Medication Safety Case – Michael James Calder

Sharon Ragau – adapted by Marianne Piekkala-Fletcher
Objectives

- To increase awareness of the complexity of the health system, and its impact on patient safety
- To increase awareness of the importance of due diligence across all sections of medication framework
Michael James Calder

- 33 year old father of 3 young sons, and partner to Andrea
- His GP sent him to hospital for headaches and neck stiffness
- Arrived 1440 hours on 8th July, deceased 0517 hours 11th July 2014 (2.5 days)
- “A great sense of humour and fun”, “A caring and very engaging father, and a loving partner, son and friend”
Background information of Mr Calder

• GP referral:

• 3 day history of severe continuous occipital headaches, and had developed neck pain and stiffness.

• Previous medical history – anxiety, viral meningitis (2011), severe sleep apnoea (2009), for which he received surgical treatment at the hospital he was now being sent to.

• His prescribed medications were Valium (Diazepam) and Zoloft (Sertraline) – for his anxiety
In the emergency department

- 1440 hours 8th July 2014
- Provisional Diagnosis – Viral Meningitis
- A number of tests performed – LP; CT head; other tests unremarkable
- Commenced on anti-viral medication
- Analgesia included IV Morphine (10mg in total over a half an hour period)
- To be transferred to the ward under Doctor B.
- Dr. B received a referral letter from the ED and there was a discussion. The ED record was also provided but Dr B. found this record difficult to be sensibly or easily digested/read, so didn’t use this document.

- *Importantly, this ED record showed that at 1920 hours there was an episode when Michael’s oxygen saturation plummeted to 79%, and RR 12, but rose on rousing*
In the ward – 8th July evening shift

• 2015 hours - arrived. Unusually a patient history form was not completed, which asks the patient if there is any history of Obstructive Sleep Apnoea

• Observations on MEWS chart

• Staff ratios – on day and evening shift, 2 nurses allocated 10 patients as a buddy system, on night shift 1 nurse for 10 patients.

MEWS/QADDS guidance:
• if SpO2 87-92%, administer O2: if continues to fall with increasing SOB, inform the TL immediately
• if below 86% inform TL and call MO immediately
• If SpO2 below 80% apply O2 via non-rebreather bag and institute a MET call – if no response to O2, or unresponsive, CODE BLUE
In the ward….. 8\textsuperscript{th} July night shift / 9th July day shift

• For all nights Michael was there, his primary nurse was a very experienced EEN M

• 22:00 on 8th July - Handover

• Viral meningitis, and history of anxiety and sleep apnoea.

• The previous hospital admission records were not available on the ward.

• 0910 hours on 9th July - Medical Records requested, arriving at 1056 hours

• Seen at some time on this shift by Dr B, plan to continue IV antivirals and noted a headache +++ - changed regular Endone to SR Endone twice a day.

• Michael denied having sleep apnoea to RN J. It is thought that as he had been treated surgically for OSA he mistakenly thought he was cured of it.
In the ward 9th July evening shift

• RN G progress notes towards end of shift –
• “Mr Calder alert and coherent, mobile and self caring and observations were stable, afebrile”
• As he continued to complain of severe headache, she noted she had given him pain relief with some effect (40mg Ordine at 1715 hours).
• Observations charts show SpO2 95% RA and all other observations normal.
In the ward 9th July night shift

• EEN M – Michael a lot brighter, but still has headaches. No mention in progress notes as to level of pain.

• 0430 hours Ordine 20mg
In the ward 10th July day shift

- At 0715 hours 40mg Oxycontin slow release administered
- RN C and RN X – prescription for Ordine did not specify frequency or maximum dose. Dose had last been given at 0430 hours – thinking it should be third hourly, phoned Dr B, who confirmed third hourly
- At 0750 hours 20mg Ordine administered
- Obs 0800 hours – SpO2 85% for a few seconds, but stabilised 88% - started O2 at 1-2L, but increased to 3L to obtain SpO2 of 92%.
- RN X – Clinically Michael appeared fine, asked if he had sleep apnoea and he said no
In the ward 10\textsuperscript{th} July day shift

- RN X at 1000 hours check on Michael – headache was still bad, and was given further full dose of 40mg Ordine. SpO2 remain acceptable.

- 1130 hours - RN R – RR 18, SpO2 93% on 2L O2, no record of pain score. Recalls Michael was awake but tired, in pain and wanted the room dark. She administered his 1200MD 1g Paracetamol and 400mg Ibuprofen.

- Further check by RN X – patient walking around headache improved a little.

- RN X at 1340 hours a further dose of 40mg Ordine – patient noted to be speaking clearly, and not drowsy.
In the ward 10th Evening shift

- RN G (same as day before) buddy with RN L
- 1630 hours - RN L took observations – Temp 37.7, HR 100, RR 18, 2L NP, SpO2 not recorded. He complained of severe pain, but it was not recorded.
- 1645 hours – 40mg Ordine
- 1800 hours – Paracetamol and Gabapentin. Michael noted to keep taking off his nasal prongs as he found them irritating, but he sounded coherent and was not slurring his words
- 2000 hours – 80mg MS Contin (changed from oxycontin), Ibuprofen, Movicol.
- 2030 hours – HR 102, RR 20, no O2 or SpO2 recorded.
- Progress notes – severe headache remained ++++, but pain score on obs chart 0.
In the ward 10th Night shift

• EEN M noted Michael to be a lot brighter, headaches still present, on different medication

• 12MN - performed observations – SaO2 90% on RA, deep sleep and snoring loudly enough could be heard through his closed door

• 0200 hours – checked on him again, asleep and snoring very softly

• 0440 hours – no snoring, looked different – light on, pale – called Code Blue…..

• CPR 40mins, then declared dead
Clinical Experts opinion

• Patient Opiate naïve.

• Due to IV Morphine, SC Morphine, Oral Morphine, Slow Release Morphine, Oxycodone and Slow Release Oxycodone – complex to understand the effect of the patient, but can be done.
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Clinical Experts opinion

• Opiate prescribing was excessive

• 1800 hours on 10th - Gabapentin – sedative properties added to the sedating properties

• ED desaturation probably due to morphine sedation worsening partially treated OSA

• SaO2 varied on 10th – 0400 hours: 91% - 0800 hours: 88% - 1130 hours: 93% - 12MN: 90% - consistent with excessive sedation and worsening OSA or aspiration

• A combination of the sleep apnoea, with SR Oxycontin and oral Ordine and Gabapentin peaking half-lives all around 12MN on 10th -0100 hours on 11th July caused deterioration.
Autopsy

- Mild swelling of the brain – no obvious cause of death, cause of headache remains unclear
- Histological evidence of acute aspiration pneumonia
- Acute pneumonia - ?0800 hours on 10/7 was an aspiration event – most likely caused due to an opiate effect causing a reduced level of consciousness impairing his ability to protect his airways.
- **Toxicology:**
  - **admission blood** – Diazepam, Sertraline, Ritalin in non-toxic levels
  - **post mortem blood** –
    - **Therapeutic:** Gabapentin, Ibuprofen, Paracetamol, Ritalin, Sertraline, and Diazepam.
    - **Above therapeutic, but below toxic:** Oxycodone.
    - **Well within Lethal range:** Morphine.
  - While morphine levels interpretation is problematic as individual responses vary greatly, with no regular use of such drugs he would have been more susceptible to its effects.
Cause of Death

• A result of opiate toxicity, from both the combined effects of aspiration pneumonia and the immediate toxic effects of opiates on the central nervous system and respiration.

• The cause of headache is not able to be established
Other implications for nursing – following protocols and documentation

Although Dr Brockett and Drs Denaro and Lavercome consider they would have been expected to have been called when oxygen saturations went below 92%, that is not the instruction that guided nurses according to the MEWS tool, which also did not alert staff to conduct closer observations. As well there was no specific instruction from Dr Brockett to do so.

This should have been apparent that nursing staff felt they could interrupt Dr Brockett's crusty personality and give an impression that they were doing what they were asked to do.

Progression of his pain and oxygen saturation levels.

EEN Meadowfair did record his oxygen levels to be at 90% at midnight on 10 July. She did not record what action was taken, including if she provided oxygen. She said that was her practice as required under the MEWS chart guidelines, but there is no mention of her taking that action in the medical records nor was this recorded in her statement taken within hours of the death. Michael was snoring heavily at the time. She makes no reference to waking him. In my view it is more likely than not that EEN Meadowfair did not apply oxygen at that time.

This moment was a critical time according to the findings of the RCA and the
Other implications for nursing – communication

• Previous areas notes/observations not included in assessment

• Dr B found it hard to find individual nurses to communicate with

• Open ended, broad questions – “Have you ever had any operation?”

• Escalation of observations: 10th – 0400 hours: 91% - 0800 hours: 88% - 1130 hours: 93% - 12MN: 90%

• Medication orders – Know the rules, beware the dose with a range

• Always reassess how the medication affects the patient (standard nursing process to evaluate treatment and adjust care plan), then document that this has occurred.
What did the RCA say?

- Nurses failed to recognise and respond to early signs of deterioration (SpO2 90% on 10th July 12MN), that may have contributed to Michael’s unexpected death.

- Despite the patient continuing to complain of a headache throughout the admission, with no focal neurology, and because the RNs were treating this with opioids as prescribed, no focused assessment of pain management was considered by the RNs, which may have contributed to the patient’s unexpected death.

- System failures – a lack of escalation process for clinical observations undertaken by ENs. Handover must include pain management.

- Staff failure to administer oxygen when O2 level below 92% in line with MEWS form.

- Staff unaware that patient had Obstructive Sleep Apnoea

- Permanent night staff not up to date with mandatories including Standard 9

- Practice Partnership Model of Nursing Care - Due to receiving separate handovers, RNs were only aware of their own patient load, and confusion over who the TL was
Changes

- Pain framework (including use of PCAs for ongoing pain management, and continuous monitoring) created by Morbidity and Mortality review
- PPM – ongoing, but handover is being reviewed; documentation of who TL is
- Staffing – No EENs on night shifts, permanent night staff must work 4 weeks per year on day shift. Each clinical ward now has an educator.
- Adoption of new Adult Deterioration Escalation Chart (including ED for communication)
- Clear guidelines about *rounding* on all shifts
- Review of patient history forms, pain assessment, and management of deteriorating patient
- Review of oxygen therapy - new stand alone policy, more continuous monitoring machines
Gone, but not forgotten
Have you ever looked at the Coroner’s Court findings?

We all know these, right?
Where can I found free training?
Glad you asked!

https://www.nps.org.au/

For corporates
- Specialists in aged care pharmacy that know and appreciate the needs of the industry
- Systems that enable corporate office to analyse and measure resident outcomes when it comes to medicines

For doctors
- Time-saving script management systems for busy GPs
- Continuity of supply that supports residents’ health

For facility staff
- Clinical support and medication supply that covers facilities 24-hours a day, seven days a week
- Onsite training that supports best practice in medication administration

For residents
- Safe and accurate medication sachets with an exceptionally low error rate
- Cost-effective generic substitution that recognises the financial needs of residents
References

• Photos from Courier Mail
• NIMC User Guide 2016
• “Inquest into the death of Michael James Calder”, Findings of John Lock, Deputy State Coroner.