Insights into how AI-biases impact rural and remote nursing

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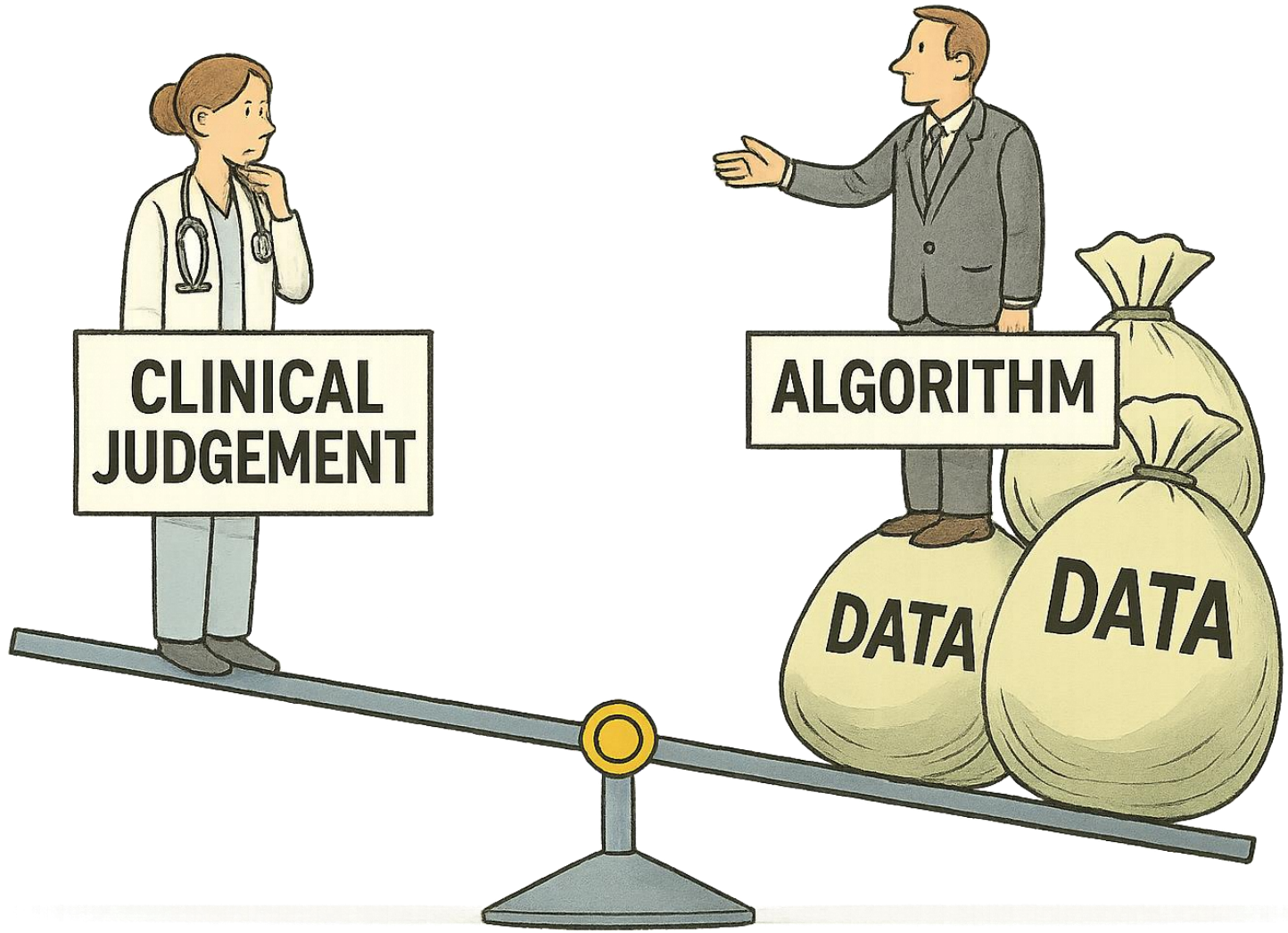
Where does responsibility sit?

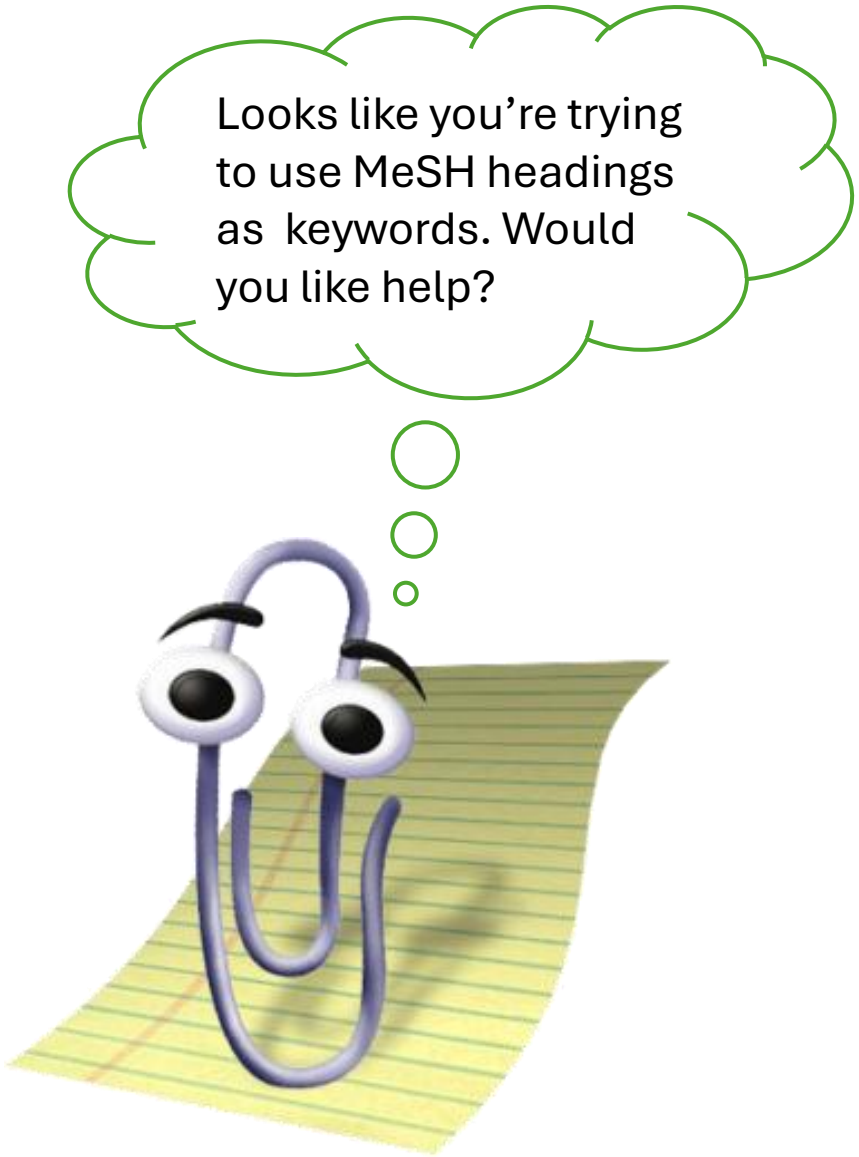

CLINICAL JUDGEMENT
ALGORITHM
DATA
DATA

Digital deserts

- National databases ≠ national reality
- Remote and ACCHO significantly under-reported
- Absence = assumptions
- Misrepresentation of risk, acuity, and resources

If the data doesn’t see us, the algorithm won’t serve us.

Hello, is it MeSH you're looking for



No MeSH for 'remote'*

MeSH for *Aboriginal and Torres Strait Islander peoples* didn't exist until 2023 **

Remote practice/nursing/health is indexed as 'rural'***

PubMed uses AI and ML principles to connect terms to related populations i.e. occasionally, studies including MeSH term 'nurse OR nurs*' will include MeSH 'female' by proxy****

***** If you fancy an existential crisis, jump into PubMed and apply the *Yale MeSH! Analyzer* and prepare to be bitterly disappointed at how metadata works


RURAL/REGIONAL
HEALTH PRACTICE
INDEXING
SYSTEMS
REMOTE
HEALTH PRACTICE

	CKD-EPI (eGFR equations)	**CURB-65 (Pneumonia severity)**
Purpose	Risk stratification and staging of chronic kidney disease	Predict mortality and guide disposition in pneumonia
Datasets used	Predominantly US and European cohorts; hospital-based, urban populations	UK hospital cohorts; urban emergency departments; moderate-acuity settings
Populations underrepresented in original dataset	Indigenous peoples; remote populations; people with high comorbidity burden; non-urban care models	Remote and very remote populations; Indigenous patients; settings with delayed retrieval and limited diagnostics
Impact on clinical decision-making	Unnecessary labelling, referrals, anxiety, and long-term disease burden	Delayed transfer, under-triage, false reassurance in high-risk patients
Impact on nurses	Nurses must interpret numbers that do not match clinical presentation or lived context	Nurses must override scores to advocate for retrieval or escalation
Key lesson for AI and tools	A tool can be mathematically “accurate” and still clinically unjust – resulting in bias and perpetuate harm	Validation in one context does not equal safety in another. Tool misfit pushes ethical and safety burden onto clinicians

Algorithms don’t absorb the consequences.
Nurses do.

Remote health practice

Recommendations for validating AI and CDSS tools in remote practice

- **Define the remote context**
  Geography, retrieval times, staffing, resources
- **Interrogate assumptions**
  What does this tool expect that we don't have?
- **Validate in remote populations**
  Consider data aggregation and validity in remote communities
- **Identify misfit**
  Under- or over-prediction of risk
- **Recalibrate**
  Adjust thresholds, weights, or variables
- **Embed Indigenous governance**
  As leadership, not a checkbox
- **Build continuous feedback**
  Because remote practice is dynamic

Putting it together

Validated in urban settings + Used without recalibration =
Risk shifts to nurses

But in remote health, ethical integration is **relational**, **contextual**, and **community-driven**

Failure to do so is a **clinical safety issue**,
a risk to our clients,
patients,
and our practice

Take home points:

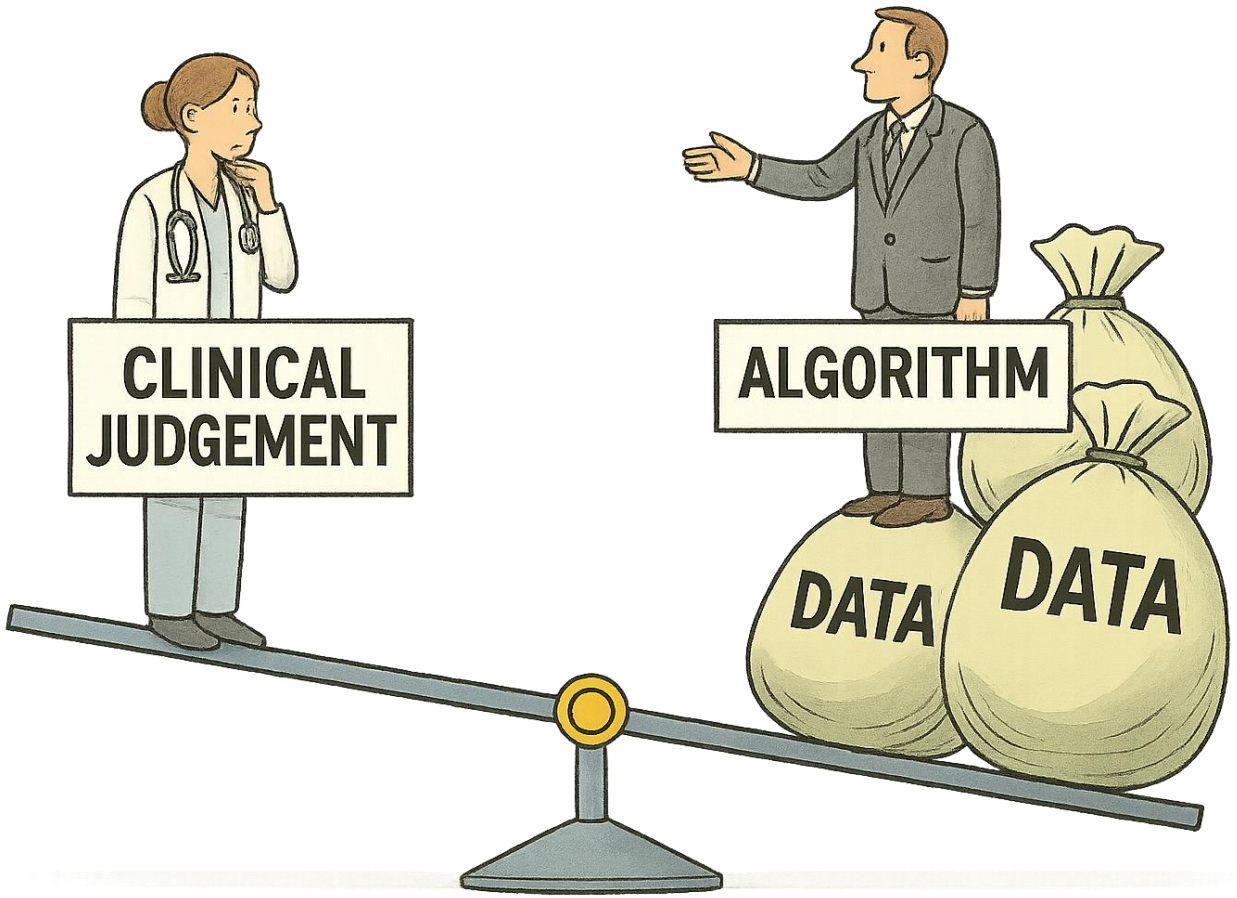
Clinical decision-support systems and AI-integrated tools built for urban cities cannot be assumed safe in remote Australia

Data deserts create algorithmic bias — and that bias becomes clinical risk

Remote nurses must critically analyse the implementation of CDSS into practice

The future of equitable AI in clinical practice requires remote voices, Indigenous leadership, and context-specific governance

“If the data doesn’t see us, the algorithm won’t serve us.”



Any questions?

Thanks for having me.

For complete references, more examples, an e-coffee, chat, or if you'd like do some research +/- fund my studies:

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