

Lessons for Learning Diagnostic Error

Background

The Clinical Excellence Commission (CEC) Serious Incident Review (SIR) Sub-Committees consist of multidisciplinary clinicians who review serious incidents to identify key learnings, emerging risks, and patient safety issues with broader implications. One of their key roles is to recommend actions to mitigate potential patient safety risks.

What reviews are telling us: System challenges involving diagnostic error

The Clinical Management SIR Sub-Committee has identified recurring themes involving **diagnostic error**. “Diagnostic error” refers to a diagnosis that is **missed, incorrect or delayed**, often caused by system issues and cognitive aspects of the diagnostic process. This resource has been developed to support clinicians and healthcare services by sharing learnings, case insights and practical strategies to strengthen clinical responses and promote system improvements. Serious incident reviews have identified the following learnings:

Structured assessment and pathways: Diagnostic error can be reduced by using structured clinical pathways and checklists to guide systematic assessment. Tools such as the Emergency care assessment and treatment ([ECAT](#)) protocols and [sepsis pathways](#) should be consistently applied to reduce variation and anchor against cognitive shortcuts.

Dynamic diagnostic review: Clinical presentations evolve, requiring ongoing reassessment and consideration of differential diagnoses. When patients deteriorate, fail to improve or the trajectory of illness deviates from what is expected, it is helpful to take a step back and ask, ‘*What else could it be?*’, ‘*Are we missing anything?*’ and to repeat key investigations when clinically indicated.

Recognition and escalation of red flags: Subtle red flags, such as persistent severe pain, increasing analgesic requirements, new or increasing confusion or changes in behaviour, mild hypoxia, and non-specific deterioration, require active consideration and escalation, even when initial investigations are inconclusive.

Diagnostic stewardship: Actively engage and consult with colleagues, speciality teams and patients and their families to help support shared decision making. Including others in critical thinking and diagnostic processes helps to reduce cognitive load and potential anchoring.

Safe handover and communication: Diagnostic plans should be clearly communicated during handovers, including differential diagnoses, alternative considerations, and explicit escalation plans, particularly during weekends or periods of reduced staffing.

Managing cognitive biases: Anchoring, omission, or confirmation bias can contribute to diagnostic errors. Clinicians should reflect on their decision-making, seek second opinions when uncertain, and use debriefing to learn from near misses and incidents.

Human factors and system design: Factors such as high workload, fatigue, interruptions, and inadequate supervision contribute to diagnostic error risk. Systems should support manageable workloads, reflective practice and a culture that enables open discussion of diagnostic challenges.



Key messages for safer practice

- Ask “what else could it be?” to reduce anchoring and confirmation bias
- Use structured assessment pathways and checklists to support diagnostic processes
- Recognise red flags and escalate when uncertainty persists
- Reflect on personal cognitive biases during diagnostic decision making
- Leverage teamwork and collective vigilance through safety huddles and structured handovers to help reduce anchoring and cognitive load

Case 1: Anchoring bias in headache presentation

A patient was diagnosed and treated for migraine after presenting with the “worst headache of their life”, nausea, vomiting, blurred vision, right-sided tongue deviation and paraesthesia in their lower limbs with no previous history of migraines. They were discharged home with GP follow up. Two weeks later they were brought in by ambulance following a seizure. Imaging revealed a subarachnoid haemorrhage from a ruptured cerebral aneurysm requiring emergency surgical intervention and inpatient neurological rehabilitation.

Lesson: Utilising appropriate clinical pathways and checklists to support systematic assessments can reduce diagnostic anchoring and biases and ensure ‘red flags’ are considered. Be receptive to how new information may change or alter a patient’s diagnosis to reduce the likelihood of diagnostic anchoring and confirmation bias.

Pathways and checklists reduce diagnostic anchoring and biases

Case 2: Omission bias leading to delayed diagnosis

A patient was admitted with exacerbation of peripheral neuropathy with other symptoms that were not acute and considered unrelated. Their presentation did not clearly align with a specific diagnosis, leading to a “wait and see” approach without a clear working diagnosis or escalation plan. The patient deteriorated with multiple new issues that were not escalated. The patient died of multiple pulmonary emboli, ischaemic colitis, and multi-organ failure.

Lesson: Adopting a “watch and wait” approach when investigations are inconclusive and delaying diagnosis places patients at risk. Use shared decision making with other speciality teams, have clear escalation points with scheduled reviews to avoid unexpected deterioration.

Ensure all patients have a working diagnosis

Case 3: Missing red flags in a shoulder pain presentation

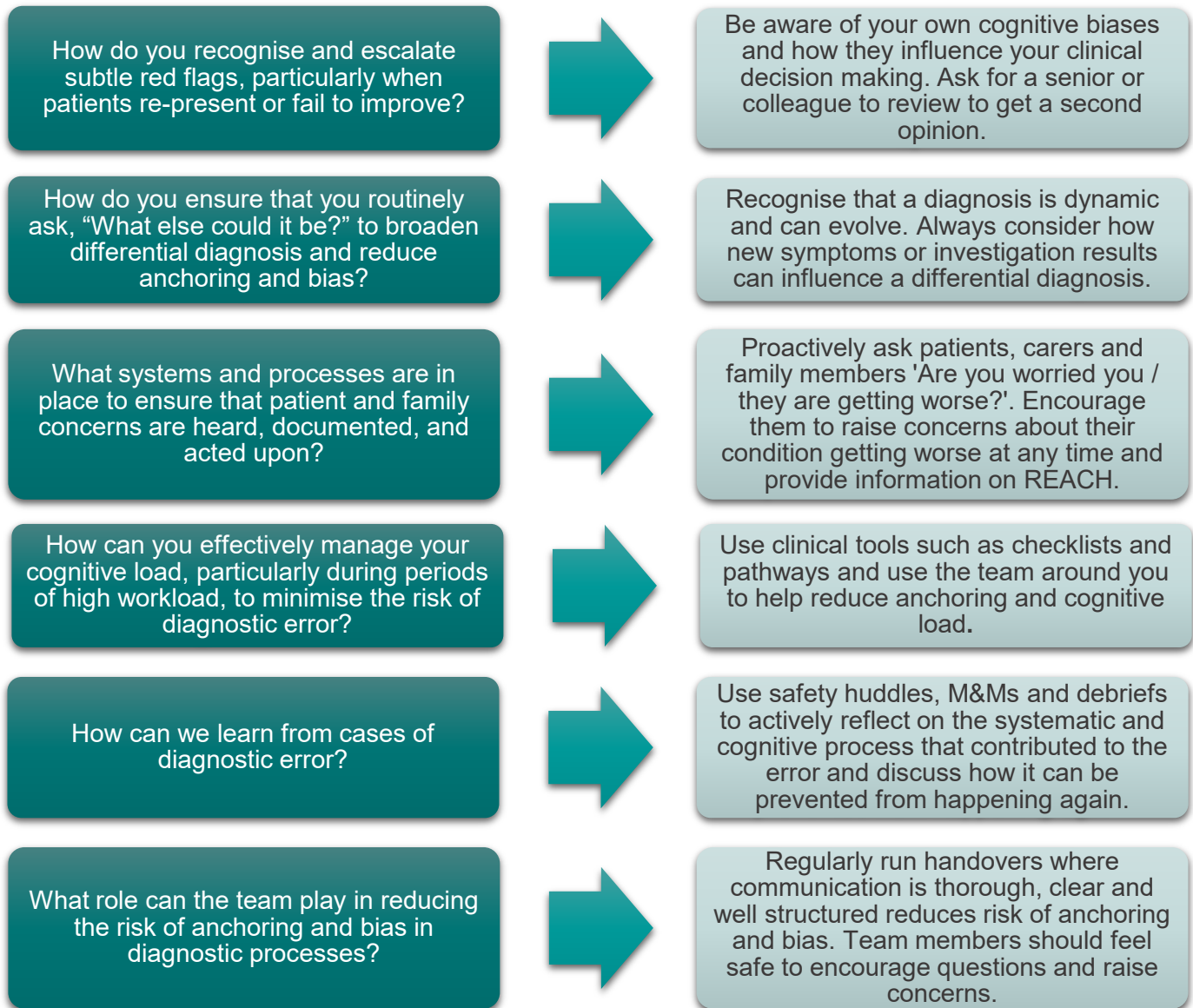
An older patient presented to ED with severe shoulder pain following heavy lifting, reporting ongoing discomfort despite analgesia. The patient’s family requested an ECG, which was reported as normal despite subtle ST changes present. The patient was discharged for GP follow-up. A few days later, the patient suffered a cardiac arrest and died despite resuscitation attempts. Post-mortem findings revealed an acute myocardial infarction.

Lesson: Diagnostic error can occur when clinical ‘red flags’ are missed or disregarded, particularly when these ‘red flags’ don’t fit the diagnosis. Keep a broad diagnostic sieve, be aware of internal biases and potential anchoring to ensure ‘red flags’ are considered and always seek a senior or colleague to review to provide fresh eyes when something doesn’t make sense.

Missed ‘red flags’ can lead to diagnostic error

Reflective prompts for teams and services

Consider these prompts during clinical governance meetings, [Safety Huddles](#), [Morbidity and Mortality Meetings](#), and local quality improvement planning:



Resources

Clinical Excellence Commission. (2015) [Diagnostic error](#).

Clinical Excellence Commission (2015). [Diagnostic Error: Learning Resources for Clinicians](#).

Clinical Excellence Commission. (2024). *Safety and Quality in Action Podcast: What else can it be? Preventing harm from diagnostic error in NSW Health facilities* [Podcast]. (Listen on [Apple Podcasts](#) and [Spotify](#))

Gunderson, C. G., Bilan, V. P., Holleck, J. L., et al. (2020). [Prevalence of harmful diagnostic errors in hospitalised adults: A systematic review and meta-analysis](#). *BMJ Quality & Safety*, 29(12), 1008–1018.

Newman-Toker, D. E., Peterson, S. M., Badihian, S., et al. (2022). [Diagnostic errors in the emergency department: A systematic review](#). *Comparative Effectiveness Review No. 258*.

NSW Health. (2019). [Clinical Handover policy directive](#) (PD2019_020).

NSW Health. (2020). [Incident management policy directive](#) (PD2020_047).

Singh, H., Graber, M. L., Kissam, S. M., et al. (2012). [System-related interventions to reduce diagnostic errors: A narrative review](#). *BMJ Quality & Safety*, 21(2), 160–170.

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