IS BIOSCIENCE CRITICAL TO CRITICAL CARE NURSES?

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Your patient is complaining of chest pain and looks unwell. A cardiac rhythm strip reveals: absent P waves, rate of 170 - 180, regular and broad QRS complexes.

What do you think this rhythm is?
IS BIOSCIENCE CRITICAL TO PRACTICE?

• Of course it is.
• The expertise of CCNs is central to quality patient care.
• Sub-optimal bioscience knowledge of registered nurses has been consistently correlated with avoidable morbidity and mortality.
• Why, then has the bioscience problem in pre-registration nursing curriculum continued for decades?
THE BIOSCIENCE PROBLEM

• Bioscience encompasses a wide spectrum of subjects such as physiology, pathophysiology, pharmacology and microbiology.

• However, bioscience content has been declining in pre-registration curriculum.

• Challenge to achieve adequate quality and quantity in HEIs with high failure rates.
• Nursing has moved from a medical model to social & behavioral sciences (1980s & 1990s).
• Survey of HEIs to determine taught biosciences ranged from 20-113 hours (4600 hours of course time).
• NMC pre-reg standards (2018).
Lack of underpinning physiology and pathology knowledge

Low recognition of significant risk factors

Poor pharmacology knowledge

Care is described as ‘routine and automatic’

Adherence to algorithms or protocols generates rule following behaviour

Time spent revisiting or introducing key bioscience concepts to meet Step Competencies
A SMALL STUDY

• In critical care, there is limited empirical research on biological science knowledge.

• A quantitative study to investigate confidence levels and knowledge of physiology and pathology in critical care nurses.

• The findings and identification of preferred teaching methods have guided subsequent curriculum development.
• What is the measured knowledge, confidence levels and preferred teaching methods of bioscience in Critical Care Nurses (CCNs) working within the private health care sector in the UK?
Online survey issued to convenience sample of ICU nursing workforce (n=188)

Comprised of

- Likert scale questions to capture self-rated knowledge and relevance to practice.
- Eighteen MCQs assessed basic physiology and pathophysiology seen in critical care.
FINDINGS

- Response rate of 18%
- Respondents were:
  - Senior in ICU experience
  - Majority (81%) held post grad ICU qualification
  - Over half completed pre-reg qualification overseas
- Majority self-rated bioscience knowledge as good and above.
- Highly valued bioscience
- Requested more teaching
RHYTHM STRIP QUESTION

- Atrial fibrillation
- Sinus tachycardia
- Ventricular fibrillation
- Ventricular tachycardia
- I don’t know

One third of respondents scored incorrectly
FINDINGS

- MCQs assessed basic physiology and pathophysiology seen in critical care
- Overall mean knowledge score of 55% (ranging from 33% to 83%)
- Participants scored poorly (<50%) across systems

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DISCUSSION

• Results aligned with literature review and recurrent themes identified
• Knowledge decay
• Unit culture influences knowledge
• Practical strategies to enhance bioscience knowledge, maintain competence and build a culture of learning
WHAT IS NEEDED

• Explicit national professional guidance.
• An adaptable curricula that can meet scope of practice.
• Raise the profile of biosciences.
• Further investigation of the interplay between bioscience knowledge and delivery of care.
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G. Chaucer
The Parliament of Birds