EBM in the report cycle

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RCPA Management Course June 2019

Request Test Report Cycle

- Many opportunities to evaluate practice
- To ensure quality tools are used to best evaluate change

- Practical evidence of time saved, results reported, turn around time always needs to be reflected in a risk based approach
- Often evidence is collected along the way
- “Corporate memory” often critical

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Request Test Report Cycle

- Where is there evidence for what we do?
- What evidence do we need and how do we capture it?
- What are the unmet needs that will provide improved quality healthcare outcomes?

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EBM

- Not just test evaluation
- Not just RCT
  - These are largely not applicable to pathology or business in general
  - Despite certain Australian Devotees ideas other ways of evidence gathering exist
  - N of 1 concept
  - Does a change in process achieve a useful measurable outcome

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Quality framework

- Milan hierarchy for analytical quality in all phases of laboratory testing

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	Pre-pre Analytical	Pre-analytical	Analytical	Post-Analytical	Post-Post Analytical
Clinical Outcome	Choose Tests that Improve outcome	Prevent errors	Clinical Outcome	Reports That facilitate Outcome	Clinical Action that Improves outcome
Identify abnormality	Choose tests likely To be Abnormal	Detect errors in Patient sampling or ID	Biological Variation	Harmonised Ref intervals Define abnormals	Clinical action in response to abnormal
Peer Based Standard	Consistent With peer based Requesting	Consistent with peer based sampling	State of the art	Consistent with peer based reports	Consistent with peer based clinical action

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The hard part is first

- The referrer
  - Even working out who they are and where they are
  - If you don't have the disease ordering a test to evaluate it cant help
  - But enabling the correct tests to be ordered is part of the request test report cycle

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The Test-Request-Report-Cycle

- The first part is where pathology must now take a leadership role
- It is the area with most “error”
  - Plane crash analogy
- I.e. the requestor deciding to order a test

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Clinical Decision Support

- Politically we must be involved post MBS review
- Pre Pre Analytical
- Post Analytical

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- Compliance with guidelines is low
  - Too many
  - Too complex
  - Often contradictory
  - Often patients too complex

- In all other industries these types of approaches have yielded benefit

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Pre pre Analytical

- Alerts
  - Frequency
  - Shown to reduce FBC in multiple settings
  - Also reduces add on testing
    - Iron, b12, folate etc
- Order Sets
  - Clinical indication : ESR (40% reduction)
- Order Cascades
  - Coagulation investigation

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Post Analytical

- Targeted expert feedback
  - Pathologist/scientist alerts when coag investigations started
  - Maybe computer AI generated
  - Is time consuming and expensive and in many systems impractical
  - Blood usage nursing very effective (TPCH)

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Pre-pre analytical

- Syndrome/Situation based CDS
  - Clinical scenario
    - Can encompass algorithm based reflex cascades
  - Need to engage referrers
  - Models run by Sonic suggest efficacy in GP practice
    - Hard to design proof they alter outcome
    - Alter test numbers and increase test accuracy based on guidelines (may not be evidence based)

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Ordering the test

- Electronic
  - Decreases lab errors by 90%
    - Wrong test, wrong tube, wrong doctor, wrong copy doc
  - Doesn't decrease pre pre analytical issues

- Most non-pathology collects
  - Errors are easily preventable
  - Care factor in clinicians often low
  - Need to be provided with plans if going to change

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Pre-labelling samples

- Solutions must be found
- Potentially devastating complications
  - Occur daily in all areas
  - Blood, small biopsies

- Surgical checklists have enhanced surgery safety
- Same can occur in pathology collects

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Pre-analytical

- Quality framework
  - Risk based approach
- Collection
- Timing
- Batching
- Courier systems vs Centrifugation of samples
  - K+ and Glucose
  - Temperature
  - A lot of unknown in this in all aspects

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EBM in Analytical phase

- Quality based enhanced turn around time
  - Enshrining workflow, scientist time, skill mix
- Sample identification
  - Minimal handling
  - In-situ labelling
  - Barcoding, RFID tagging

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Evidence

- Errors decline with tracked specimens
- Can feedback to clinicians live
- Promotes understanding of testing and perhaps utilisation of tests

- True evidence real time tracking impacts patient outcome …..
- Impacts correct ordering and collection
- Traffic light systems or “the pizza app”

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Real time lab monitoring of testing process

- Is possible in track systems
- Reduces missed tests
- Reduces lost runs

- Is it cost effective or effort effective?

- It is quality effective
- In the lab any test error probably costs the same as four to five other tests in biochemistry

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As an aside and for fun here are the Dominos graphics of the pizza making update process:

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Post Analytical

- How do we ensure the impact not just the result are communicated to the referrer

- Font, size, colour, display
- Red for alert
- Push notifications

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- upto 30% of pathology report information was incorrectly specified by clinicians even when the had the reports to read

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Four formatting principles

- Use headlines to emphasize key findings
  - Top vs bottom
- Maintain layout continuity
  - One study showed a change in format resulted in 17-54% increase in recall errors

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- Optimise information density
  - Different reporting structures may help different referrers

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A

ENDOMETRIUM: WELL DIFFERENTIATED ENDOMETRIOID ADENOCARCINOMA (FIGO 1), ARISING IN A BACKGROUND OF ATYPICAL HYPERPLASIA. ENDOCERVIX FREE.

B

ENDOMETRIUM: ENDOMETRIOID ADENOCARCINOMA (FIGO G1).

Atypical hyperplasia is present.
Endocervix not involved.

C

ENDOMETRIUM: ADENOCARCINOMA.

Histologic type: Endometrioid
Histologic grade: Well differentiated (FIGO 1)
Non-malignant endometrium: Atypical hyperplasia
Endocervix: Not involved

D

ENDOMETRIUM: CANCER.

Cancer type: Adenocarcinoma
Histologic subtype: Endometrioid
Histologic grade: Well differentiated (FIGO 1)
Non-malignant endometrium: Atypical hyperplasia
Endocervix: Not involved

- Reduce clutter
  - Distractors
  - Disclaimers, NATA numbers
  - Too much information is bad
  - How much is too much?

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CIS

- May disassemble pathology reports
- PDF avoids this

- Structured reporting guidelines consider data sets not optics

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E-based pathology results

- Quicker to be able to be seen
- Easier to track
- Does it make a difference?

- Push notification at harm levels

- Need to time them
  - Need to have secondary failure to respond
  - Lots of issues with on call arrangements

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Post Post Analytical

- Acting on the result
- Much harder to show change in meaningful outcome
- Enhanced reports
  - Hovers
  - Embedded to clinical risk algorithm

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Potential

- Ability to show to clinician and patient the relevance and impact not the numerical value
- Ie what does a cholesterol of 10 mean?
- What does it mean if its now 8, 1 etc

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Test request report cycle

- Plenty of scope to investigate and think about gathering evidence for change in practice across the cycle
- Sometimes any change if consistent is worth it
- Sometimes its not

- Don’t lose sight of who is going to benefit

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Unmet needs

- CDS
  - Pre pre analytical
    - What should be ordered?
  - Post analytical
    - What does this mean
- What should I do with this result to make the best clinical impact on the question I was asking?

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