

Tips for identifying the PICOTS elements of your clinical question

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Section 1. The Elements of PICOTS

Population

- Start with basic groups like adults vs. pediatric patients, hospital inpatients, or patients with a central venous catheter.
- If you are confident that there is evidence specific to your subpopulation of interest, or if there is reason to believe that study results will differ between your patients of interest and a more general group of patients, then specify the subpopulation in the first part of the statement. Otherwise mention it as a population of particular interest.
- Another way to manage a topic where results may differ for different subgroups of patients is to specify that results will be stratified by that criterion. Studies reporting only pooled results from multiple subgroups may then be excluded.
- Be aware of distinctions in types of diseases, like solid tumors vs. blood cancers; and types of surgery, like orthopedic surgery vs. other types.
- Specify populations that should be excluded.
- If you are working on an administrative topic, interpret the “P” as “population,” (e.g. perioperative nurses).

Examples

- *Adult patients with a central venous catheter.*
- *Adult hospital inpatients. Patients in medical and surgical units should be analyzed separately. Patients having orthopedic surgery are excluded.*
- *Patients with solid tumors having chemotherapy. Breast cancer patients are of particular interest.*
- *Hospital inpatients receiving antibiotics. Stratify results by type of infection.*
- *Adult patients in critical care units.*
- *Nurses working in hospice and palliative care units.*

Intervention

- The intervention item will drive search strategies and inclusion/exclusion criteria so it is of great importance to define this axis clearly.
- If differences between one version of an intervention and another are expected, this should be called out.
- Be sure to give the both the trade name and the generic name for drugs (and devices when appropriate).

Examples

- *Use of the procalcitonin test to determine use of or dosing of antimicrobial drugs.*
- *Telemedicine visits for post-discharge care. Non real-time interventions such as e-mail excluded.*
- *Coronary angiography using a catheter inserted through the radial artery.*
- *Emend (aprepitant) administered intravenously. Oral administration is excluded.*

Comparison

- It is unadvisable to use comparison as an include/exclude criterion except in very specific situations where the comparison is central to the question at hand.
- The protocol should normally be written broadly, and then key comparisons can be identified.
- When there is no obvious alternative, the phrase “usual care” can be used, especially in process of care topics.

Examples

- *All comparisons. Comparisons to flushing with saline solution are of particular interest.*
- *Higher or lower dose levels, increased or decreased frequency of administration.*

Outcome

- Avoid using any specific outcome as a protocol specification unless it’s absolutely necessary for a piece of evidence to be useful.
- It is better to start with “all outcomes” and then call out outcomes of particular interest. If specific outcomes are called out, it is desirable for them to be included as columns in the evidence tables so the reader can see whether or not the studies reported that outcome.
- Outcomes may not be applicable in the protocol when the scope of the report is limited to published guidelines and/or clinical pathways.
- If both short- and long-term outcomes can be reported for a particular intervention, establish limits and/or priorities in the protocol.

Examples

- *All outcomes. One-year mortality and rate of major adverse cardiac events (MACE) are of particular interest.*

Timing

- Sometimes there are clear clinical boundaries on when an intervention is given and these can go into the protocol.

Examples

- *After discharge from the hospital.*
- *Stratify results by drug administration during or after surgical procedure.*

Setting

- Setting is often not clearly identified in article abstracts and indexing can be unreliable, but sometimes title and abstract are enough to determine that an article can be excluded.
- Systematic reviews and individual studies often pool results from different settings, but may provide enough information for you to pull out the relevant subgroups.
- At times, we may have to guess at the setting from the context of the rest of the article.
- Sometimes setting may not be applicable.

Examples

- *Hospital inpatient units. Limit to critical care units if evidence is sufficient.*
- *Outpatient clinics. Clinics in rural areas are of particular interest.*
- *All settings.*

Section 2. Intravenous Lidocaine Example: The Clinical Question & PICOTS

What Clinical Question are you trying to answer?

What is the effectiveness of perioperative IV lidocaine in relieving pain and reducing need for opioid medications?

PICOTS-

Population: Adults having any type of surgery or other operative procedures: subgrouped by type of surgery if evidence permits.

Interventions: Continuous lidocaine infusion administered intravenously during surgery.

Comparisons: All comparisons, including placebo, usual care, and comparisons of different lidocaine doses. Comparisons to regional anesthesia including neuraxial anesthesia are excluded.

Outcomes: Patient-reported pain score, need for rescue medications, other pain measurements, duration of hospital stay, duration of IV lidocaine infusion, hypertension, bradycardia, over-sedation, respiratory depression, other adverse events.

Timing: During hospital or short procedure unit stay.

Setting: Hospital or short procedure unit.

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