THE 20,000 DAYS CAMPAIGN

Health System Improvement Guide

EARLY DELIRIUM IDENTIFICATION AND MANAGEMENT

Version 1
December 2013

KO AWATEA
HEALTH SYSTEM INNOVATION AND IMPROVEMENT

COUNTIES MANUKAU HEALTH

CONTENTS

THE 20,000 DAYS CAMPAIGN

Our journey

Health systems worldwide are struggling with rising patient demand and Middlemore Hospital, which serves a growing and ageing population, is no exception. To meet the predicted 5.5% increase in bed days, we needed to save 20,000 days. Counties Manukau Health's 20,000 Days campaign aimed to do this by returning 20,000 well and healthy days to our community.

A whole-of-system approach brought together 13 collaborative teams to build on existing improvement work and deliver care in a different way. The 20,000 Days campaign launched in October 2011, and in May 2012 the collaborative teams came together, using the Institute for Healthcare Improvement's Breakthrough Series Collaborative Model for Achieving Breakthrough Improvement, to test a range of interventions.

By 1 July 2013 the campaign had achieved 23,060 days saved since June 2011, which is a reflection of the difference between the actual bed days used and the predicted growth.

Throughout our journey we also achieved many key successes and learned a lot about the essential collaborative components required to contribute to successful outcomes.

What worked well for our campaign?

- Alignment around a common goal
  - The campaign had a unifying goal to reduce demand on the hospital. This goal recognised we needed to do things differently and all the collaborative teams shared in this goal. In addition, each collaborative had specific aims and change ideas that would ultimately contribute to the overall campaign goal.

- Leadership and expert support for the collaborative teams
  - Geraint Martin, CEO Counties Manukau Health, as sponsor and Jonathon Gray, Director Ko Awatea, were involved throughout the campaign to ensure that the vision and milestones were met.
  - The Ko Awatea campaign team provided support via the campaign manager, campaign clinical lead, collaborative project managers, improvement advisors and a communications co-ordinator.
  - The campaign partnered with the Institute for Healthcare Improvement and Brandon Bennett, Senior Improvement Advisor at the Ko Awatea faculty, to provide continuous learning and guidance for the collaborative teams.

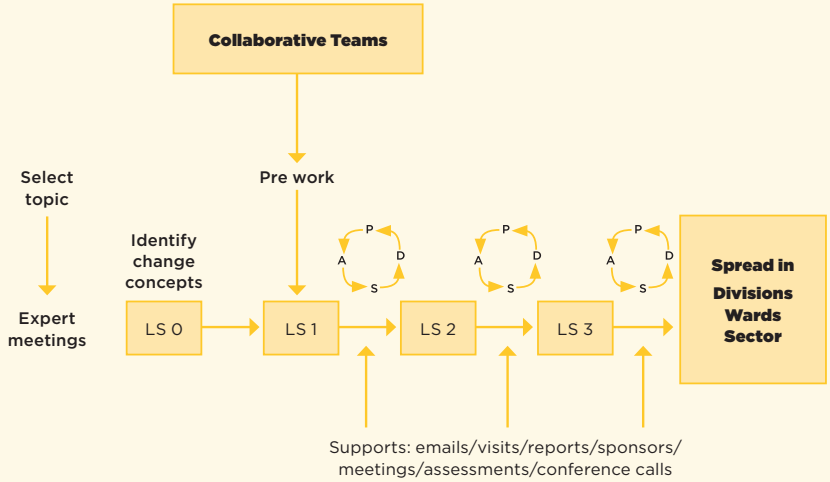
What the 20,000 Days campaign has built is a reusable network of skilled, passionate and committed health professionals who have the knowledge, skills and methodology to bring about sustainable change across the health sector.

Professor Jonathon Gray
Director, Ko Awatea

» Multi-professional teams working across the health sector
  › Collaborative teams included health professionals, managers, clinical leaders, project managers, improvement advisors, data analysts and community members.
  › Teams worked on projects across the sector, including primary care, secondary care and in the community.

» A structured series of milestones and activities
  › The Collaborative Model for Achieving Breakthrough Improvement (Figure 1) provided an ongoing series of structured activities to support the teams in their use of the methodology and to promote collaboration between the teams.
  › During the campaign there were a total of six days of learning sessions attended by 100–120 people. Significant expertise has been built up across the organisation in the improvement methodology.
  › The collaborative methodology has been proven to work extremely well as a structured way to implement evidence-based practice, and has been enhanced by using local knowledge and skills within the Counties Manukau context.

Figure 1: Collaborative Model for Achieving Breakthrough Improvement[1]

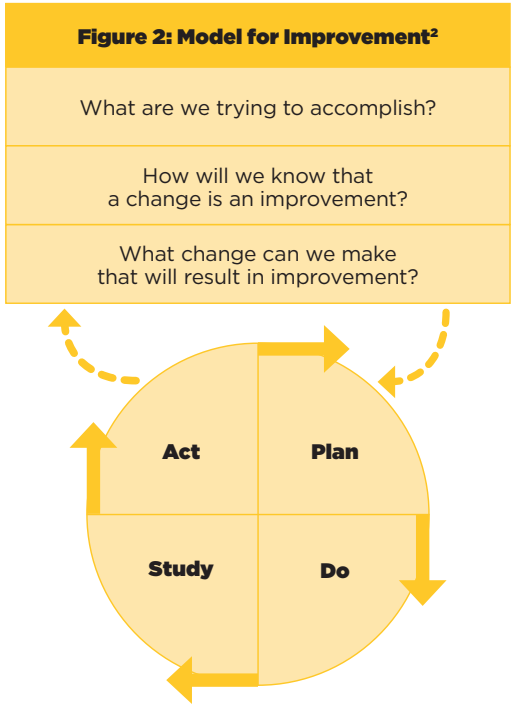


LS – Learning session

The Breakthrough Series:
Institute for Healthcare Improvement Collaborative Model for Achieving Breakthrough Improvement

» The Model for Improvement
  - › Each collaborative team applied the Model for Improvement (Figure 2).
  - › Teams then tested their theory of change through Plan, Do, Study, Act (PDSA) learning cycles.
  - › Teams tested many ideas, initially through small tests to gain confidence in their change ideas, then with larger scale tests, before moving to implement changes across the organisation or area of work.
  - › Change packages are captured in the health system improvement guides, to be shared with other health service providers and support improvement initiatives beyond Counties Manukau Health.
  - › Measures have been defined at both the 20,000 Days campaign level as well as for each of the collaboratives. The measures were analysed and displayed monthly on dashboards.
  - › Each collaborative developed a driver diagram showing drivers of change. The driver diagram reflects the team's theories and ideas on the existing system and how it could be improved. This diagram was updated throughout the improvement journey based on lessons learned during the testing of ideas. Some of the ideas failed and were abandoned. Change ideas shown in the final driver diagram (p. 10) reflect successful ideas. These were tested using multiple PDSA cycles before implementation.

Figure 2: Model for Improvement[2]



Collaborative Teams

- » Healthy Hearts
- » Safer Medication Outcomes on Transfer Home (SMOOTH)
- » Better Breathing
- » Very High Intensity Users (VHIU)
- » Transitions of Care
- » Early Delirium Identification and Management
- » Enhanced Recovery After Surgery (ERAS)
- » Hip Fracture Care
- » Skin Infection

For further information refer www.koawatea.co.nz

WHY DID WE NEED TO DO IT?

- Delirium in hospitalised patients is common. A study conducted in 2010 by Counties Manukau Health found that 13.5% patients admitted to two Middlemore Hospital orthopaedic wards (Wards 10 and 11) developed delirium over a four-week period.[3]
- The existing delirium management guideline at Counties Manukau Health was inadequate and underutilised.
- Patients with delirium are at risk of injury, prolonged length of stay, poor outcome and increased mortality.
- Delirium can often mask more serious underlying conditions or complications.
- Patients with delirium are often poorly identified and poorly managed, and staff tended to view patients with delirium as 'difficult'.[4]
- Strategies for managing patients with delirium frequently involved a watch*. The watches were limited in scope and did not support best practice for delirium management as laid out in the Counties Manukau Health watch procedure.
- Improved management of delirium would result in a reduction in the length of stay and improved outcomes for patients.
- An acute episode of delirium is a predictor for future events. Early identification of patients who are at risk of acute delirium will ensure that appropriate treatment is initiated for subsequent hospital admissions.

* One to one supervision of a patient to prevent behaviours which may lead to the patient absconding, or injuring themselves or others. It may also involve providing assistance with activities of daily living.

A PATIENT'S STORY

In our culture, when we hear spirits and we are talking to things that aren't there, to some Maaori (but not all), some think and truly believe that you are not far from dying when you hear these voices.

Connie
Whaanau Support Worker

I actually ended up going through this tunnel, getting to the crossroads, seeing this big guy, what we call a Kaitiaki, guardian of the crossroads. I wasn't scared seeing him but I just turned around and came back through the tunnel. When I got to the other end, I woke up and what I saw was chocolates.

I experienced what I believe was going into another world. I was seeing other things, other people. I actually thought I was in China and I was in this chocolate factory. I was wondering, 'Why am I here? What am I thinking?' I actually thought I was going to die. I had been hearing these things from my old people but never thought it would happen to me.

Miki
Patient who experienced delirium

Once I started to read all the information about delirium, I immediately thought I have been in situations with some families when I have seen this happen and even I myself have thought, 'Oh my God they are going to pass away soon.' But once I had learnt from the discussions in the delirium project about identifying what delirium is, how it is assessed and treated, I thought, 'Well that changes my whole outlook. No, they are not going to die. This is delirium and this is what I know about it.' To be able to teach families and give the information I have learnt to other people about delirium. I think it is majorly important that we can identify it when we see it.

Connie
Whaanau Support Worker

WHAT WAS OUR AIM?

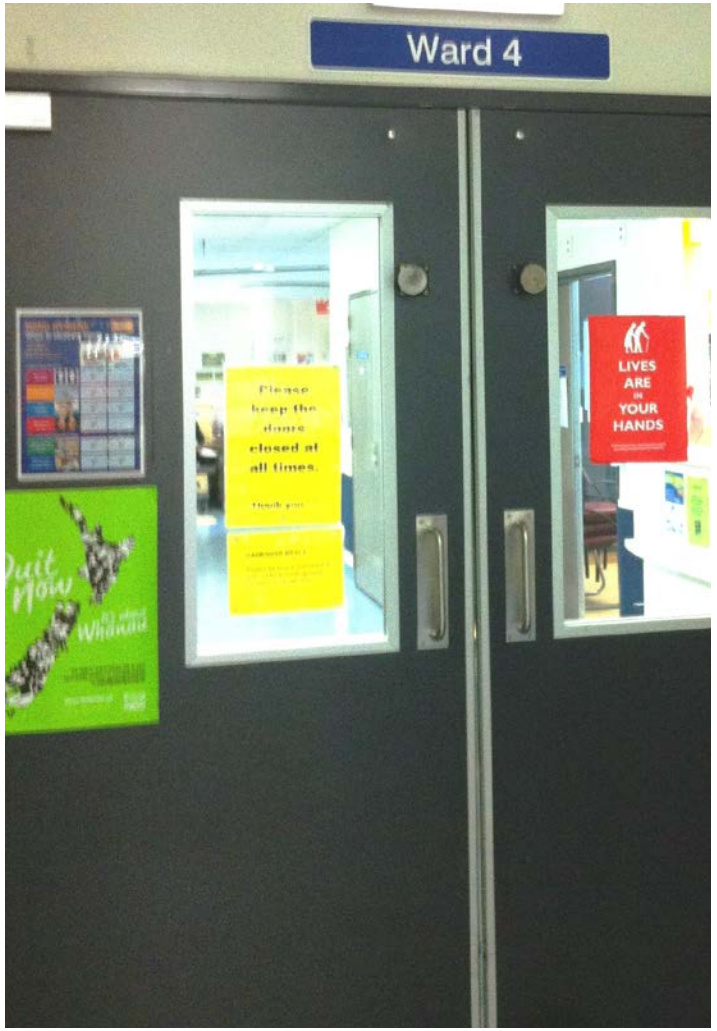
We aimed to develop and implement an end-to-end pathway for effectively screening and managing all inpatients 65 years of age or older in Ward 4 of Middlemore Hospital for delirium by July 2013. Ward 4 is part of the hospital's Assessment, Treatment and Rehabilitation Unit. It was selected as the pilot ward because at the time the campaign began it was a new ward open to fresh approaches, and was identified as taking a high number of hip fracture patients, who suffer a high incidence of delirium.

The screening tool selected was the Confusion Assessment Method (CAM). We aimed to screen the identified patient population using the CAM for five consecutive days from admission.

Objectives for the pathway, which we called the Delirium Management Pathway (p. 18), included:

- Increasing the rate of identification of delirium
- Increasing staff, patient and family/whaanau awareness of delirium
- Incorporation of an intervention package encompassing an interdisciplinary approach
- Inclusion of delirium as a diagnosis in the electronic discharge summary for each patient to inform general practitioners
- Reduction of preventable complications associated with delirium

Once successfully implemented in Ward 4, we aimed to expand the Delirium Management Pathway into other Assessment, Treatment and Rehabilitation Unit wards prior to rollout throughout Middlemore Hospital.



WHAT WE HAVE ACHIEVED

Key achievements

» The adaptation of a robust, easy-to-use screening tool – the Confusion Assessment Method (CAM) – to increase the opportunities for ward staff to identify delirium and detect potential delirium developing.

» The development of an intervention package that can be quickly implemented, requires little additional training, is well suited to the needs of ward staff and improves patient care (p. 22). The package includes an information pamphlet to help patients and their families understand delirium.

» Consistent execution of the Delirium Management Pathway in the pilot ward, Ward 4.

» Successful implementation of the Delirium Management Pathway in Ward 5, aided by our education package (p. 12). The education package is scalable and can be tailored to the needs of individual wards and units.

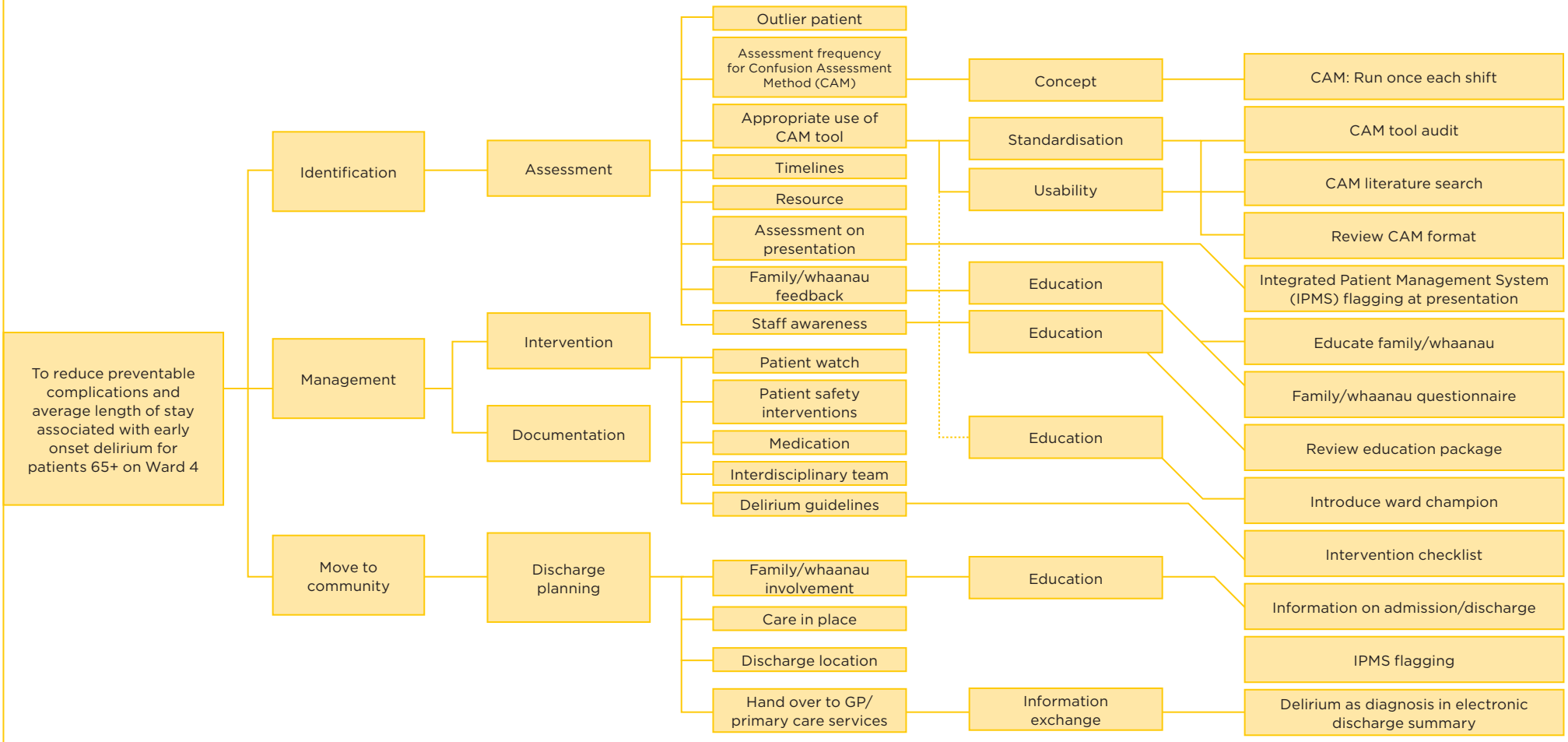
» Successful implementation of the Delirium Management Pathway in two acute orthopaedics wards, Wards 10 and 11. Implementation is currently underway throughout the Assessment, Treatment and Rehabilitation Unit, prior to introducing the pathway to the rest of Middlemore Hospital.

» Medical teams have adopted delirium as a diagnosis.

» Our collaborative received an Innovation Award at the 2013 Health Round Table Innovation Awards, and was a semi-finalist at Science Fest 2013.

We received an Innovation Award at the Health Round Table Innovation Awards in Brisbane, Australia 2013

THE DRIVERS OF CHANGE



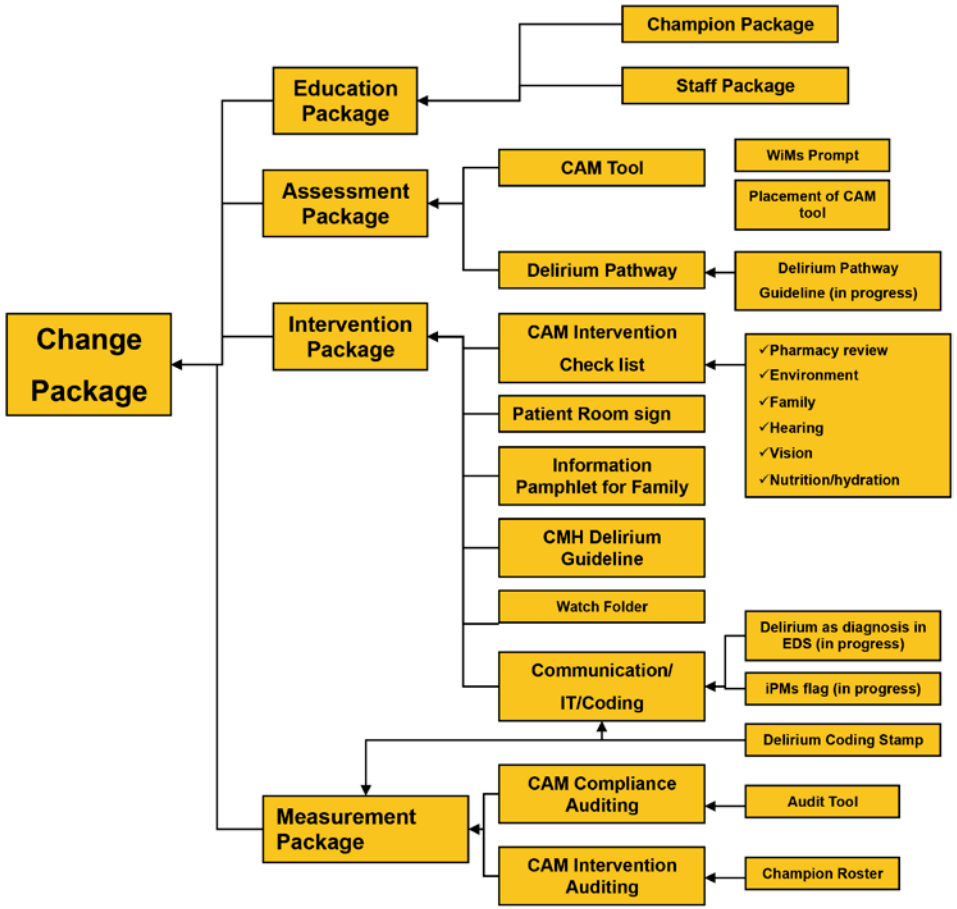
CHANGE PACKAGE

The Delirium Management Pathway

We developed the Delirium Management Pathway to assess and manage patients with delirium. The pathway included:

- An education package to direct implementation of the pathway
- A patient assessment package based on the use of the Confusion Assessment Method (CAM) score as an objective tool to aid nursing and medical staff to diagnose delirium early
- An intervention package to facilitate appropriate management of patients with delirium
- A measurement package robust enough to ensure accurate data on the pathway could be collected easily

Figure 3: Early delirium identification and management – change package



EDUCATION PACKAGE

Why the changes were needed

In general, staff lacked awareness about delirium and did not understand the difference between delirium and dementia. 'Confused' was a word often used to describe patients with delirium, which is inaccurate. We needed to develop an education package that could be transferred readily among different wards and that could be used easily by designated ward 'champions' to lead implementation of the pathway with minimal support. At the time, no specific delirium management education package was available, although Counties Manukau Health's existing delirium management guideline supported use of the CAM.

What we did differently

We developed an education package to be used in the month leading up to implementation of the Delirium Management Pathway to prepare and train ward staff. The package uses multimedia resources, including MS PowerPoint presentations, an assessment video using an actual patient and a story describing a patient's experience of delirium.

The assessment video provides staff with the opportunity to use the CAM tool in a learning environment where they could discuss the tool and ask questions. This helps to transfer staff education into practical use of the CAM tool.

The patient story provides an emotional link, and helps staff to understand and remember the patient journey through delirium. Story telling is a powerful learning tool. The account of a patient's first-hand experience with delirium helps staff to connect and transfer learning into practice when assessing patients.

Planning adoption of the package

Effective planning and communication at the service/ward level is vital to the successful adoption of the package. Planning should include a timeline detailing what needs to take place prior to and during the month of education leading up to the implementation of the Delirium Management Pathway (Table 1, p. 13).

Ward champions who will act as resource people and provide education sessions for other staff need to be identified. Once identified, a champion ward meeting is set up to discuss the timeline, shifts, roles and access to resources and supports. Enough time must be allowed for champions to prepare for the delivery of the education package.

List of resources available in the education package

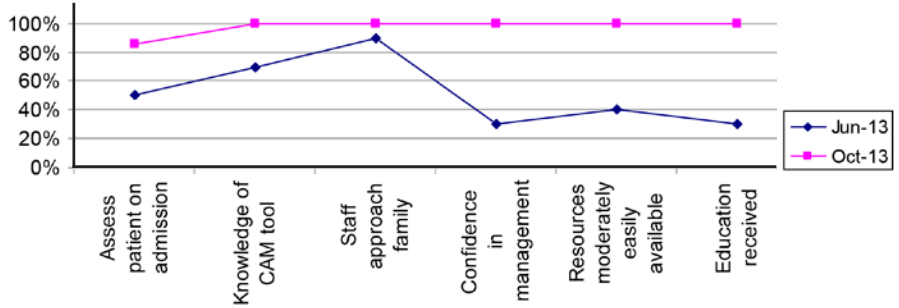
- Delirium education spread (MS PowerPoint)
- CAM presentation (MS PowerPoint)
- Intervention presentation (MS PowerPoint)
- Delirium patient story (video)
- Delirium project (video)
- CAM intervention (video)
- 3Ds (handout)
- How to... CAM tool practice session
- CAM intervention sheet and checklist
- CAM tool (PDF file)
- Counties Manukau Health guideline
- 20,000 Days pamphlet
- Role of delirium champions
- Delirium: a review (PDF file)
- Article on delirium (PDF file)
- Brief guide to delirium (PDF file)
- 20,000 Days – Delirium (video)
- Delirium Management Pathway

Table 1: Delirium Management Pathway: Two month implementation planning timeline

Communication Strategy	LAUNCH	Week 1	Week 2	Week 3	Week 4: Auditing
Plan meeting • Service manager/charge nurse manager organises management meeting • Plan month: dates of education and implementation **Staff engagement:** **Timeline: 1 month prior** Define roles for: • Charge nurse manager • Associate charge nurse • Nurse educator • Consultant/registrar/house surgeon engaged • Identify champions: nursing and x1 allied staff (ask for staff interest) **Order coding stamps** (2 per ward) Order a self inking stamp with the following details: **DELIRIUM** Date: Cause: Treatment: Doctor's Signature:	**Notices: Planning** **CAM is Coming** **DELIRIUM is Going** **Nurse educator:** (2 weeks before launch) Meet champions and support resource development: • Presentations • Resource folder • USB stick/web page • Ward posters/prompts • Pre-education survey • Audit tools/folder • Zero patient harm boards **Set up 3 staff education courses** • Delirium overview • CAM assessment • CAM intervention **Resources required** • Orientation boards • Clocks • Calenders • Delirium signs x10 • Delirium magnets x10 • EDS prompts for computers **Clerical role:** Order buff paper for printing CAM assessment/intervention Placement in clinical notes	**Delirium overview** **Staff survey Pre-education** • Staff knowledge survey (Survey Monkey or paper) **Overview of delirium:** • Delirium: a medical emergency (presentation) • Patient Family/whaanau story (video) • The 3 D's (hand out) • 3 D's Quiz / Poster **Record attendees:** • 2 sessions per week (hand over BEST) • All nursing and allied health staff to attend • Champions take responsibility to educate new staff/students	**CAM Tool** • PowerPoint presentation • Video on CAM assessment • How to CAM • CAM assessment tool **Record attendees:** • 2 sessions per week (hand over BEST) • All nursing and allied health staff to attend • Champions take responsibility to educate new staff/students	**Intervention education** • PowerPoint presentation • Multidisciplinary team (Video) • Intervention checklist for staff **Record attendees:** • 2 sessions per week (hand over BEST) • All nursing and allied health staff to attend • Champions take responsibility to educate new staff/students **Clinical files** • CAM assessment forms and intervention checklist go into all clinical files with other assessment forms at beginning of following week	**Framework of auditing:** **Suggest weekly audit initially to embed screening, then extend to monthly** Zero Patient Harm : Patient safety Suggest 10 files per month Suggest 2 files per week **Audit includes** • CAM documentation (WIMZ/Clinical notes/ Placement) • CAM assessment (All shifts & accuracy) • CAM intervention sheet audit (All interventions x1) • Record NHI of Cam scoring patients (NHI for stamp/ EDS auditing) **Results/Feedback Loop** • Audit results and feedback loop responsibilities of champions. • Display % on patient safety boards • Team/Champion feedback via quality meeting agenda monthly

EDUCATION PACKAGE

Figure 4: Ward 5 audit before and after delirium education package roll out



How we know we have made a difference

A pre-education audit of staff knowledge about delirium consisting of ten short questions gave a baseline as a measure for improvement. Another audit conducted after the education package had been implemented showed the shift in knowledge and change to working in an interdisciplinary manner with delirium patients.

The graph above shows the improved knowledge and understanding of the Delirium Management Pathway by Ward 5 staff following the implementation of the education package.

The evidence that supports what we did

In 2008, Soja *et al.* used a similar approach when they trialled the use of the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU). They developed a comprehensive education package which included the training of champions, a phased schedule of in-services for nurses at the bedside and ongoing monitoring of compliance. They were able to show that, with a well-structured education plan and continued educational support, the use of the CAM was feasible and reliable within their ICU population.[5]

....I went to write 'confusion' today in my notes and I stopped and thought about my delirium in-service...

Charlotte
Physiotherapist, Ward 5

ASSESSMENT PACKAGE

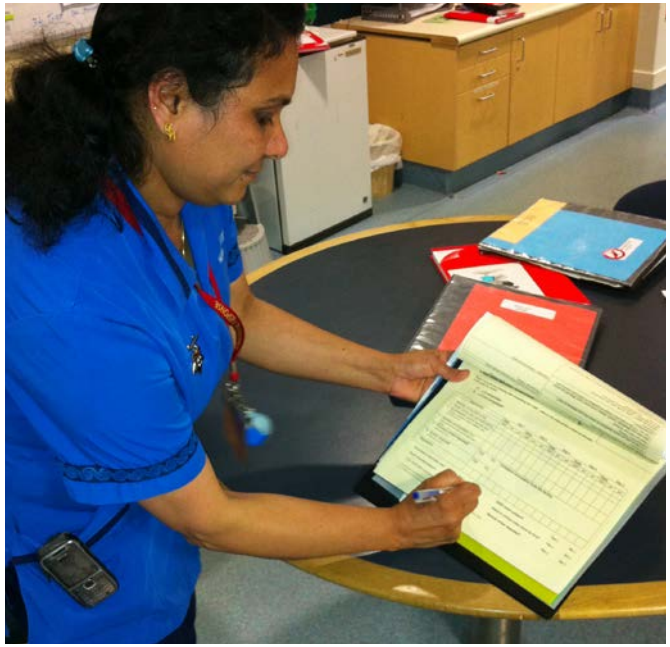
Why the changes were needed

International research suggests that delirium is under-recognised, with healthcare professionals only recognising 20-50% of cases.[6] This is thought to be mainly because the symptoms have a close association with other cognitive impairments. The need for an effective assessment method for delirium is highlighted by the disparity in prevalence statistics. In patients 65 years and over delirium occurs in 10-34% of patients in residential care; in 30% of patients in emergency care and 10-42% of inpatients. In patients undergoing major surgery, delirium occurs 17-61% of the time and occurs in 25-83% of patients at the end of life.[6]

Prior to the introduction of the Delirium Management Pathway there was no consistent assessment tool used within Counties Manukau Health (CMH). A study completed in 2010 on Wards 10 and 11 (acute orthopaedics) introduced the Confusion Assessment Method (CAM) and assessed the feasibility and accuracy of routine nurse-based delirium screening for all orthogeriatric patients.[3] This study concluded that screening was possible but, due to limited resources, should be targeted to high risk patients during the initial five days of admission. It also concluded that extensive education was required to improve the accuracy of nurse-based CAM assessments and documentation by resident doctors (see Education Package, p. 12).

Since this study was undertaken, use of the CAM has continued on Wards 10 and 11 for all patients with neck of femur fractures, as this is the patient population found to be at the greatest risk of developing delirium.

It was the belief of the collaborative that an effective routine assessment was possible and would allow for delirium to be identified more readily, improving patient care and reducing complications associated with delirium.



A ward nurse completing the CAM Tool

What we did differently

Adaptation of the CAM tool

Although we chose to continue using the CAM as our assessment tool, we needed to adapt it to make it more robust and easier to use. We carried out multiple audits on compliance with using the CAM, ensuring that staff consultation was a part of this process. Through feedback from nurses, we discovered that compliance was often related to the format of the tool. In response, we changed the orientation of the CAM to a landscape format, changed the shifts listed on the form to match nurses' actual shifts and clarified how the form was to be filled out. Over time we saw an increase in compliance.

Figure 5: The Confusion Assessment Method (CAM)

Please ask these questions once each shift.	If unsure how to score record answers verbatim below
Introduction… ***"I'd like to ask you some questions to check that your thinking is clear".***	Disorganised Thinking
Disorganised Thinking ***Have you had any visitors?*** ***How was your Breakfast / Lunch / Dinner*** *(most recent meal)* ***What did you have?***	
Then say, ***"I'd like to ask you a couple of questions to check your memory and concentration"***	Orientation / Attention/Concentration
Orientation ***What is the date ?*** *(date, month, year, day of the week)* ***What is the time?*** *(accept one hour either way)* ***Who am I?*** *(accept nurse)* Attention/Concentration ***"Can you tell me the months of the year, starting at January ending in December"*** Following the patients answer, say, ***"Now can you say the months backwards starting at December and going backwards to January"***	
Feature 1 Acute Onset and Fluctuating Course : From a family member • "does your family member seem more confused that usual?" From nurse • "Is there evidence of an acute change in mental status from the patient's baseline?" • Does the (abnormal) behaviour fluctuate i.e. does it comes and go or increase / decrease in severity? **If yes to any of the above tick box in feature 1** **Feature 2 Inattention :** Does the patient have difficulty focusing attention? Are they easily distractible, or having difficulty keeping track of what was being said? **If yes to these questions tick box in feature 2**	**Feature 3 Disorganised Thinking :** Ask the patient the Q's above and use the responses to answer Yes or No to the following questions … Is the patient's thinking disorganised or incoherent ?, is the patient rambling ?, does the conversation contain irrelevant information? , is it unclear ?, is there an illogical flow of ideas?, is there unpredictable subject switching ? **If yes to any of these questions tick box in feature 3.** **Feature 4 Altered Levels of Consciousness :** Rate the patient's level of consciousness vigilant /hyperalert lethargic / drowsy, easily aroused stupor / difficult to arouse coma / non-rousable **If yes to any response other than alert (normal) tick box in feature 4**

Note: The diagnosis of delirium by CAM requires ticked boxes in Feature 1 and 2, plus 3 or 4

Figure 6: Confusion Assessment Method recording sheet

PLACE PATIENT LABEL HERE

Screen first 5 days from admission/change and continue until 48hrs of zero ticks

High risk patients:
Age ≥ 65 and one of following
Dementia
History of delirium
Neck of femur fracture

Hearing Impairment ? Yes No
Visual Impairment ? Yes No

✓ = *if feature is present*
✗ = *if feature not present*

	Day 1			Day 2			Day 3			Day 4			Day 5		
	Date			**Date**			**Date**			**Date**			**Date**		
Features	*night*	*am*	*pm*	*night*	*am*	*pm*	*night*	*am*	*pm*	*night*	*am*	*pm*	*night*	*am*	*pm*
1. Acute onset / fluctuating course determined by family or nurse															
2. Inattention															
3. Disorganised Thinking															
4. Altered Consciousness															
TOTAL TICKS															
Signature															

✓✓ = *consider invisa-beam or watch (2 ticks)*
✓✓✓ = *consider watch / refer to CMBHB Guideline: Brief Guide to Delirium (3 or more ticks)*

3 or more ticked boxes suggests a high probability of delirium. Inform team of this risk for full assessment or reassessment

* Known dementia patient's full collateral history should be obtained from family or usual carer.
* It is possible to have a delirium as well as dementia.

Common causes include: *infection, drugs, alcohol/benzodiazepine withdrawal, electrolyte disturbance, cerebral hypoxia.*

I hear, I forget. I see, I remember. I do and I understand.
Confucius

Placement of the CAM tool

Delirium is classified internationally as a medical emergency. Taking this information on board, the placement of the CAM tool was crucial. Originally the CAM tool was placed in the patient's clinical notes, but it quickly became apparent that the completion rate was poor. The solution? Place the CAM somewhere that is frequently used – in the patient's medication chart by the Physiologically Unstable Patient (PUP) chart. The PUP observation chart is used on every shift, which coincided with our needs for utilisation of the CAM.

The main lesson learned from this change idea was the importance of communication when a process is changing, especially when there are multiple staff members involved. We also learned that it is important to test even the simplest of changes. For example, when we audited to see if every patient had a CAM tool in their medication chart the compliance rate was only 82% – our expectation was 100%. If we had not tested this, patients would have gone unassessed.

WIMS prompt

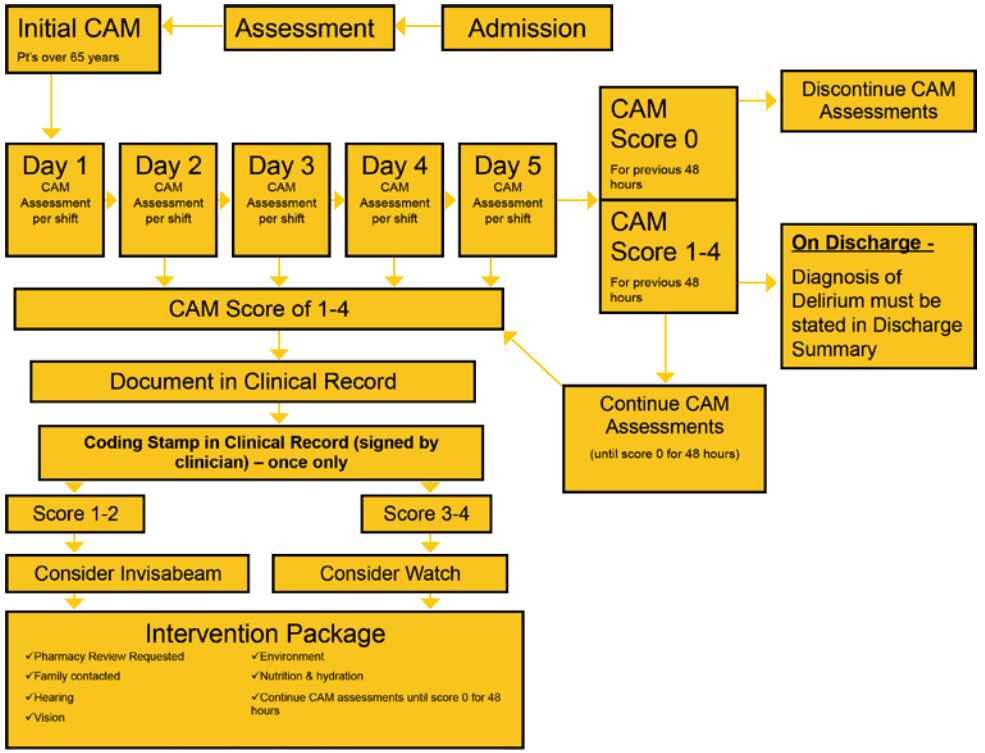
To help ensure that the CAM would be completed on all shifts, we came up with the idea of inserting a prompt on the WIMS sheet (ward list). Application of this idea has been inconsistent. We have found that this change needs to be led by a charge nurse or associate charge nurse to ensure consistent application.

Guideline for Delirium Management Pathway

A pathway allows for clarity of process and ensures a degree of constraint, which increases consistency and reliability of practice. Having the pathway visible on the ward serves as a reference as well as a useful training tool for new members of staff.

As we considered how the Delirium Management Pathway could be sustainably implemented throughout Counties Manukau Health, we realised that a simple guideline needed to be created to outline the pathway. This guideline was separate to, and was not intended to replace, the existing underutilised Counties Manukau Health delirium guideline. The guideline we developed for use with the Delirium Management Pathway ensures sustainability and supports education, both by serving as a reminder to staff who have undergone the education package and by informing new staff.

Figure 7: Delirium Management Pathway



How we know we have made a difference

We have extensively audited compliance with use of the CAM. Audits measured five outcomes:

» Is the CAM in the medication chart?

» Is the CAM being used?

» Is the CAM being completed on all shifts?

» Is the CAM being completed correctly?

» Is the CAM score being documented in the clinical notes?

Our data relates to our pilot ward, Ward 4. We do not yet have consistent data for the other wards, as we have reviewed the auditing process (see Measurement Package, p. 26).

Key results of the audit

Our audit of CAM use in Ward 4 showed that:

» Since November 2012, the CAM has had a 100% completion rate, and has been consistently included in all patient charts (Figures 8 and 9, p. 20).

» Compliance with completing the CAM on all shifts has improved significantly since March 2013 and currently sits between 79–90% (Figure 10, p. 20).

» The rate of correct completion of the CAM has improved significantly, with current rates between 81–100% (Figure 11, p. 20).

Our conclusion as a collaborative is that these steady increases have occurred as a result of improved staff understanding of delirium and of the purpose of the CAM, as well as our re-design of the CAM based on staff consultation.

The area of compliance that we need to continue to work on is documenting the CAM score in the clinical notes. We are unsure why this is not being done consistently, and we are continuing to work with nursing staff to improve this area of practice.

Figure 8: Inclusion of CAM in patients' medication charts

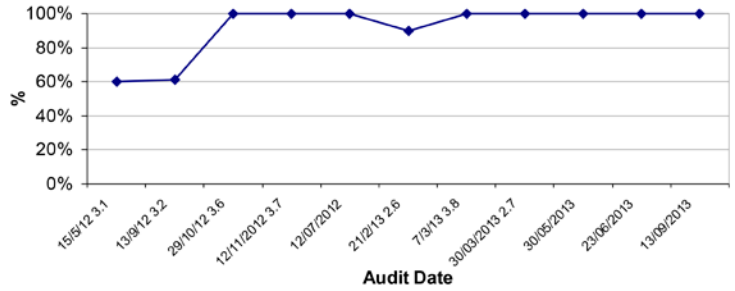


Figure 9: CAM use on patients admitted to Ward 4

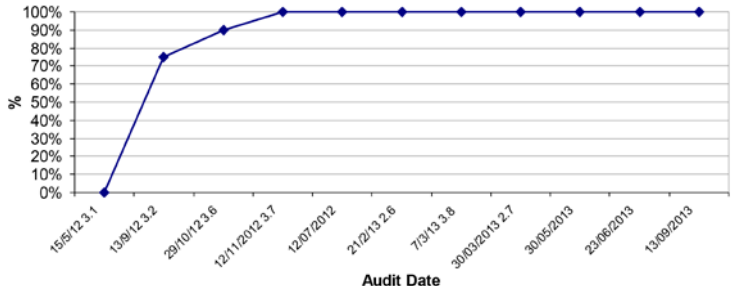


Figure 10: CAM completion on all shifts

Figure 11: Correct completion of CAM

ASSESSMENT PACKAGE

The things that helped

Literature and consultation with the Institute for Healthcare Improvement have supported the process of developing and implementing the Delirium Management Pathway, but the most valuable resource has been consultation with staff. By talking to the staff who we are asking to implement the pathway, we have gained an in-depth understanding of the barriers and facilitators of change, and we continue to refine and improve our change package to make it more robust and user-friendly.

The evidence that supports what we did

According to Rigney, the CAM has been validated using psychiatric assessment as a reference standard, and has a sensitivity ranging from 94% to 100% and a specificity ranging from 90% to 95%.[7]

A systematic review conducted by the Vancouver Island Health Authority concluded that the CAM is the bedside diagnostic instrument for delirium that is best supported by evidence.[8]

The team at a 20,000 Days learning session

Why the changes were needed

There was no existing intervention package for delirium at Counties Manukau Health, so we needed to develop one that could be easily utilised as a follow-up after completion of patient assessments with the CAM.

What we did differently

CAM Intervention Checklist

We developed the CAM Intervention Checklist (Figure 12) for nursing staff to fill out after completing the CAM. The checklist contains:

- A check of visual and hearing aids
- Pharmacist review
- Nutrition review
- Environment review
- A check that family/whaanau have been informed of the patient's condition

Details of actions to be taken under each intervention in the checklist for patients scoring 1–4 on the CAM are given in Figure 13.

As with the CAM, we noticed that compliance with filling out the CAM Intervention Checklist was related to its location and format. We wanted to make sure the checklist was easy to follow and easy to associate with the CAM tool. Therefore, we decided to follow the format of the CAM tool itself. We also decided to have the checklist filed behind the CAM tool, so that nursing staff can easily locate the checklist after completing a patient assessment.

Figure 12: CAM Intervention Checklist

PLACE PATIENT LABEL HERE

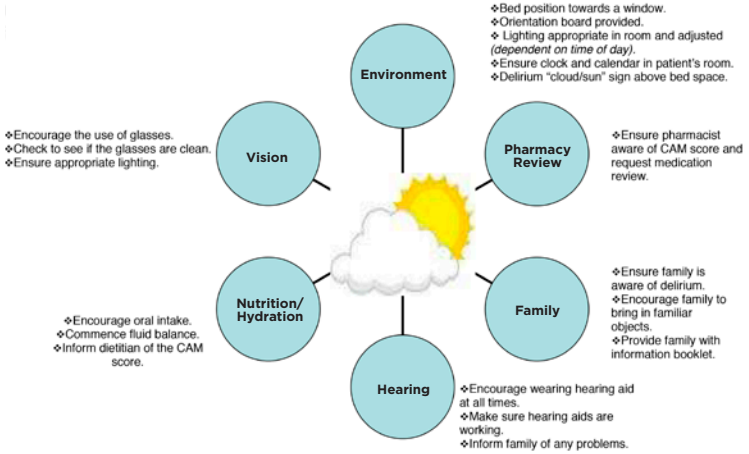
Please complete the following after completing the CAM – refer to the intervention sheet on the rear of this page for details.

✓ *= if completed*
X *= if not completed*

Intervention	Day 1			Day 2			Day 3			Day 4			Day 5		
	Date			Date			Date			Date			Date		
	night	*am*	*pm*	*night*	*am*	*pm*	*night*	*am*	*pm*	*night*	*am*	*pm*	*night*	*am*	*pm*
1. **Hearing**: *hearing aides working.*															
2. **Vision**: *glasses clean, appropriate lighting.*															
3. **Environment**: *calendar adjusted, clock working, orientation board updated, bed position correct.*															
4. **Nutrition and Hydration**: *fluid balanced commenced, encourage oral intake.*															
5. **Pharmacy review requested** *(circle yes or no)*	Yes		No	**Document collateral information from the family:**											
6. **Family contacted** *(circle yes or no)*	Yes		No												
Signature															

Invisa-beam required/in use?	**Yes**	**No**	**WIMS sheet updated?**	**Yes** / **No**
Watch required/ordered?	**Yes**	**No**	**Stamp in clinical notes (done by Drs)?**	**Yes** / **No**
If yes, Watch folder commenced by RN?	Yes	No	**Medical review requested?**	**Yes** / **No**

Figure 13: Components of the CAM Intervention Checklist



Orientation sign

The orientation sign is designed to remind patients of their current location (name of hospital and ward) and date (Figure 14). The sign is positioned within the patient's room so the patient can be constantly oriented to their location and date. For patients with reduced vision, who would have difficulties seeing the sign, nursing staff can re-orientate the patient during each shift.

Delirium symbol

The team wanted to adopt a symbol that could be used to identify patients with delirium to staff (as a sign above the patient's bed and on the ward white board) without being offensive or blatantly "labelling" the patient. After much discussion, the team came up with the cloud/sun symbol (Figure 15). The cloud represents delirium and the sun is the patient. We wanted it to be a positive symbol of the patient emerging out of the cloud of delirium.

The feedback from staff, patients and families/whaanau was all very positive. The cloud/sun symbol is now firmly entrenched as our symbol.

Figure 14: Orientation sign

Today is

_____

( )

I'm at **MIDDLEMORE HOSPITAL**,
Ward 4.

Figure 15: Delirium symbol

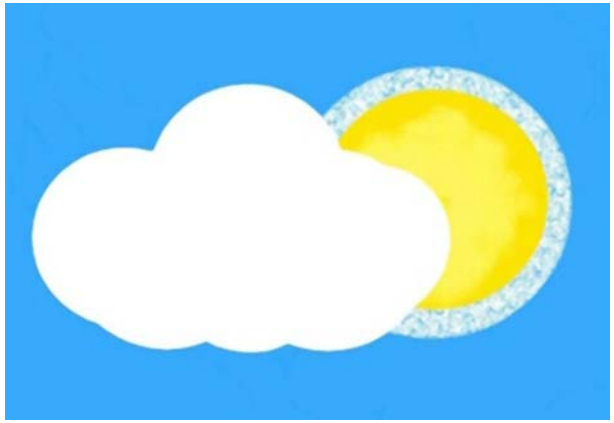
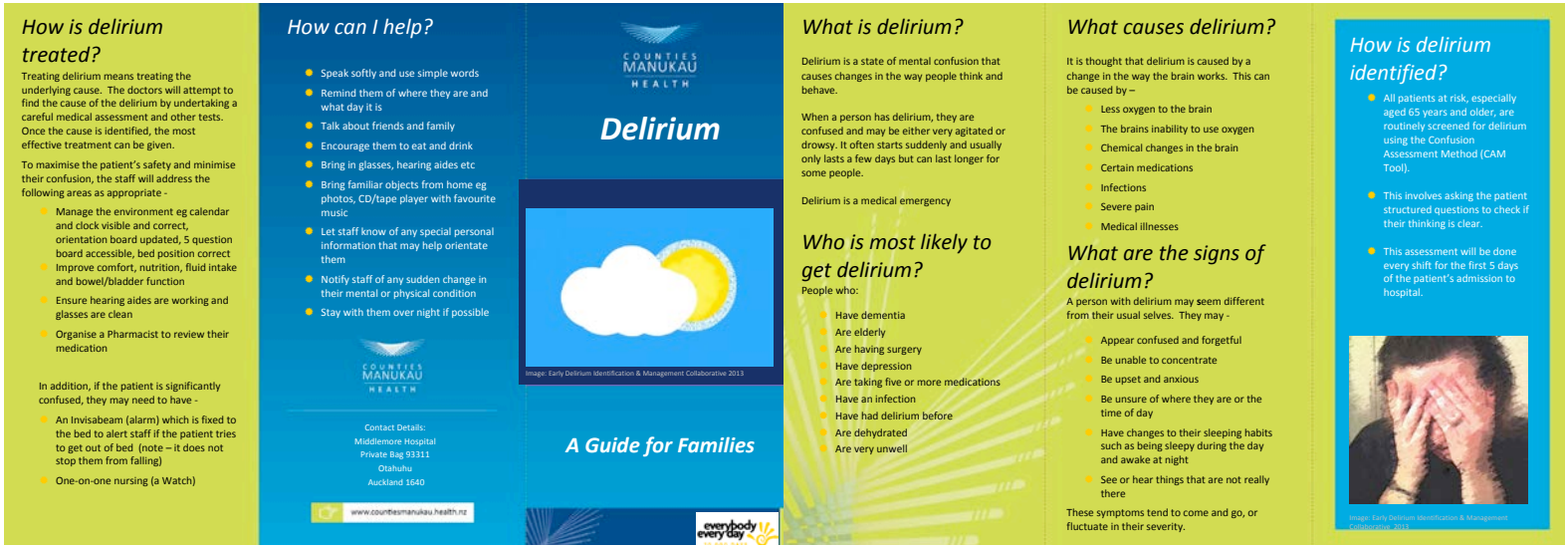


Figure 16: Patient/family information pamphlet



Patient/family information pamphlet

Counties Manukau Health (CMH) had an existing patient education pamphlet on delirium which needed updating and modifying to make it easier to understand and more family-centred. The new pamphlet was created with input from key staff, including mental health and cultural support staff, and from patients and their families/whaanau (Figure 16). We tested versions of the pamphlet with patients and their families/whaanau, and the successful version is now located in CMH's document directory for use as required.

Delirium guideline

Although there was an existing CMH delirium guideline, it was not being utilised. In collaboration with CMH Mental Health Services, we reviewed and updated the guideline.

Watch folder

A watch is often placed on patients who have delirium to reduce the risk of falls. We felt that the watch was an underutilised resource that could also be used to orientate the patient. A resource folder has been created for staff who carry out a watch to give them a better understanding of delirium and their role in the interventions.

INTERVENTION PACKAGE

How we know we have made a difference

We developed a specific audit tool for the CAM Intervention Checklist and have been auditing the interventions. We have seen a huge improvement in implementation of the interventions (Figures 18-21).

In addition, the incidence of falls in Ward 4 was below the average for seven consecutive months during the introduction and testing of the CAM tool (Figure 17). Twelve patients with falls-related histories who were scoring between 1 and 4 in the CAM (indicating a possibility of delirium) were audited. Delirium was confirmed in five out of the twelve patients and interventions were put in place. None of these patients had a fall during their hospital stay.

Figure 17: Total number of falls per month in Ward 4

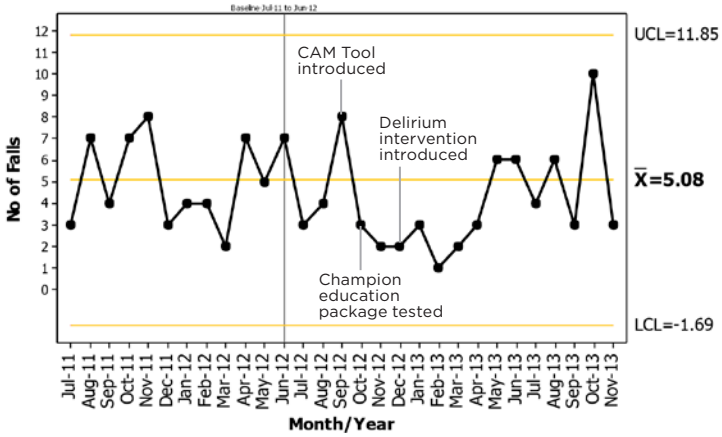


Figure 18: Intervention compliance – pharmacist review requested

Figure 19: Intervention compliance – family involvement

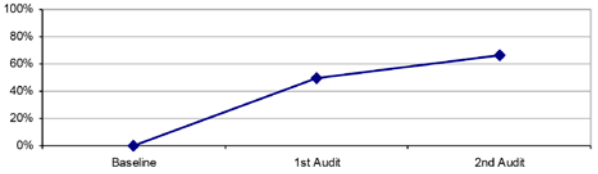


Figure 20: Intervention compliance – environment checked

Figure 21: Intervention compliance – visual and hearing aids checked; nutrition and hydration checked

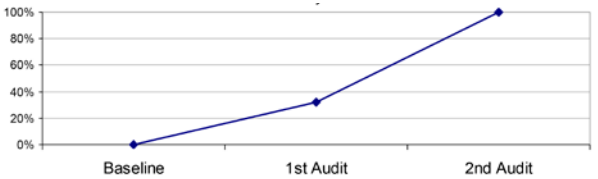


Figure 22: Audit tool

Ward:	Month:	Auditor:											
Delirium Audit Sheet		**Example**	**NHI 1**	**NHI 2**	**NHI 3**	**NHI 4**	**NHI 5**	**NHI 6**	**NHI 7**	**NHI 8**	**NHI 9**	**NHI 10**	**Total**
NHI Number	Enter Pt NHI#	ABC1234											
No of shift since admission	Enter the total number of shift since inpatient admission (max=15).	15											
Documentation													
CAM in medication chart	Answer Yes or No	Yes/No											/10
CAM score in clinical notes	Answer Yes or No	Yes/No											/10
CAM score in WIMS	Answer Yes or No	Yes/No											/10
Assessment													
CAM Completed all shifts	Bottom number =total number of shift since inpatient admission (max=15).	12/15	/	/	/	/	/	/	/	/	/	/	/
CAM completed correctly	Bottom number= how many times the CAM was completed.	12/12	/	/	/	/	/	/	/	/	/	/	/
Intervention													
Family involved	Answer Yes or No	Yes											/10
Pharmacy review	Answer Yes or No	Yes											/10
Environment checked / changed	Answer Yes or No	Yes											/10
Visual aids checked	Answer Yes or No	No											/10
Hearing aids checked	Answer Yes or No	No											/10
Nutrition /hydration checked	Answer Yes or No	Yes											/10

Why the changes were needed

Establishing our baselines for this collaborative was difficult. The coding of delirium was complex and many patients with delirium were not coded at all. The term 'confusion' was frequently documented in the clinical notes or in the patient's electronic discharge summary (EDS). We needed to find a way to ensure that delirium was documented as a diagnosis, coded consistently and included in the patient's EDS. This was important in terms of communication with the patient's GP and highlighting previous delirium for any future hospital admissions.

In addition, we needed to ensure that the auditing process was robust and easy to use so each area could take charge of its own auditing and monitoring.

What we did differently

CAM assessment compliance and intervention checklist auditing

The information and data that we wanted to capture was divided into three areas: documentation, assessment and intervention. Similar to the assessment and intervention checklist, we wanted our auditing process to be easy to administer and able to provide us with useful information.

We started with separate CAM assessment compliance and intervention checklist audits. After many trials and feedback regarding ease of administration of the audits, we developed a combined auditing tool (Figure 22). An auditing guideline for new staff members has also been developed to assist with the understanding of how the system functions.

Auditing schedule/champions roster
We worked with ward charge nurse managers to ensure that CAM auditing became part of their general auditing and tracking of outcomes.

Ward 4 established a roster assigning a different champion to complete two sets of patient audits each week. This will accumulate to ten sets of audits over five weeks (approximately a month). This system has proven to reduce the time nursing staff would need to spend auditing if they were to complete ten sets of audits at one time.

Coding stamp
After consultation with the clinical coders, we developed a delirium coding stamp which could be stamped into the patient's notes and completed by a doctor (Figure 23). When a clinical coder sees this stamp in a patient's notes, they automatically code that patient with delirium.

This was not smooth sailing at first, as we had to decide who would put the stamp in the notes and who would follow up to make sure that a doctor had completed it. We have now documented a process for this.

EDS prompt
We needed to find a way to prompt doctors to ensure that they include delirium in the diagnosis when they are completing a patient's EDS. A simple method we came up with for doing this was to place a visual prompt on every computer monitor doctors use to complete EDS.

Figure 23: Coding stamp

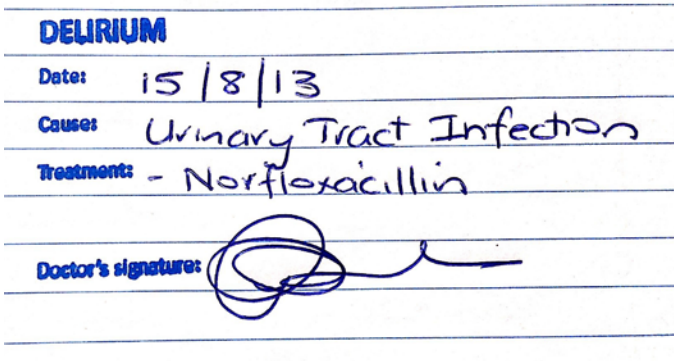
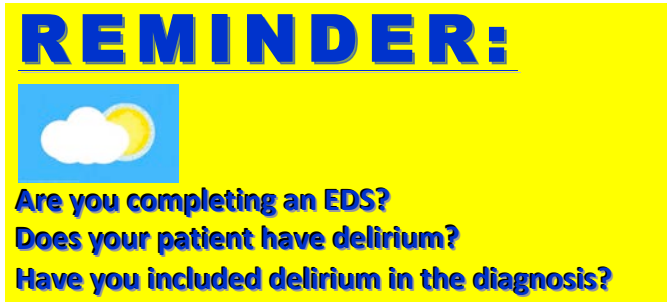
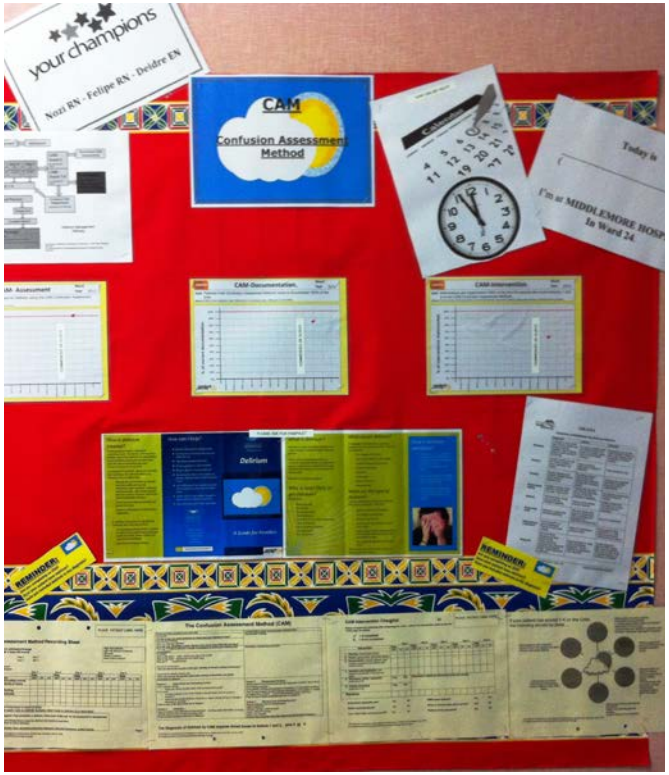


Figure 24: EDS prompt



MEASUREMENT PACKAGE



CAM information board, including compliance graphs for the wards to record their progress

How we know we have made a difference

Feedback from the nursing staff regarding the auditing tool has been positive. They report that the auditing tool with examples is easy to use and simple to understand.

The things that helped

From learning sessions with the Institute for Healthcare Improvement, we learnt that changes are hard to make and even harder to maintain unless they become embedded in practice. Auditing and publishing the results are useful ways to maintain a high profile for delirium amongst the interdisciplinary team.

We found that it was very important to include staff in the development of our audit tools, as they will be the ones to use them.

The evidence that supports what we did

Reikirk *et al*. found that implementing routine use of the CAM into daily intensive care unit (ICU) practice was challenging but was aided by careful planning and preparation and the use of a step-wise implementation strategy. Their strategy consisted of four phases: (1) assessing the current situation to understand behaviour towards delirium; (2) the identification of barriers to the implementation of the CAM-ICU; (3) preparation of the ICU team for a change in attitude; and (4) evaluation of the effects of implementation. They also found that by regular training of the ICU nurses, and checking for its reliable and appropriate application, the accuracy of the CAM-ICU observations increased.[9]

Foster *et al*. implemented an audit tool that recorded the assessments undertaken by ward staff along with interventions put in place. They found that engaging the staff by involving them in audits led to them being more engaged in the process and less likely to perceive the CAM assessment as adding to their workload.[10]

EXPERIENCES AND LEARNING

We learned:

» Many of the changes that we thought would be simple and straightforward turned out to be complex and complicated.

» The importance of keeping our aim in sight to avoid getting pulled off track.

» The importance of reliability to ensure sustainability – this takes time but ensures a stronger change package.

» Champions are important to drive a new concept on the ward.

» Involving and consulting staff with the improvement of resources is vital.

» Implementation of any concept needs to be flexible to allow sustainability in all clinical areas.

THE COLLABORATIVE TEAM

Working Group:

Carol Slade
Service Manager, Adult Rehabilitation & Health of Older People (ARHOP) and Localities

Glenys Best
Nurse Educator, Assessment, Treatment & Rehabilitation (AT&R)

Connie Mahu
Whaanau Support, Te Kaahui Ora – Maori Health Unit

Maureenah Elone
Advocate, Fanau Ola

Anna Anderson
Coordinator, Te Kaahui Ora – Maori Health Unit

Michael Kang
House Officer

Johanna O'Leary
Senior Physiotherapist, AT&R

Lauren Wang
Occupational Therapist, AT&R

Iris Blowers
Former Associate Clinical Nurse Manager, Ward 4

Aruna Raju
Associate Clinical Nurse Manager, Ward 4

Rio Jodache
Former Occupational Therapist, AT&R

Rosie Whittington
Team Leader, Decision Support

Prem Kumar
Improvement Advisor, 20,000 Days campaign

Danni Farrell
Project Manager, 20,000 Days campaign

Expert Group:

Clinical Lead: Geoff Green
Clinical Head, AT&R

Sunita Paul
Consultant Geriatrician

Yu-Min Lin
Consultant Geriatrician

Hla San Tha
Consultant Geriatrician

Lyn Cooper
Clinical Nurse Director, ARHOP

Shona Paterson
Section Head, Occupational Therapy

REFERENCES

1. Institute for Healthcare Improvement. The breakthrough series: IHI's collaborative model for achieving breakthrough improvement. IHI Innovation Series white paper. Boston: The Institute; 2003.

2. Langley GL, Nolan KM, Nolan TW, Norman CL, Provost LP. The improvement guide: A practical approach to enhancing organizational performance. 2nd ed. San Francisco: Jossey-Bass; 2009.

3. Lin Y, Paul S, Tha H, Walker K. Acute delirium in older adults in acute orthopaedic wards: assessment of feasibility of routine use of Confusion Assessment Method (CAM). 2010. Unpublished manuscript.

4. Teodorczuk A, Mukaetova-Ladinska E, Corbett S, Welfare M. Reconceptualizing models of delirium education: findings of a grounded theory study. Int Psychogeriatr. 2013 Apr;25(4):645–55.

5. Soja SL, Pandharipande PP, Fleming SB, Cotton BA, Miller LR, Weaver SG, Lee BT, Ely EW. Implementation, reliability testing, and compliance monitoring of the Confusion Assessment Method for the Intensive Care Unit in trauma patients. Intensive Care Med. 2008;34:1263–1268.

6. Edison IO, Villas Boas PJF, Valle AP, Cerqueira AT, Fukushima FB. Delirium in older adults. BMJ. 2013 Apr 9;346:f2031. doi: 10.1136//bmj.f2031.

7. Rigney TS. Delirium in the hospitalized elder and recommendations for practice. Geriatr Nurs. 2006 May–Jun;27(3):151–7.

8. Delirium in the older person: A medical emergency [Internet]. Victoria, British Columbia: Vancouver Island Health Authority; 2006 [cited 2012 Oct 5]. Available from: http://www.viha.ca/NR/rdonlyres/4DC32399-96E8-401B-9AAB-126BDD8A3512/0/delirium2_09.pdf

9. Riekerk B, Pen EJ, Hofhuis, J, Rommes JH, Schultz MJ, Spronk PJ. Limitations and practicalities of CAM-ICU implementation, a delirium scoring system, in a Dutch intensive care unit. Intensive Crit Care Nurs. 2009;25(5):242–249.

10. Foster NM, Waldron N, Donaldson M, Margaria H, McFaull A, Hill A-M, Beer CD. A quality improvement project to prevent, detect and reduce delirium in an acute setting. Aust J Adv Nurs. 2010;28(2):24–32.

WWW.KOAWATEA.CO.NZ

everybody every day
20,000 DAYS

@20KDaysCampaign
#20KDays