

## HARM MODULE

### Objectives:

At the completion of this module, learners should:

1. Be able to assess the validity of an article on 'Harm' (aetiology).
2. Be aware of the limitations of observational studies.
3. Be able to interpret the results of these study types.
4. Be able to apply the results of observational studies to patient care.

### Scenario:

You are the attending physician in the emergency department, and have just seen a 2-year-old boy, Robert. He has presented after his first, uncomplicated febrile fit. He is now well, his fever has resolved, and there are no abnormal neurologic signs. While you are perfectly happy to treat Robert without any imaging - unfortunately, his parents are not.

Robert's parents believe a brain CT is needed – *“to be certain that a brain tumour has not caused the fit”*.

You are just about to have a chat to them to outline the risks of unnecessary irradiation – but you decide to check on the evidence to make sure your facts are accurate, as you are not familiar with the current literature on this topic.

- You decide to do a quick literature search to see what is available.
- You formulate your 'PICO' question: In **children** who have a **CT scan** of the **head** is there an increased **risk of subsequent brain tumours**?

Using PubMed, Clinical Queries, and utilising aetiology (harm) / broad search, you insert following search terms: **childhood** and **CT scan** and **brain cancer**. This results in a total of 47 titles.

Scanning the first three or four you notice a very large, recent study in over half a million exposed children, and decide this deserves a closer look...“Cancer risk in 680,000 people exposed to computed tomography scans in childhood or adolescence: Data linkage study of 11 million Australians.” BMJ, 2012.

### Resources:

1. **Paper for appraisal:**  
“Cancer risk in 680,000 people exposed to computed tomography scans in childhood or adolescence: Data linkage study of 11 million Australians.” Matthews et al; BMJ (2013) 346:2360.
2. **Suggested reading:**  
Levine M, Ioannidis J, Haines T, Guyatt G. Harm (Observational Studies) Ch 14. Pages 301-314. Guyatt G, Roman Jaeschke, Mark Wilson, Victor Montori, and Scott Richardson. What is evidence-based medicine. In Guyatt G, Rennie D, Meade MO, Cook DJ. Users' Guides to the Medical Literature: A Manual for Evidence-based Clinical Practice. 3rd ed. New York, NY: McGraw-Hill; 2015.
3. **Critical appraisal form:** For an article on Harm.