’. Circles of different sizes and colours, labelled with different hospital departments, populate the graph. A red oval has been drawn around the lower-left quadrant of the graph, highlighting the departments with a low EDD set prior and low accuracy in EDD (if set prior to admission). These departments are Gynae Oncology, Cardiothoracic, ACHD – Surgical, Neurosurgery, General Gynaecology, Cardiology and Renal Transplants.**

Audio

So, at the time of doing this work, we focused on two services that we knew had opportunity for improvement, and... they were one of many. So with the tools that we had in place, we provided that information to the services with, I guess, a handbook for how to improve your EDD accuracy. And... we have left that to them to complete at a local level.