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Theoretical approaches in the development and evaluation of behaviour change interventions that improve clinicians' antimicrobial prescribing: a systematic review.

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Theoretical approaches in the development and evaluation of behaviour change interventions that improve clinicians' antimicrobial prescribing: a systematic review

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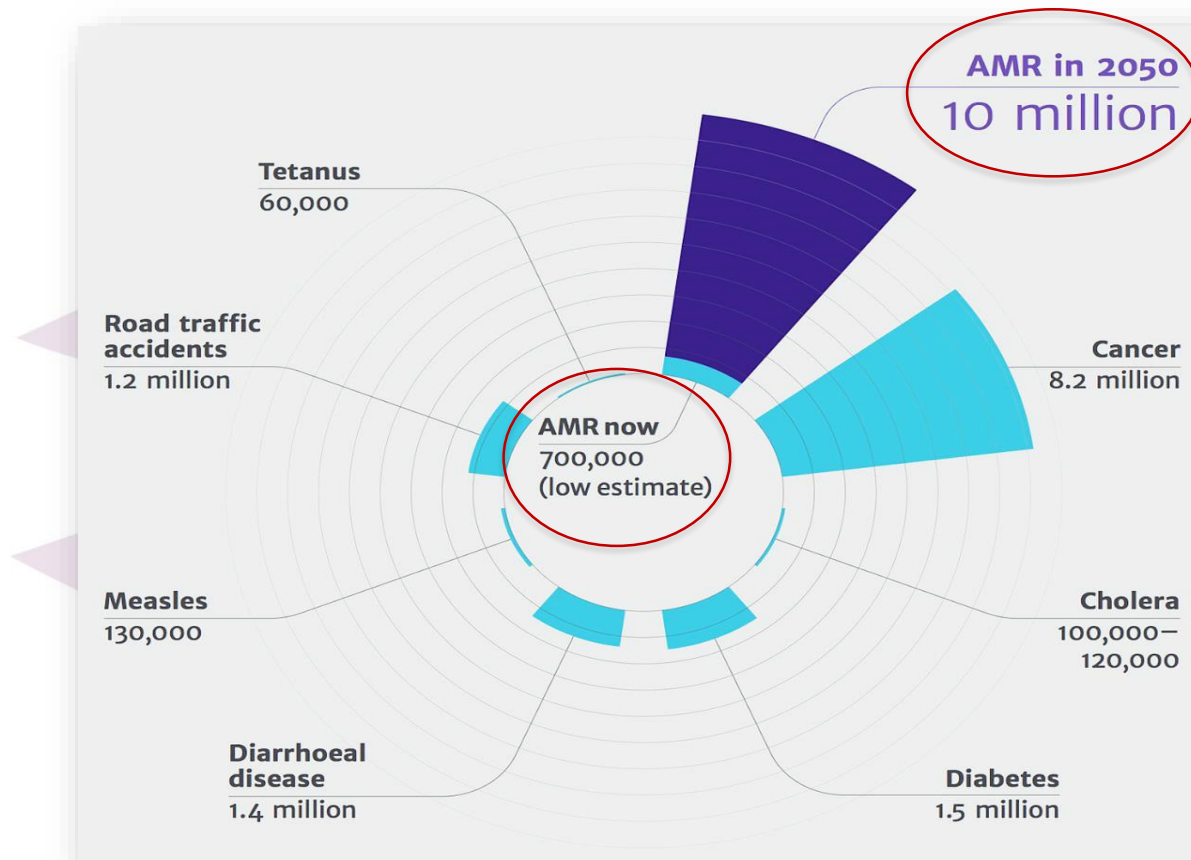
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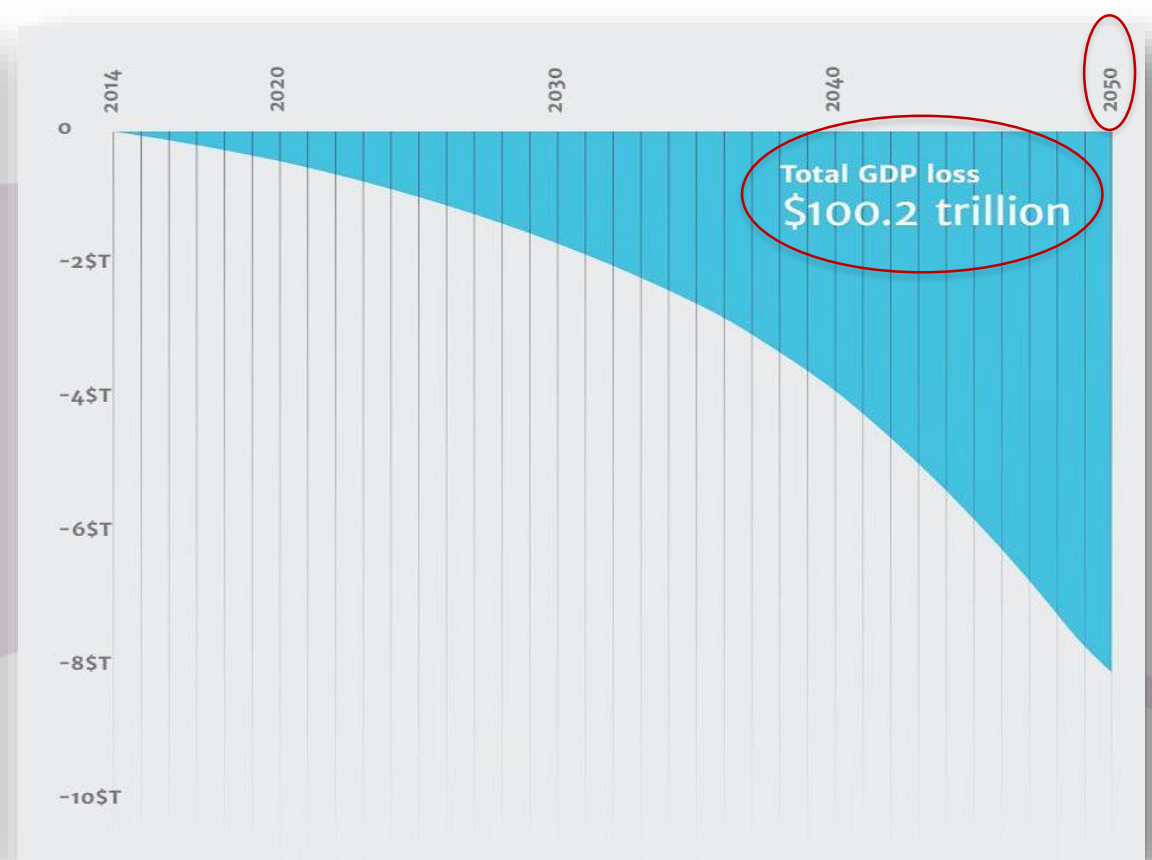
Background: antimicrobials

- Antimicrobials add **20** years to life expectancy¹
- Several decades of medical advances are threatened by the global rise of **antimicrobial resistance (AMR)**
 - the ability of microorganisms to resist the effects of antimicrobials²
- **No** new classes of antimicrobials have been discovered since the 1980s³
- Resistant microorganisms respect **no** borders, neither geographical nor ecological³

Background: antimicrobial resistance



Deaths attributable to AMR each year compared to other major causes of death globally⁴



AMR's economic implication on global Gross Domestic Product (GDP), in trillions of USD (\$T)⁴

Background: antimicrobial stewardship

- Many countries have developed **antimicrobial stewardship (AMS) programmes**
 - interventions designed to improve antimicrobial prescribing and use, minimise AMR and improve patient outcomes⁵
- Challenges
 - ongoing **inappropriate prescribing** of antimicrobials and increasing levels of resistance globally
 - **need** for **behaviour change interventions** at clinicians' levels to improve prescribing practices

Background: the role of theory

- Behaviour change interventions tend to be **complex** and **challenging**
- Theories provide **a useful basis** for developing and evaluating interventions to change human behaviour⁶
 - enhance the **robustness**, **rigour** and **impact** of research findings⁷
 - maximise the **effectiveness** of behaviour change interventions⁸
 - enable understanding of **why** and **how** behaviour change occurs⁸



Qatar profile

- A country located on a **small** peninsula in the Middle East
- One of the **highest** per capita income countries in the world⁹
- Expenditure on healthcare is among the **highest** in the Middle East⁹
- The National 2030 Vision aims at a **world-class** healthcare system¹⁰



PhD overview

- Aim
 - identify, quantify and explore clinicians' **behavioural determinants** of **antimicrobial prescribing** in Hamad Medical Coronation (HMC), Qatar
- Methods
 - **Phase 1: Systematic review of literature**
 - Phase 2: Cross-sectional survey of HMC clinicians
 - Phase 3: Semi-structured interviews with respondents
- Theory
 - the **Theoretical Domains Framework**¹¹

Systematic review aim

Critically appraise, synthesise and present the existing evidence for **theoretical approaches** in the development and evaluation of **behaviour change interventions** designed to improve clinicians' **antimicrobial prescribing**¹²



Systematic review questions

1. Which theories have been used and why?

2. How and to what extent have these theories informed development of interventions?

3. How and to what extent have these interventions been feasibility/pilot tested?

4. To what extent have these interventions been evaluated and what outcomes have been reported?

Development
(Questions 1&2)

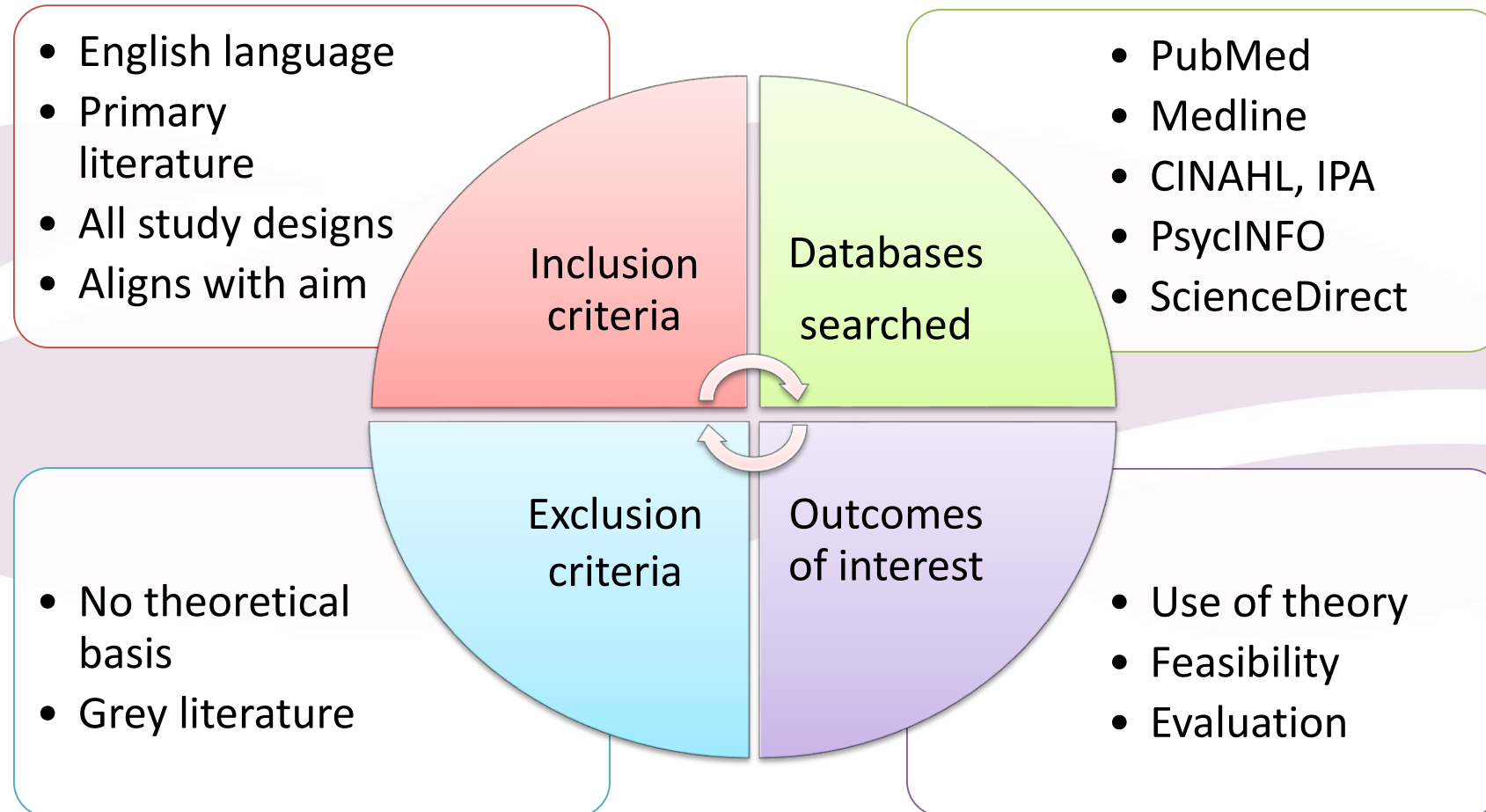
Feasibility/pilot
testing
(Question 3)

Evaluation
(Question 4)

Implementation
(Future area of
research)

The UK Medical Research Council framework for development and evaluation of complex interventions⁶

Methods: review characteristics



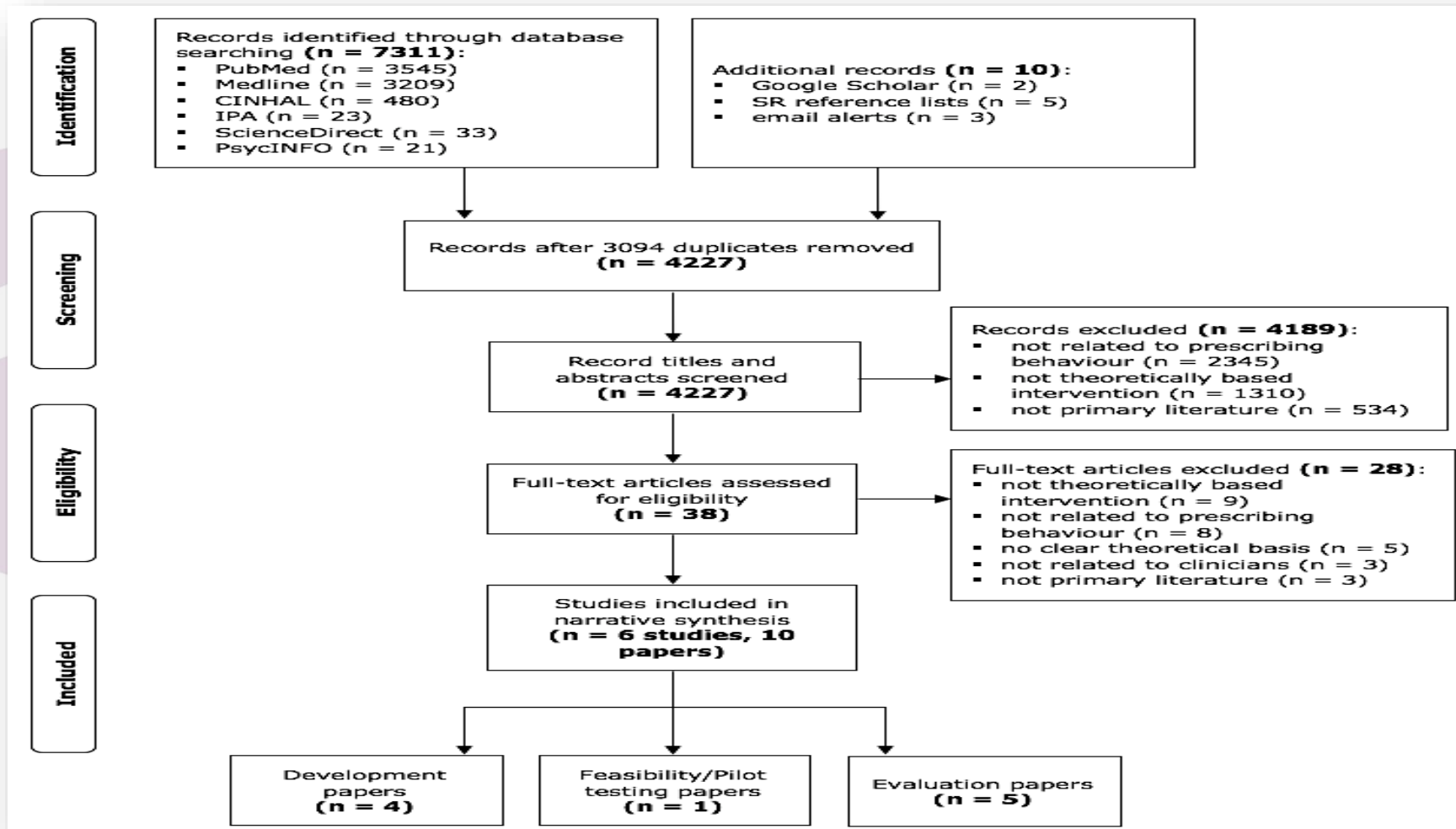
Methods: search strategy

Concepts	Sub-terms	Search options
1. Antimicrobial agents	1.1 Antimicrob*	TI OR AB
	1.2 Antibiotic*	TI OR AB
	1.3 Anti-bacterial agents	MeSH+
	1.4 Anti-infective agents <ul style="list-style-type: none"> ▪ Antifungal agents ▪ Antiparasitic agents ▪ Antiviral agents 	MeSH+
2. Prescribing	2.1 Prescrib*	TI OR AB
	2.2 Therapeutics <ul style="list-style-type: none"> ▪ Inappropriate prescribing ▪ Drug prescriptions ▪ Deprescriptions ▪ Medication errors 	MeSH+
	2.3 Delivery of health care <ul style="list-style-type: none"> ▪ Practice patterns, physicians' ▪ Practice patterns, nurses' ▪ Professional practice gaps 	MeSH+
3. Theory	3.1 Theor*	TX All Text
	3.2 Principle*	TX All Text
	3.3 Construct*	TX All Text
	3.4 Framework*	TX All Text
	3.5 Concept*	TX All Text
	3.6 Psychological phenomena and processes	MeSH+
	3.7 Behavior	MeSH+
4. Interventions	4.1 Intervention*	TX All Text

Methods: quality assessment, data extraction and synthesis

- Quality assessment
 - CONSORT¹³, STROBE¹⁴ and COREQ¹⁵
 - Theory Coding Scheme (TCS)⁸
- Data extraction
 - authors, year, country of origin, study design, aim/objectives, healthcare setting, participants, medical condition, intervention, theory and key findings
- Data synthesis
 - narrative approach

Results: PRISMA chart



Results: preliminary findings

- Studies were conducted in **UK** (n=8), Canada (n=1) and Sweden (n=1)
- Most employed **quantitative** designs (n=6), with fewer qualitative (n=3) and mixed-methods (n=1) designs
- Most were carried out in **primary care settings** (n=9), targeting **respiratory tract infections** (n=8)
- Main professions targeted were **doctors** (n=10) and **nurses** (n=4)
- Theoretical approaches **varied** across studies
- There was **no** optimal use of theory as recommended in the TCS

Conclusion and discussion

- The **first** to investigate theoretically based behaviour change interventions designed to improve clinicians' antimicrobial prescribing
- **Few** studies were identified; most were suboptimal
- **None** was from the Middle East and **none** targeted pharmacists
- There is an **urgent** need for better quality, primary research in this area

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Questions?

