

Background:

- Podcasts are **digital audio recordings** that can be streamed or downloaded from online sources. The use of such audio recordings predates the internet in medical education and was first documented in 1968; the term “podcast” was coined in 2004, and its usage has grown since that time.
- Podcasts are increasingly being adopted in medical education to support the move **away from in-class lectures** and towards more **asynchronous, convenient, and self-directed forms of learning**.
- However, despite their increasing use in medical education, there is **little literature examining their effectiveness** in changing knowledge/practice outcomes for trainees.

Goals/Intention:

- In the course of preparing for numerous presentations at conferences and for grand rounds, the PsychEd Podcast team has accumulated and become familiar with a vast collection of articles focused on **podcasting in medical education**.
- Our goal was to **synthesize this literature** and communicate our findings for the benefit of the medical education and podcasting communities.



The effectiveness of **podcasting** in **medical education**: A systematic review

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Research Question:

What is the effectiveness of podcasts in **changing knowledge and practice outcomes** for medical students and residents?



Discussion:

- First systematic review on podcasting in medical education evaluating evidence for intervention **beyond participant reactions**
- While only two studies ultimately found to examine effectiveness on objective measures of learning, both found **significant effect as compared to didactic forms of education**
- Important gaps remain in current literature base:
 - Most studies evaluate podcasts that do not conform to definition as experienced by general population
 - Overrepresentation from procedural disciplines in medicine (i.e. emergency medicine, anesthesia, and surgery) limits generalisability of findings
 - No studies examining impact on higher levels of Kirkpatrick Model of evaluation (behavioural change, clinical outcomes)

Despite the rising popularity of podcasting across medical training, there is **little evidence to critically appraise this education intervention**. As podcasts continue to be adopted as tools for self-directed medical learners, it is **imperative that this educational intervention be better studied across the spectrum of medical disciplines and various stages of training**.

Methods:

- Systematic review conducted in accordance with PRISMA guidelines
- Searched multiple databases for articles comparing audio-only podcasts to other educational tools (e.g., lectures, websites, textbooks); reference lists of eligible studies and review articles searched to identify additional relevant studies
- Data extracted from included studies:** authors, publication year, study design, learner level, specialty/subject, sample size and group descriptions, podcast details (including episode length), learning and behavioural outcome measures used (including participant reactions), results, any reported study limitations

Results:

- Total of **3069** potentially relevant records retrieved by initial database search, with **2172** remaining to be screened after duplicates removed
- Of these, **all but two ultimately excluded**

Included Studies:

- Study:** Chin, A., Helman, A., & Chan, T. M. (2017). Podcast use in undergraduate medical education. *Cureus*, 9(12)
- Design:** Prospective study (N = 42)
- Type of learners:** Medical students
- Intervention:** Participants given podcasts on asthma and toxicology
- Outcomes:** Participants who successfully completed knowledge assessments demonstrated significant effect of learning in asthma (baseline score 60%, post-podcast score 76% (95% CI: 68-83) and toxicology (baseline score 62%, post-podcast score 82% (95% CI: 72-92)
- Study:** Lien K., Chin A., Helman A., Chan TM. (2018). A randomized comparative trial of the knowledge retention and usage conditions in undergraduate medical students using podcasts and blog posts. *Cureus* 10(1):e22065
- Design:** RCT (N = 65 total, 32 in intervention group)
- Type of learners:** Medical students
- Intervention:** Intervention group given podcasts on asthma and toxicology; control group given blog readings on same subjects
- Outcomes:** Both groups improved in knowledge of topics in post-test; intervention group showed statistically significant greater improvement in toxicology (p<0.01), but not in asthma