MASTERING CLINICAL INQUIRY

A Guide to Formulating Effective Questions in Evidence-Based Healthcare

EviScore Foundation Course

Module 1: ASK

Asking the Right Clinical Question

Module Learning Journey

Module 1: ASK
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Chapter 1: Why Evidence-Based Healthcare Matters
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Chapter 2: Understanding the Evidence Cycle
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Chapter 3: Building a PICOTT Question
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Chapter 4: Types of Clinical Questions
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Chapter 5: Choosing the Right Study Design
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Final Knowledge Check

Learning Outcomes

By the end of this module, you will be able to:

- **Explain** why asking a focused clinical question is the foundation of evidence-based healthcare
- **Describe** the first stages of the Evidence Cycle
- **Construct** a structured PICOTT clinical question
- **Identify** different types of clinical questions
- **Select** the most appropriate study design for each question type

CHAPTER 1

Why Evidence-Based Healthcare Matters

Every healthcare professional encounters uncertainty during patient care. This chapter explores why we need a systematic approach to clinical decision-making.

WHY THIS MATTERS

Clinical practice is full of questions. Every patient encounter presents potential uncertainties:

• Which treatment is most effective?
• Which diagnostic test provides the highest accuracy?
• What is the patient's likely prognosis?
• Does an exposure increase the risk of disease?
• Which guideline should I follow?

Without a structured approach, decisions may rely primarily on habit, personal experience, expert opinion, or outdated information.

CORE CONCEPT

Evidence-Based Healthcare (EBHC) is the conscientious, explicit, and judicious use of current best evidence in making decisions about patient care.

The Three Pillars of Evidence-Based Healthcare

Clinical Expertise
The clinician's knowledge, experience, and professional judgement

Patient Values and Preferences
Individual goals, beliefs, expectations, and circumstances

Best Available Research Evidence
Current, valid, and clinically relevant research

EVIDENCE PEARL

Evidence alone never determines clinical decisions. Clinical decisions require integration of research evidence with professional judgement and the patient's individual circumstances.

CHAPTER TAKEAWAY

✓ **Understand** that clinical uncertainty is normal and expected
✓ **Recognize** that EBP strengthens rather than replaces clinical expertise
✓ **Remember** that evidence must be integrated with patient preferences
✓ **Apply** systematic thinking to clinical problems

CHAPTER 2

Understanding the Evidence Cycle

Evidence-Based Healthcare follows a systematic process. This chapter introduces the five-stage Evidence Cycle that guides clinical decision-making.

WHY THIS MATTERS

The Evidence Cycle provides a structured framework that helps clinicians consistently translate research evidence into clinical practice. It ensures that every step builds logically toward better patient care.

CORE CONCEPT

The Five-Stage Evidence Cycle

1. ASSESS
Evaluate the patient and define the clinical problem
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2. ASK
Develop a focused, answerable clinical question
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3. ACQUIRE
Search efficiently for the best available evidence
↓
4. APPRAISE
Critically evaluate the validity, importance, and applicability of the evidence
↓
5. APPLY
Integrate evidence with clinical expertise and patient preferences to make patient-centred decisions

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SEE IT IN PRACTICE

Why is ASK the Most Important Step?

Every subsequent step in Evidence-Based Healthcare depends on asking the right question.

Poor Question → Poor Search → Poor Evidence → Poor Clinical Decision

Well-Built Question → Efficient Search → Relevant Evidence → Better Patient Care

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EVIDENCE PEARL

Evidence-Based Healthcare is a process—not a single literature search.

CHAPTER TAKEAWAY

✓ **Understand** the five stages of the Evidence Cycle
✓ **Recognize** that ASK determines the quality of all subsequent steps
✓ **Apply** systematic thinking before searching for evidence
✓ **Remember** that EBP is a complete process, not just literature searching

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CHAPTER 3

Building a PICOTT Question

The PICOTT framework transforms clinical problems into focused, answerable questions. This chapter teaches you to construct questions that guide efficient evidence searching.

WHY THIS MATTERS

A focused clinical question:
• Defines exactly what information is needed
• Prevents unnecessary searching
• Identifies the best study design
• Improves clinical decision-making

CORE CONCEPT

The PICOTT Framework

Component	Purpose
P	Patient, Population, or Problem
I	Intervention, Exposure, or Prognostic Factor

C	Comparison (if appropriate)
O	Outcome
T	Type of Clinical Question
T	Type of Study Required

UNDERSTAND

Breaking Down PICOTT

P — Patient, Population, or Problem
Who is your patient?
Examples: Adults with hypertension, Children with asthma, Elderly patients with hip fracture

I — Intervention, Exposure, or Prognostic Factor
What is being considered?
Examples: Exercise therapy, MRI, Smoking, Corticosteroids

C — Comparison
What is the main alternative?
Examples: Standard care, Placebo, Surgery, No treatment
Note: Comparison may not always be necessary

O — Outcome
What do you want to improve or measure?
Examples: Mortality, Pain, Functional recovery, Quality of life, Hospital readmission

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SEE IT IN PRACTICE

Building a Complete PICOTT Question

Clinical Scenario
A 65-year-old woman has symptomatic knee osteoarthritis despite receiving standard analgesics.

Step 1: Patient
Adults with symptomatic knee osteoarthritis

Step 2: Intervention
Structured exercise therapy

Step 3: Comparison
Usual care

Step 4: Outcome
Reduced pain and improved physical function

Step 5: Type of Question
Therapy

Step 6: Best Study Design
Randomized Controlled Trial

Final Clinical Question
In adults with symptomatic knee osteoarthritis, does structured exercise therapy compared with usual care reduce pain and improve physical function?

EVIDENCE PEARL

A structured question produces a structured search.

CHAPTER TAKEAWAY

✓ **Apply** the PICOTT framework to organize clinical thinking
✓ **Construct** focused, answerable clinical questions
✓ **Identify** all necessary components before searching
✓ **Practice** converting clinical problems into structured questions

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CHAPTER 4

Types of Clinical Questions

Not every clinical question is the same. This chapter explores the major types of clinical questions and why identifying the question type is essential for finding the right evidence.

WHY THIS MATTERS

The type of question determines:
• The best evidence source
• The ideal research design
• The critical appraisal method
• The interpretation of results

CORE CONCEPT

Major Clinical Question Types

Question Type	Purpose
Therapy	Which treatment works best?
Diagnosis	How accurately does a test identify disease?
Prognosis	What is likely to happen over time?
Harm (Etiology)	Does an exposure increase the risk of disease?
Prevention	Can disease or adverse outcomes be prevented?
Clinical Examination	How useful are history or physical examination findings?
Cost	Which intervention provides better value?
Differential Diagnosis	Which diseases should be considered?

UNDERSTAND

Therapy Questions

Goal: Determine whether one intervention is more effective than another

Typical Questions:
• Does Drug A reduce mortality better than Drug B?
• Does physiotherapy improve function after stroke?
• Is surgery superior to conservative treatment?

Best Study Design: ✅ Randomized Controlled Trial (RCT)

Clinical Example:
In adults with acute stroke, does early mobilization compared with standard rehabilitation improve functional independence at three months?

Diagnosis Questions

Goal: Determine how accurately a test identifies the presence or absence of disease

Typical Questions:

• Is MRI more accurate than CT for acute stroke?
• Does D-dimer rule out pulmonary embolism?
• Is ultrasound useful for diagnosing rotator cuff tears?

Best Study Design: ✅ Prospective Cohort Study with Blind Comparison to a Reference Standard

Clinical Example:
In adults with suspected deep vein thrombosis, how accurately does compression ultrasonography identify disease compared with venography?

Prognosis and Harm Questions

Prognosis Goal: Estimate the future course or outcome of disease

Typical Questions:
• What is the five-year survival after spinal cord injury?
• Which patients are at higher risk of recurrent stroke?
• What factors predict recovery after traumatic brain injury?

Best Study Design: ✅ Prospective Cohort Study

Harm (Etiology) Goal: Determine whether an exposure increases the risk of disease

Examples:
• Does smoking increase stroke risk?
• Does obesity increase osteoarthritis?
• Does prolonged steroid therapy increase fracture risk?

Best Study Design: ✅ Cohort Study or ✅ Case-Control Study (especially for rare diseases)

EVIDENCE PEARL

Before searching for evidence, always ask: "What type of clinical question am I trying to answer?"

CHAPTER TAKEAWAY

✓ **Classify** the major types of clinical questions
✓ **Distinguish** therapy, diagnosis, prognosis, and harm questions
✓ **Recognize** that different questions seek different kinds of evidence
✓ **Apply** question type identification before searching

CHAPTER 5

Choosing the Right Study Design

Selecting the correct study design is critical for finding trustworthy evidence. This chapter matches clinical questions with the strongest appropriate research designs.

WHY THIS MATTERS

The quality of evidence depends not only on the study itself but also on whether it is the right design for the question being asked.

Searching for the wrong study design wastes time and may lead to incorrect conclusions.

CORE CONCEPT

Quick Reference Guide

Clinical Question	Preferred Study Design
Therapy	Randomized Controlled Trial
Diagnosis	Prospective Diagnostic Accuracy Study
Prognosis	Cohort Study
Harm (Etiology)	Cohort Study → Case-Control Study
Prevention	Randomized Controlled Trial
Clinical Examination	Prospective Cohort with Reference Standard
Cost	Economic Analysis
Differential Diagnosis	Cohort Study

THINK

Key Principle

Ask yourself: *"If I could design the ideal study to answer this question, what would it be?"*

Then search for that study first.

APPLY

Common Beginner Mistakes

❌ Searching before identifying the question type
❌ Choosing a case report when higher-level evidence exists
❌ Using a therapy study to answer a prognosis question
❌ Ignoring whether the study design matches the clinical question

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EVIDENCE PEARL

Before searching PubMed, know what type of study you hope to find.

CHAPTER TAKEAWAY

✓ **Match** each question type with the strongest appropriate study design
✓ **Appreciate** why selecting the correct design is essential
✓ **Avoid** common mistakes in study selection
✓ **Prepare** for efficient evidence searching

KNOWLEDGE CHECK

Practice Exercise

Clinical Scenario
A 58-year-old woman with newly diagnosed osteoporosis asks whether weight-bearing exercise reduces her risk of future fractures.

STOP & THINK

Complete each step:

Step 1: Patient

Step 2: Intervention

Step 3: Comparison

Step 4: Outcome

Step 5: Question Type

Step 6: Best Study Design

Final Question
How would you write the complete clinical question?

ANSWER

Step 1: Patient
Women with osteoporosis

Step 2: Intervention
Weight-bearing exercise

Step 3: Comparison
No exercise or standard care

Step 4: Outcome
Reduced fracture risk

Step 5: Question Type
Prevention/Harm

Step 6: Best Study Design
Randomized Controlled Trial or Cohort Study

Final Question
In women with osteoporosis, does weight-bearing exercise compared with standard care reduce the risk of future fractures?

Module Summary

What You Learned

By completing Module 1, you should now be able to:

✅ **Explain** why asking focused clinical questions is the foundation of Evidence-Based Healthcare

✅ **Describe** the Evidence Cycle and the importance of the ASK step

✅ **Construct** a complete PICOTT question

✅ **Identify** the major types of clinical questions

✅ **Match** each question with the strongest study design

✅ **Prepare** an effective question for evidence searching

REMEMBER

Evidence-Based Healthcare begins long before opening a database.

It begins with asking the right question.

Final Take-Home Messages

• Every evidence-based decision starts with a focused clinical question
• Use the PICOTT framework to organize clinical thinking
• Identify the clinical question type before searching
• Match the question to the strongest appropriate study design
• A well-built question makes evidence searching faster, more efficient, and more clinically relevant

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Looking Ahead

Module 2 – ACQUIRE

In the next module you will learn how to:
• Select the most appropriate evidence resource
• Develop an effective search strategy
• Search PubMed efficiently
• Use MeSH terms and Boolean operators
• Retrieve the highest-quality evidence for your clinical question

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EVIDENCE PEARL

"Ask well today, search wisely tomorrow."

EviScore Foundation Course
Evidence-Based Healthcare for Everyone