An exploration of Blockchain and its applicability to health professional education, credentialing & research

Disclosures:

Ian Graham  MBBS, M Health Planning, Cert. Essential Skills in Medical Education, FRACMA

- Director of Professional Affairs - ANZCA
- Executive Director of Medical Services - East / West Wimmera Health Service
- Consultant - SED Clinical Education Practice and Learning
- Member, Board of Directors - MedBiquitous
- Co-founder and inaugural President - HISA

No other affiliation (financial or otherwise) with any pharmaceutical, medical device, information technology or communications organisation

Goal: Achieving ‘mutually assured disruption!’”
What I like about Blockchain . . .

- **Distributed ledger** - avoiding central management & storage
- **Interoperability** - connectivity
- **Self-sovereignty** - user control
- **Transparency & provenance** - capacity of parties to transact
- **Immutability** - permanent, append only
- **Trust** - confidence in the infrastructure, privacy & governance


What I like about Blockchain . . .

- Recording of every **transaction** in a time period
- Recognition of **value** including non-financial (e.g. education, information)
- Grouped together in a **block**
- Blocks ‘**chained**’ together in chronological order
- Reminiscent of the base pairs in a DNA double helix

Blockchain in health professional education

- Competency Based Medical Education (CBME)

Undergraduate (Universities) → Prevocational training (Hospitals) → Vocational training (Colleges)

Distributed ledger ◆ Interoperability ◆ Self-sovereignty ◆ Transparency ◆ Immutability ◆ Trust
Blockchain in health professional education

- Competency Based Medical Education (CBME)
- Competencies & Learning Outcomes

**AR_PF 2.2**
Describe how the history and culture of various indigenous populations impacts upon their current health status, education and communication

Role: Professional
Assessment: CPRQ, FEx

**IT_AM 2.3**
Demonstrate assessment of the Adequacy of ventilation and identify airway obstruction

Role: Medical Expert
Assessment: M-DOPS

**Australian and New Zealand College of Anaesthetists (2017) Anaesthesia Training Program Curriculum, Updated September, 2017**

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- Workplace Based Assessment


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### EPA No / Code:
- EPA1 – Anaesthesia 1

### Title:
- Provide safe, efficient and effective anaesthesia and sedation for ASA I-II patient having low risk surgery with Level 4 supervision

### Description:
- This activity involves providing general anaesthesia, regional anaesthesia and sedation to low risk patients (ASA I-II) - including emergency patients - for minor or intermediate complexity surgery. This is a core anaesthetic skill. It involves integration of knowledge (pharmacology, physiology, anatomy), technical skills (airway management, intravascular access), and non-technical skills (patient and team communication, collaboration, professionalism).

#### Workplace Based Assessments
- **Knowledge**
- **Skills**
- **Behaviours**

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- **Competency Based Medical Education (CBME)**
- **Competencies & Learning Outcomes**
- **Workplace Based Assessment**
- **Entrustable Professional Activities**

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- Entrustable Professional Activities
- EHR / monitors / simulators

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- Experience data (xAPI / Tin Can API)

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- Experience data (xAPI / Tin Can API)
- Lifelong portable portfolio

Distributed ledger ◆ Interoperability ◆ Self-sovereignty ◆ Transparency ◆ Immutability ◆ Trust
Blockchain in credentialing / scope of practice

- Verification of identification, qualifications & certifications
Blockchain in credentialing / scope of practice

- Verification of identification, qualifications & certifications
- Documenting clinical / teaching experience & currency of practice
Blockchain in credentialing / scope of practice

- Verification of identification, qualifications & certifications
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- Entrustable Professional Activities

<table>
<thead>
<tr>
<th>General perioperative Care 3 (Algemene Perioperatieve Zorg 3)</th>
<th>Intraoperative care for patients without relevant comorbidity undergoing low risk procedures</th>
<th>Perioperative zorg bij patiënt zonder relevante comorbiditeit bij laag risico ingreep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detailed description (Geëtallieerde beschrijving)</td>
<td>Anesthetic care, including interpretation of preoperative findings, risk assessment, execution of anesthetic techniques and monitoring, up until and including direct preoperative care, for patients without relevant comorbidity undergoing low risk procedures. Adequate collaboration with other specialties, consultant anesthesiologist, anesthetic nurses, members of the theatre-team, as well as nurses from recovery and ward.</td>
<td>De anesthesiologische zorg, inclusief interpretaatie van preoperatieve gegevens, risicoevaluering, uitvoering anesthesie technieken en monitoring, tot en met directe preoperatieve zorg, bij patiënten zonder relevante comorbiditeit bij laag risico ingreep. Adequate samenwerking met andere specialistes, arts, anesthesie-natuurkundigen, ondersteunende, alsmede medisch personeel van de verlos- en verpleegafdelingen.</td>
</tr>
</tbody>
</table>

Intercollegiate Collaboration on CBME in Anaesthesia (2018) Draft Entrustable Professional Activities (EPAs), University of Utrecht, The Netherlands

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- Managing appointments / reappointments & scope of practice

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Blockchain in health / clinical research

- Local, regional, national and international multicentre trials / Human Research Ethics

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Blockchain challenges

- Trust (MyHR)
- Explaining the principles of Blockchain
- Gaining consensus across jurisdictions, Colleges, universities, regulators
- Going beyond Bitcoin
- Challenging centralised authority
- Challenging traditional vendors
- Driving the standards agenda
- Herding cats and facilitating flamingos!

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Blockchain challenges

Health professional education
Credentialing / scope of practice
Health / clinical research

Thank you

Dr Ian Graham
igraham@anzca.edu.au

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