

Research Methodologies in Public Health Laidlaw Scholarship Programme 2025-26

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During Summer 2025, I had the incredible opportunity to work with Imperial School of Public Health experts on diverse research projects addressing major public health challenges: dementia care, school absence, and the impact of smartphone use on adolescents. An overview of this research is given below.

A systematic review on the impact of digital health technologies in the form of mobile applications in dementia or mild cognitive impairment

- Dementia affects 1 million people in the UK with care costs exceeding £42 billion.
- A systematic review was undertaken to determine the impact of digital health technology on care.
- Systematic reviews provide high quality evidence with minimal bias (figures 3,5).
- The Cochrane Online Learning Programme offers skills and tools for advanced evidence synthesis.
- An information specialist supported a precise, rigorous and reproducible search across multiple databases including foreign language papers.
- A PROSPERO protocol was published to improve transparency, enable peer scrutiny, and to prevent research duplication.
- Dual screening improved accuracy and minimised bias during title, abstract and full paper review.
- Covidence software streamlined decision-making, conflict tracking and quality assessment.
- A PRISMA summary was formulated (fig.1)
- Full results will be available on publication.

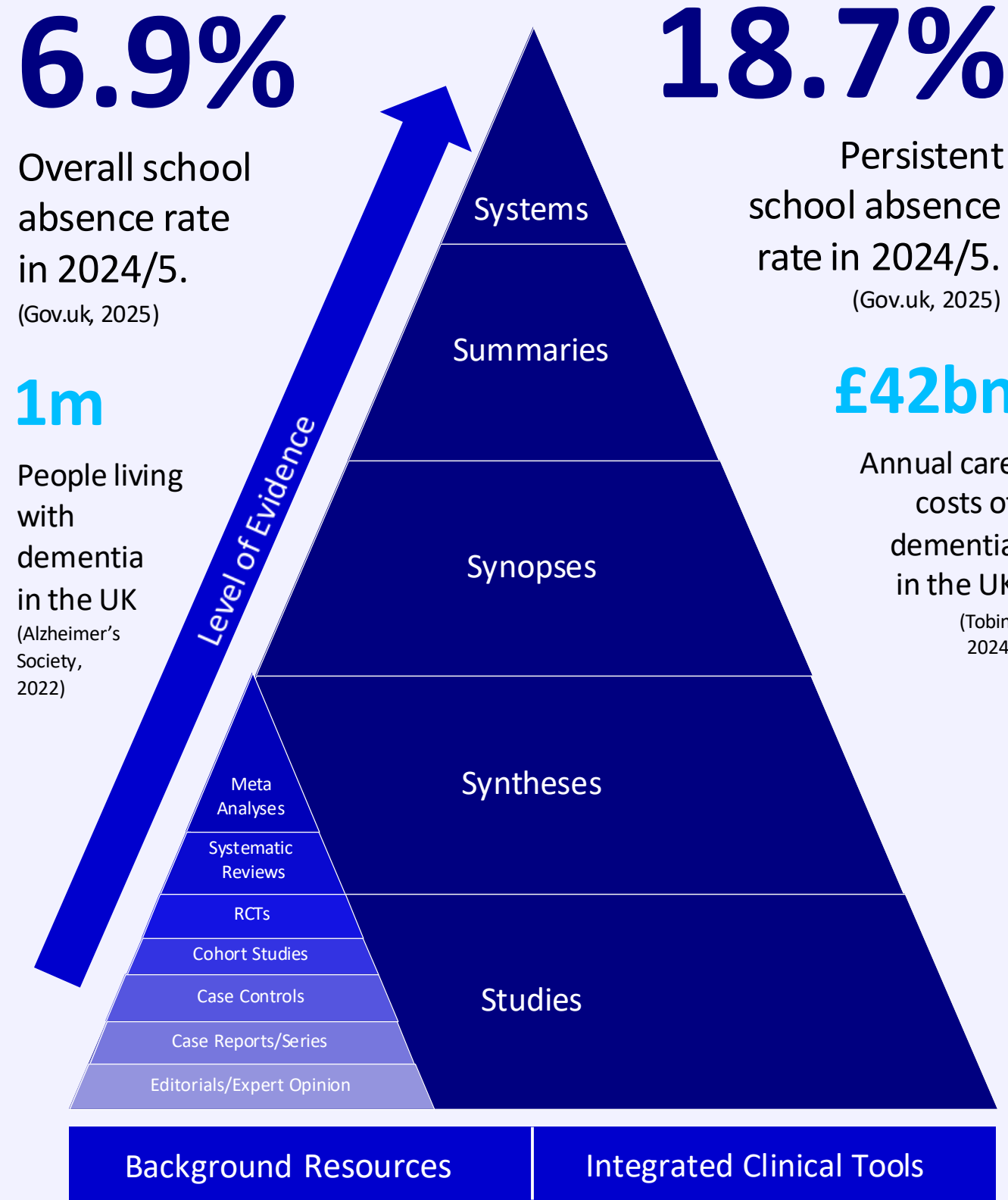


Figure 3: A hierarchy of medical evidence (adapted from Haynes, 2006)

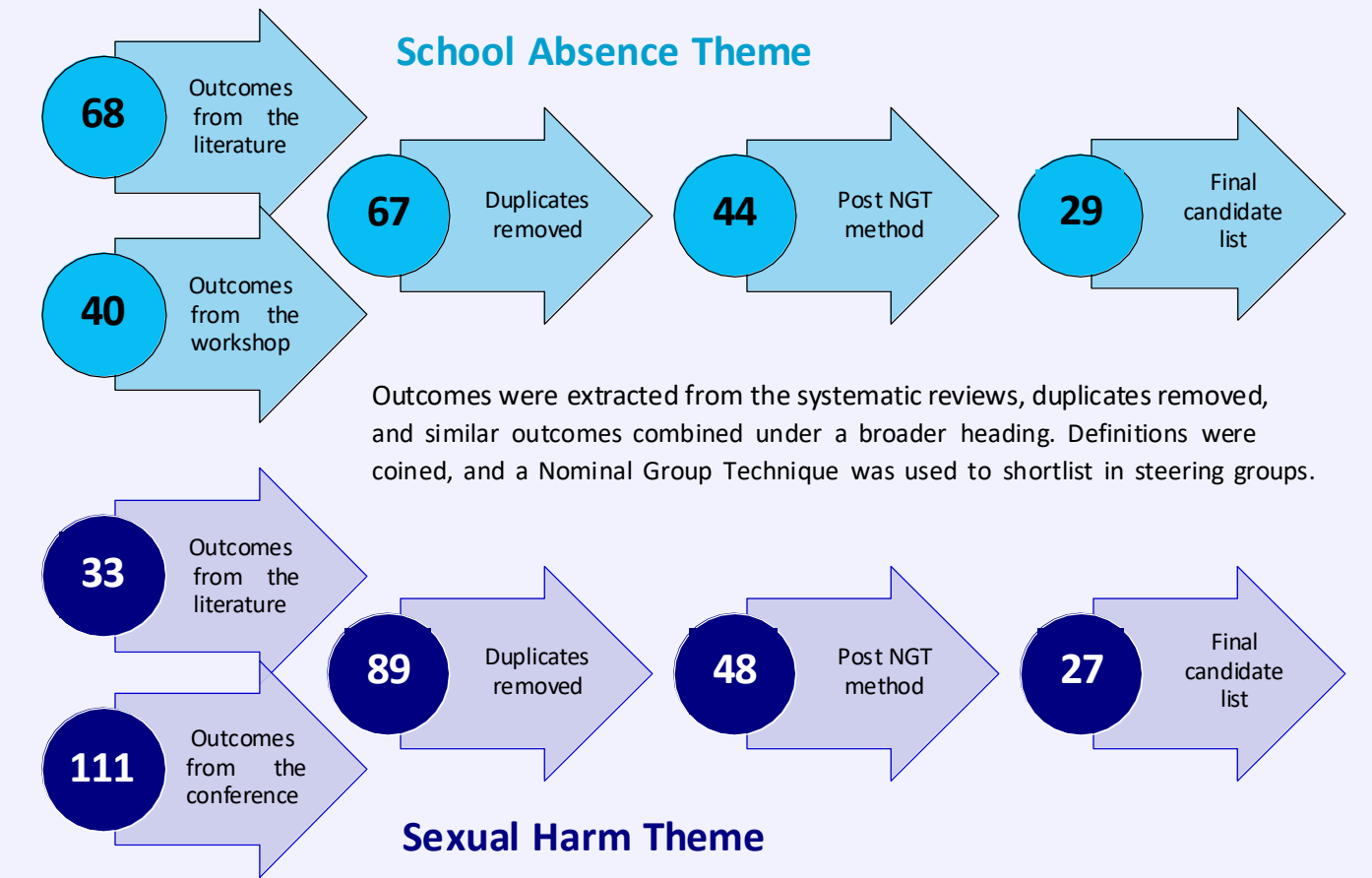


Figure 4: Defining a candidate outcome list pre-Delphi rounds from systematic reviews and key stakeholder meetings.

Use of longitudinal cohort data to explore the effects of mobile phone use on hand grip and pinch strength in adolescents

- Use of mobile phones involves frequent, repetitive movements of the hand, wrist and fingers that may cause musculoskeletal impairment.
- Data from a prospective cohort, school-based study was used to investigate the association between duration of smartphone use, hand grip and pinch strength in adolescents.
- The prospective longitudinal design enabled temporal relationships and causality to be inferred.
- An abstract was submitted to the international medical students' conference.

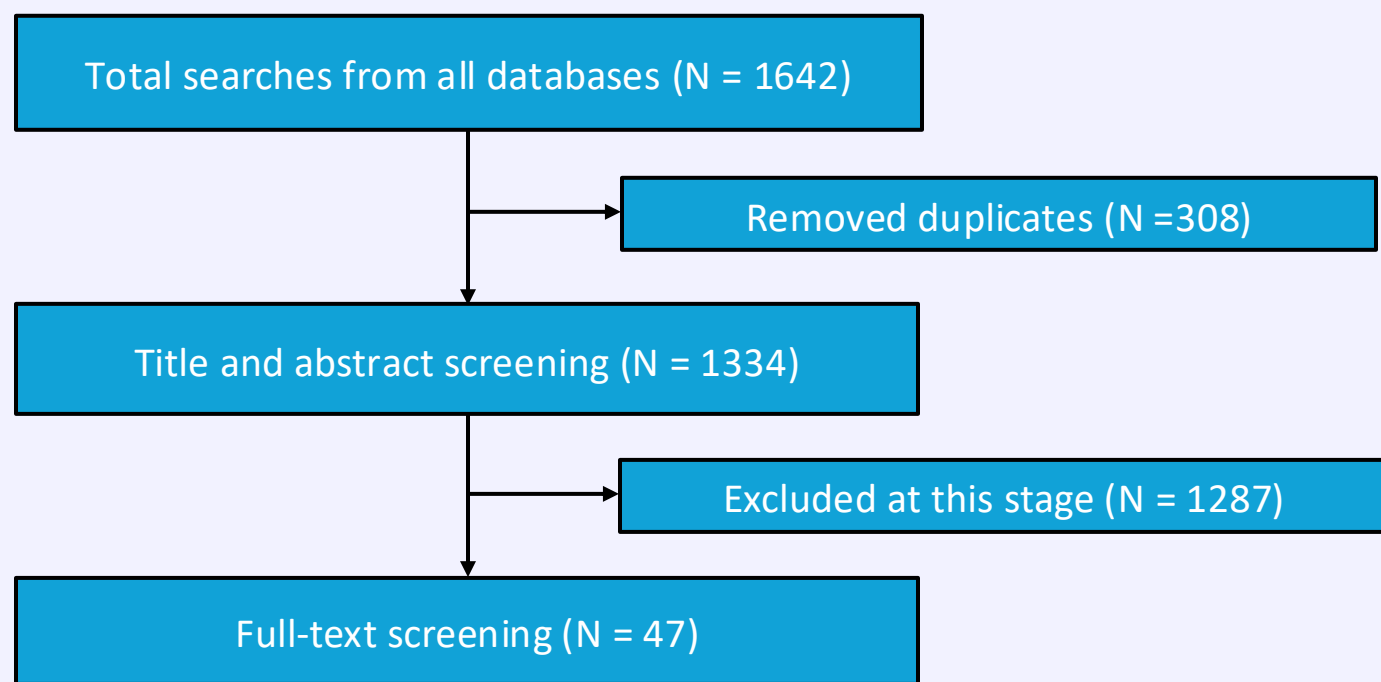


Figure 1: PRISMA diagram for the digital health systematic review

Peer Review of a Secondary Data Analysis Paper

- This review facilitated appraisal of secondary data analysis and cross-sectional methodology.
- The secondary analyses limited the strength of the conclusions that could be drawn.
- Causality could not be inferred from the cross-sectional study design.
- The narrow scope and subjectivity of survey items also constrained findings.

A narrative review and summary of MDT stakeholder school absence workshops to deepen insights into common themes and barriers for attendance interventions

- Regular school attendance is vital for educational, health, economic and social outcomes in children.
- A national school attendance crisis exists with overall school absence rates of 6.9% and 18.7% persistent absence in 2024/5.
- Perspectives on school absence from the Imperial College School Absence Workshop and the 'All in for Attendance' Summit, at the John Hopkins School of Public Health were synthesised.
- Key priorities for school absence were identified: using attendance data as an indicator of student and system wellbeing; strengthening health, education, third and social sector collaboration, creating strengths-based attendance policies and programmes.
- The narrative design was flexible permitting greater exploration of many complex, cross-sectoral issues.
- Findings were summarised in a paper for 'Archives of Disease in Childhood.'

Laidlaw Reflections and Summary Publication

- The Laidlaw Scholarship has provided an invaluable opportunity to engage in qualitative and quantitative public health research alongside Imperial experts.
- I have acquired a deeper understanding of research methodologies, hierarchy of evidence and potential sources of bias in research design.
- I have explored the practical and ethical issues that underpin robust, responsible research, synthesising my learning into a journal article.
- I have appreciated the vital role of research in advancing knowledge, guiding evidence-based clinical practice and promoting ethical patient-centred care.
- I am grateful to all researchers at Imperial School of Public Health for their mentorship, time and immense expertise.

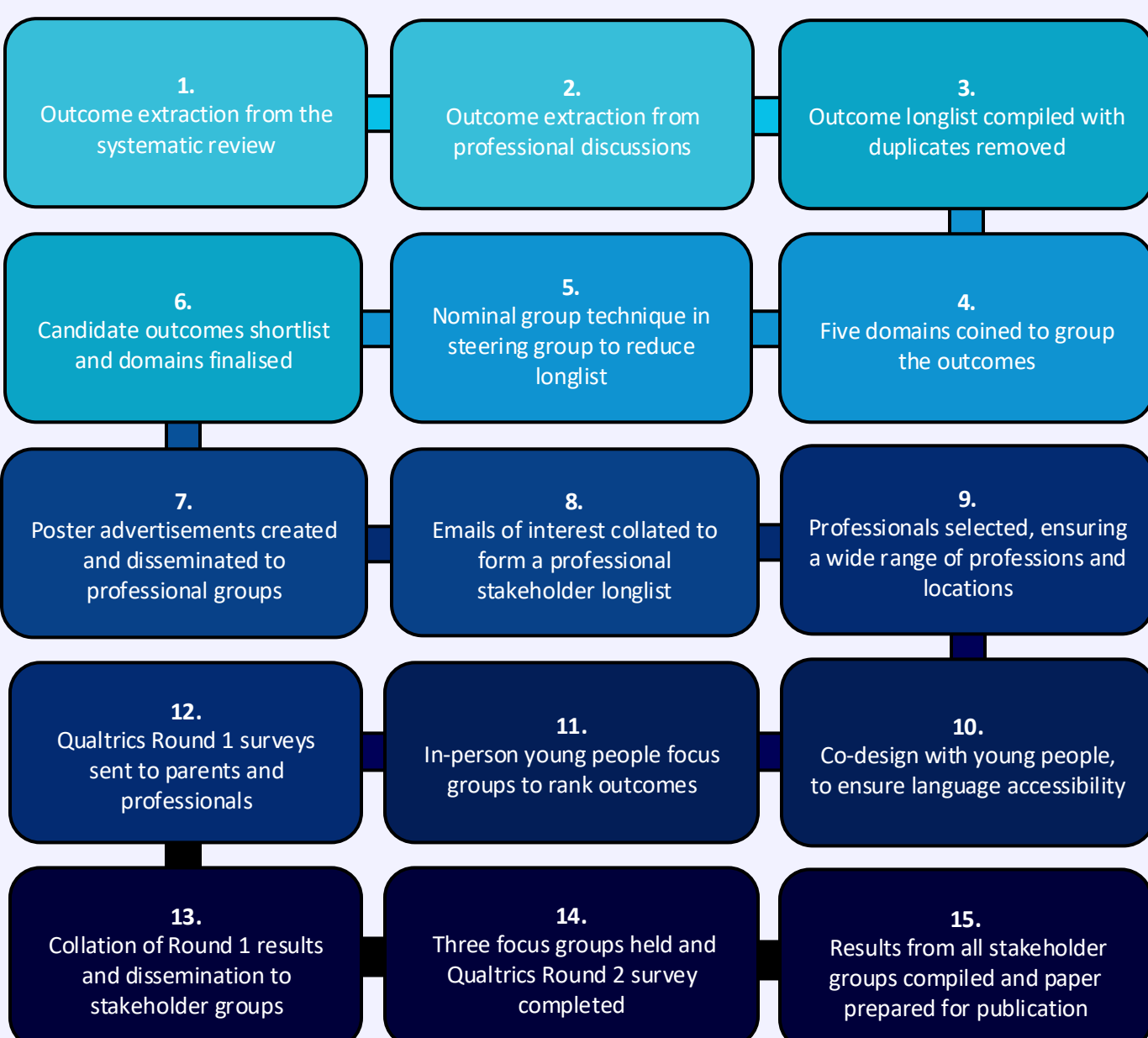


Figure 2: The modified Delphi consensus to define candidate outcomes pre-Delphi survey rounds

Modified Delphi consensus methodology to establish outcomes for an intervention study of school absence and sexual harm

- This project qualitatively explored optimal outcomes for a study on school absence and sexual harm.
- Outcomes were organised into five domains.
- A nominal group technique was used to shortlist a candidate outcome set and iterative Delphi survey rounds to achieve consensus (fig.2,4)
- Co-design with young people ensured that language was positive, trauma-informed and clear.
- Pre-Delphi results were presented at the Association for Young People's Health Conference 2025, and an abstract was submitted to the Royal College of Paediatrics and Child Health Conference 2026.

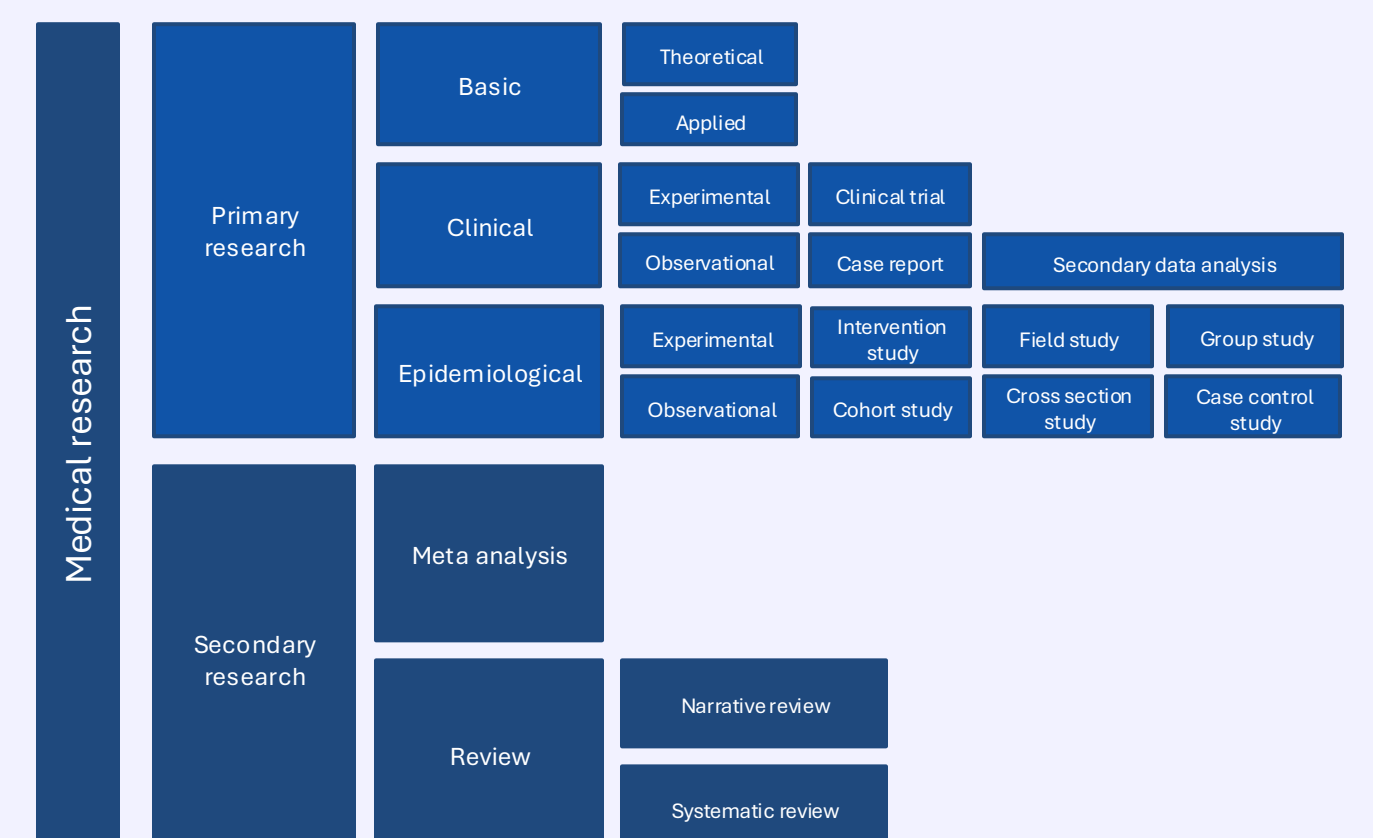


Figure 5: A classification of research design (adapted from Goshen, 2025)

Affiliations

- ¹ Imperial College School of Medicine
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