WHEN PICO DOESN'T CUT IT:

FORMULATING WELL-BUILT RESEARCH QUESTIONS, LITERATURE SEARCH PROCESSES, AND PARAMETERS FOR UNIQUE HEALTH CARE TOPICS

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INTRODUCTION

What is PICO?

P = *Patient Group* • Specific features; i.e., age group, disease type, comorbidities, health care setting, etc.

I = *Intervention* • Specific drug name, route of administration, surgery, diagnostic test, etc.

C = *Comparator* • The alternative intervention that is being compared to the intervention in question (e.g., similar drug, standard of care). If no comparison is necessary, this field is left blank.

O = *Outcomes* • Results regarding clinical benefits, clinical harms, costs, cost-effectiveness, or guidelines, for the use of the intervention described.

Applying PICO in Rapid Response

The goal of the topic refinement process at the Canadian Agency for Drugs and Technologies in Health (CADTH) is to gather specific information for each part of PICO and use it to form research questions and literature search processes. The literature search process includes two or three defined concepts — often well-aligned within the PICO framework. Traditionally, concepts of PICO are combined with the Boolean operator "AND" to ensure relevant results. The grey literature search is completed using a list of validated websites, plus a limited Google search.

Why PICO Doesn't Always Cut It

Recently, CADTH's Rapid Response service expanded to include new topics such as health human resources, health systems, and patient-reported outcomes. It became evident that CADTH needed to modify the way it applied PICO to these new topics. Search processes often require more advanced search strategies for both database and grey literature searching. This has been the case for approximately 25% of Rapid Response products in 2011 and 2012.

Case Studies: Topics Related to Health Systems and Health Human Resources

Applying the PICO framework to topics related to health systems and health human resources is challenging:

- There is often more than one population of interest; a patient group may be a patient care setting.
- It may not be a "typical" intervention (e.g., the intervention may be a checklist, a grouping of checklists, a tool, a communications model, a technique).

Research questions must still be specific, open-ended, and detailed, but may be more general with respect to the population and more conceptual with respect to the intervention.

With these new questions, the literature search includes "soft concepts," such as "screening" and "transfer," which pose new challenges:

- more complicated literature search strategy
- retrieval of extraneous results, which may require the Boolean operator "NOT" to be used
- use of phrase searching (e.g., "patient transfer"), which is done with caution (results may be unintentionally excluded)
- requirement to rely more heavily on association websites and Google searches
- more time- and labour-intensive and yields less evidence-based results.

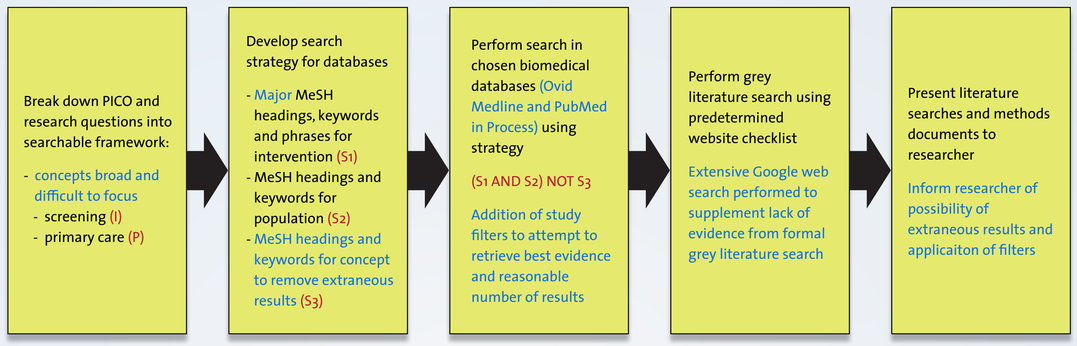

Table 1: Formulating Research Questions and Using PICO for Difficult Topics

Health Systems — Standardized Screening Tools for Health and Wellness Monitoring			
P Pediatric (0 to 18 years, but it is possible that information will be found for pediatric subgroups; e.g., 0 to 4, 4 to 18, etc.). Adults (18 to 50). Older adults (50+). It may differ for males and females. Patients presenting to primary care without chronic or serious conditions.	I Screening tools, screening checks, screening tests for health and wellness monitoring, health checklists, groupings of tests. Example: For adults 18 to 40, are the following routine screenings appropriate for otherwise healthy patients during primary health annual check-up? • weight • BMI • blood pressure • immunization screening. Example: For females > 55 years of age, are the following routine screenings appropriate? • mammogram • breast examination • PAP smear • osteoporosis screening • cholesterol screening.	C None/any	O Appropriateness of tests, identification of a standard set of tests, best practices for wellness screening, guidelines for health and wellness, screening of primary care patients.
What is the clinical evidence identifying and supporting the use of a standardized set of health and wellness screening tools to monitor primary care patients?		What are the evidence-based guidelines regarding the use of a standardized set of health and wellness screening tools to monitor primary care patients?	
Health Human Resources — Transfer of Patient Information and Accountability			
P Any health care setting or transfer between health care settings (e.g., transfer of patient accountability or hand-off between shifts, between health care settings, emergency room to acute care, acute to home care, acute care to long-term care, between urban and rural care).	I Communication techniques or models for communication (e.g., checklists, transfer checklists, documentation, information transfer, shift-report, hand-off, transfer of accountability).	C None/any	O Continuity of care, optimal communication techniques, evidence-based models of care, guidelines for communication to ensure optimal patient transfer between shifts/health care environments/health care settings, patient safety.
What is the clinical evidence regarding effective health care provider communication at key transition points of care including shift-changes, end-of-service, and change of service?	What are the evidence-based communication processes and models of communication to support optimal patient transfer and patient safety?	What are the evidence-based guidelines regarding optimal models and methods of communication at key transition points of care including shift-changes, end-of-service, and change of service?	

CONCLUSION

New topics in the CADTH Rapid Response service have created new challenges in applying the PICO framework. In response, researchers have adapted the PICO framework and modified the way in which research questions are written, and Information Specialists have made developments in both interpretation and searching techniques.