**Developing Clinical Questions–Facilitator’s Guide**

**Time:** 60-minute workshop

**Aims/Objectives:**

The overall aim of this session is for first-year family medicine residents to effectively and efficiently develop clinical questions to search for patient-centered evidence-based medical decisions at the point of care.

Specifically, by the end of this session, residents will be able to:

* Explain the difference between background and foreground questions.
* Differentiate between patient-oriented evidence and disease-oriented evidence.
* Identify foreground questions and then apply the PICO format to create searchable clinical queries.

**Key Learning Points:**

* Patient-oriented evidence that matters (POEMs), not disease-oriented evidence (DOEs), should guide clinicians’ decision-making process, applying information that patients care about (based on morbidity, mortality, or quality of life), that is common to our practice, feasible, and would require a change in practice.
* Background questions ask about general knowledge of disease processes. Good resources to find answers to these questions include *American Family Physician*, UpToDate, and textbooks such as *Harrison’s Principles of Internal Medicine*.
* Foreground questions, on the other hand, are more complex and usually compare two drugs or treatments or the prognosis of two groups of patients. Using the “PICO” format (population, intervention, comparison group, and outcome) can help you focus your clinical questions quickly and easily. Some helpful search engines resources are PubMed Clinical Queries and TRIP Database. Other resources include DynaMed, Essential Evidence Plus, BMJ Best Practice, Cochrane Collaborative, and ACP Journal Club.
* In order to develop a clinical question, follow these steps:
	+ Think about a tough case
		- Why was it difficult? Did any new or alternative decision points arise that you had not considered before?
	+ List the questions you had and still have.
	+ Focus on a foreground question and rephrase it into a PICO format.
		- P: Be precise but brief.
		- I/C: Be specific but consider feasible alternatives.
		- O: Select patient-oriented outcomes instead of “the numbers.”

**Lesson Plan: Outline Based on Gagne’s Nine Events with Methods**

**(60-minute workshop):**

|  |  |
| --- | --- |
| **Gain attention** (1 min) | Opening case about clinical question arising at the point-of-care |
| **Inform learners of objectives** (1 min) | By the end of this session, residents will be able to:* Explain the difference between background and foreground questions.
* Differentiate between patient-oriented evidence and disease-oriented evidence.
* Identify foreground questions and then apply the PICO format to create searchable clinical queries.
 |
| **Stimulate recall of prior knowledge (**1 min) | Background and foreground questions may be a fundamental concept that the residents already take for granted, but deliberate thought on the matter will help you focus your clinical questions and work SMARTER and FASTER to find the answers! |
| **Present stimulus material (content) + learner guidance** |
| I. Introduction to background versus foreground questions -PowerPoint: (1 min)  | 1. Developing Clinical Questions framework:
	1. Background questions
	2. Foreground questions
2. Define Background questions

Important note: * The introductory case lacks direct evidence and guidelines. It purposefully highlights an understudied minority population with the intent of engaging discussion.
* Cervical cancer, anal cancer, and even oropharyngeal cancer are topics that may be raised.
* Gender, equity, LGBTQI, delivery of care and other similar topics are also encouraged – “flame wars” or overt divisive political discussions that divert from the educational content may warrant expert moderation.
* Be respectful, kind, open, and take time to listen to all positions.
 |

|  |  |
| --- | --- |
| (5 min brainstorming) | -Large group activity (5 min): review initial case**Slide 5: Brainstorm Background questions**1. Take some time to brainstorm some background questions on the case. After a few suggestions, reveal some possible/suggested answers.
2. Provide course corrections and rephrase the questions as needed (or defer them for the foreground question section.)
 |
|  | 1. Define Foreground questions
2. Clinical questions framework (background versus foreground)
 |
| II. Strategies for shaping PICO queries and testing them - PowerPoint: (1 min): | 1. Define PICO acronym.
2. Emphasize “P=Population”, “I=Intervention”, “C=Control”, “O=Outcome” and identify the components of a PICO question from the original case.
3. Focus the PICO question.

*Review the University of Oxford EBM toolkit for more information.* |
| (5 min brainstorming) | -Large-group activity (5 min): review the initial case**Slide 10: Brainstorm Foreground PICO Questions**1. Target the appropriate specificity (e.g., a population of “pansexual transgender man (with female body parts)” is too specific, so consider “high risk” instead.)
2. Do not correct the group if the outcomes they select are “numbers-based”
	1. The prompt on this slide will ask them: Is this an outcome our patient cares about?
 |
| III. Introduction of POEMs and DOEs - PowerPoint: (5 min) | 1. Define Patient-Oriented Evidence That Matters (POEMs) and present POEMS versus Disease-Oriented-Evidence (DOEs)
2. Example of DOE: no one ever dies of high cholesterol. They die from the effects, like a fatal heart attack or a stroke. We often get side-tracked into tracking the numbers when the patient is what truly matters.
3. Another way of looking at this is that the disease-oriented evidence focuses on the mechanism of action (the internal gears, dials, or “settings” that a patient has).
4. Instead of looking at the patient-oriented outcomes that the patient is able to see, feel, and detect (the external effects of it on their life, like symptoms, their daily functioning, or their quality of life.)

*Review the Shaughnessy et al 1994 JFP article for more information.* |

|  |  |
| --- | --- |
| (10 min brainstorming) | -Large-group activity (5 min):**Slide 15: Develop a DOE and a POEM for: Acute Otitis Media***This is a busy slide but important because future activities build on it.*1. Invite the group to share some ideas about a DOE and a POEM for a pediatric patient with acute otitis media.
2. Remind them that DOE=etiology/pathophys/pharm “the dials/settings” and POEM=M&M and QoL “what pts see/feel.”

-Large group activity (5 min):**Slides 16 and 17: Return to PICO from Intro case: is this a DOE? How can we make it a POEM?**1. AIN is an intermediary marker (DOE). It is not something patients care about if it does not help them live longer or better.

*An answer from Rev Med Virol 2021 is provided in the notes if residents are curious about the answers to the questions raised before moving on to the next section*. |
| IV. Alternate Clinical Queries (1 min) | This slide will prepare learners for the upcoming modules. |
| **V. Facilitated Feedback and Assessment** (15 min for Activity 1)(15 min for Activity 2) | **Distribute Learners Handout (pages 6 and 7 of the Instructor Guide)for each resident.****Slides 19–22; Formative Assessment Activity 1: For cases 1–3, assign different tasks for each buzz-group on:**1. **Background questions**
2. **Population/Intervention/Comparison**
3. **POEM**
4. **DOE**

Buzz groups of two to three for 1–2 min, then return to large group to share their sections; 5 min for each case. *Article references on 2019 ASCCP Risk Based Management Consensus Guidelines and Risk Estimates supporting guidelines in citations and notes***Slide 24; Summative Assessment Activity 2: Application of concepts to a challenging case**Buzz groups of two to three for 5 minutes, then return to large group to share their sections; 1 min for each case.**Role-model your use** in guiding the ***PICO question*** (making it appropriately specific or broaden it as needed) and type in the question into one of a few listed search engines to quickly ***search for the answer*** (do not spend more than a minute on each and use a different resource for each question posed):* PubMed Clinical Queries <http://www.ncbi.nlm.nih.gov/pubmed/clinical>
* TRIP Database <http://www.tripdatabase.com/>
* Google Scholar <http://scholar.google.com/>
* Google “site:.gov” (typical Google search with the search term site:.gov (no spaces) that filters to only .gov websites, can also use site:.edu or site:.org, etc.)

 <http://www.google.com/#q=site:.gov+>* Consider other broad resources like DynaMed or Essential Evidence Plus, depending on your institutional access

*Activity 2 can be used as a post-test summative assessment of the session. Provide corrections about their labeling of background/foreground questions and DOE/POEM outcomes. Comments about the quality and formatting of their questions and suggest some resources for locating an answer, similar to the references provided for slides 15–17 and 19–22.* |
| **Enhance Retention** | Conclusion (1 min)-Review of key learning points-**Challenge everyone to construct a PICO query a day for the following session.**-Q&A |

**Formative Assessment Activity 1:**

**For Cases 1–3**

1. What are some background questions?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What are your foreground PICO questions?
	1. Population
		* "How would I describe a group of patients similar to mine?"

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Intervention/Comparison
		+ Ask “What is the main intervention I am considering?”
		+ and “What is the main comparison/control?”

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Outcomes
		+ Ask "What can I hope to accomplish?" or "What could this exposure really affect? “
		+ Which outcomes are POEMs?
		+ Which outcomes are DOEs?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Summative Assessment Activity 2:**

**Recount a challenging case from the past few weeks.**

* Why was it difficult?
* Did any new or alternative decision points arise that you had not considered before?
* What questions…
	1. did your *PATIENT* ask?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. did *YOU* have while writing the SOAP note?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. did you ask your *ATTENDING*?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. *still remain* unresolved?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

List and label your questions as:
*background* or *foreground* questions
and *POEMs* or *DOEs* and then

Brainstorm a PICO question with a partner.

* + P: Be precise but brief
	+ I/C: Be specific but consider feasible alternatives.
	+ O: Select patient-oriented outcomes instead of “the numbers.”

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Resources**

* Boston University School of Medicine. Curricular innovations: finding information framework*.* <http://medlib.bu.edu/busm/fif/> and <http://www.bumc.bu.edu/oaa/files/2013/10/BUSM-FIF.pdf> Accessed November 11, 2013.
* Dartmouth College Biomedical Libraries. Evidence-based medicine resources: finding evidence-based answers to clinical questions quickly and effectively. <http://www.dartmouth.edu/~biomed/resources.htmld/guides/ebm_resources.shtml> and <http://www.dartmouth.edu/~biomed/resources.htmld/guides/FindingGoodAnswers.pdf> Accessed November 11, 2013.
* Tufts University School of Medicine, Department of Family Medicine, Center for Information Mastery. Concepts of information mastery. <http://medicine.tufts.edu/Education/Academic-Departments/Clinical-Departments/Family-Medicine/Center-for-Information-Mastery/Concepts-of-Information-Mastery> Accessed November 11, 2013.
* University of Oxford, Centre for Evidence Based Medicine. EBM tools. <http://www.cebm.net/index.aspx?o=1023> Accessed November 11, 2013.
* Jackson R, Ameratunga S, Broad J, et al. The GATE frame: critical appraisal with pictures. ACP Journal Club 2006 Mar/Apr;144.

**References**

* Atroshi I, Flondell M, Hofer M, Ranstam J. Methylprednisolone injections for the carpal tunnel syndrome: a randomized, placebo-controlled trial. Annals Intern Med 2013;159(5):309-17.
* Chan LS, Takata GS, Shekelle P, et al. Evidence assessment of management of acute otitis media: II. Research gaps and priorities for future research. Pediatrics2001; 108:248-54.
* Chen CC, Chou YY. Predictive value of the anal cytology for detecting anal intraepithelial neoplasia or worse: A systematic review and meta-analysis. Diagn Cytopathol. 2019 Apr;47(4):307-314. doi: 10.1002/dc.24078. Epub 2019 Jan 3. PMID: 30605263.
* Egemen D, Cheung LC, Chen X, et al. Risk estimates supporting the 2019 ASCCP Risk Based Management Consensus Guidelines. J Low Genit Tract Dis 2020; 24:132-43.
* Flaherty RJ. A simple method for evaluating the clinical literature. Fam Pract Manag 2004 May;11(5):47-52.
* Marshall SC, Tardif G, Ashworth NL. Local corticosteroid injection for carpal tunnel syndrome. Cochrane Database Syst Rev 2007 Apr 18;(2):CD001554.
* Perkins RB, Guido RS, Castle PE, et al. 2019 ASCCP risk-based management consensus guidelines for abnormal cervical cancer screening tests and cancer precursors. J Low Genit Tract Dis 2020; 24:102-31
* Ridker PM, Cook NR. Statins: new American guidelines for prevention of cardiovascular disease. Lancet 2013 Nov 30;382(9907):1762-5.
* Shaughnessy A, Slawson D, Bennett J. Becoming an information master: a guidebook to the medical information jungle. J Fam Pract 1998;39(5):489-99.
* Slawson D, Shaughnessy A, Bennett J. Becoming a medical information master: feeling good about not knowing everything. J Fam Pract 1994;38(5):505-13.
* Thompson PL, Gilbert RE, Long PF, Saxena S, Sharland M, Wong IC. Effects of antibiotics for otitis media on mastoiditis in children: a retrospective cohort study using the United Kingdom General Practice Research Database. Pediatrics 2009;123(2):424-30.