

EviScore Foundation Course: Module 4

INTEGRATING EVIDENCE-BASED PRACTICES IN HEALTHCARE

EviScore Foundation Course

Module 4: APPLY

Applying Evidence to Individual Patient Care

Module Learning Journey

Module 4: APPLY

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Chapter 1: Understanding the Apply Step

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Chapter 2: Comparing Evidence to Your Patient

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Chapter 3: Balancing Benefits, Harms, and Patient Values

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Chapter 4: Making Evidence-Informed Decisions

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Final Knowledge Check

Learning Outcomes

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

- **Explain** the purpose of the Apply step in Evidence-Based Healthcare
 - **Describe** how evidence, clinical expertise, and patient values work together
 - **Assess** whether research findings are applicable to individual patients
 - **Recognize** why valid evidence may not always be appropriate for every patient
 - **Prepare** for evidence-informed clinical decision-making
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Why This Module Matters

Evidence-Based Healthcare does not end after finding and appraising evidence.

The ultimate goal is to **improve the care of individual patients** by integrating trustworthy research with clinical judgement and patient preferences.

EVIDENCE PEARL

The best evidence is useful only when it benefits the patient sitting in front of you.

CHAPTER 1

Understanding the Apply Step

Evidence-Based Healthcare is fundamentally **patient-centred**—not research-centred.

The Fifth Step of the Evidence Cycle

The Duke Workshop Manual describes **Apply** as the step where clinicians integrate research evidence with clinical expertise and patient values before making healthcare decisions.

The Evidence Cycle

1. **Assess** → Clinical problem identification
 2. **Ask** → Focused clinical question
 3. **Acquire** → Search for evidence
 4. **Appraise** → Evaluate evidence quality
 5. **Apply** ★ → **Integrate evidence with patient care**
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What Applying Evidence Means

- ✓ **Understanding** the research
- ✓ **Considering** the individual patient
- ✓ **Incorporating** clinical expertise
- ✓ **Respecting** patient values and preferences

Important Principle

Evidence alone never determines patient care.
Clinical decisions always require judgement.

EVIDENCE PEARL

Evidence informs decisions—it never replaces clinicians.

Three Components of Clinical Decision-Making

According to the principles of Evidence-Based Healthcare, patient care decisions should integrate three equally important components:

1. Best Available Research Evidence

Current, valid, clinically relevant research

2. Clinical Expertise

Knowledge, skills, experience, and professional judgement

3. Patient Values and Preferences

- Goals and expectations
- Culture and beliefs
- Financial considerations
- Lifestyle factors

Clinical Decision

The intersection of these three components leads to **patient-centred care**.

EVIDENCE PEARL

Evidence-based healthcare is not research-centred—it is patient-centred.

CHAPTER TAKEAWAY

- ✓ **Apply** is the fifth step in the Evidence Cycle
 - ✓ **Evidence alone** never determines patient care
 - ✓ **Three components** must be integrated: evidence, expertise, and patient values
 - ✓ **Patient-centred care** is the ultimate goal
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CHAPTER 2

Comparing Evidence to Your Patient

The first question before applying evidence: *"Are the participants in this study sufficiently*

similar to my patient?"

Are My Patients Similar to the Study Population?

Even when a study is methodologically sound, clinicians should compare:

Study Participants

- Age
- Sex
- Disease severity
- Comorbidities
- Stage of illness

Your Patient

- Similar characteristics?
- Important differences?
- Clinically relevant variations?

Why Does This Matter?

Major differences between study participants and your patient may reduce the applicability of the results.

EVIDENCE PEARL

Internal validity tells us whether to trust the study. Applicability tells us whether to use it.

Were Patient-Important Outcomes Measured?

The Duke Therapy Appraisal Form asks: *"Were all patient-important outcomes considered?"*

Patient-Important Outcomes

Examples include:

- ✓ **Survival**
- ✓ **Functional independence**
- ✓ **Quality of life**
- ✓ **Pain relief**
- ✓ **Symptom improvement**
- ✓ **Ability to return to work**

Surrogate Outcomes

Examples:

- Blood pressure

- Cholesterol levels
- Laboratory biomarkers
- Imaging findings

Surrogate outcomes may predict clinical benefit but do not always reflect outcomes important to patients.

THINK

Would my patient care more about this laboratory result or about living longer with better quality of life?

EVIDENCE PEARL

Patients experience outcomes—not p-values.

External Validity

What Is External Validity?

External validity refers to the extent to which study findings can be generalized beyond the research participants.

Even a well-conducted study may not apply to every clinical situation.

Factors Affecting Applicability

- Patient characteristics
- Healthcare setting
- Available resources
- Clinician expertise
- Patient preferences
- Health system differences

Clinical Example

A randomized trial was conducted in highly specialized stroke centres.

Can the findings be applied in:

- ✓ Rural hospitals?
- ✓ Community rehabilitation centres?
- ✓ Low-resource settings?

EVIDENCE PEARL

A study can be internally valid yet have limited external validity.

CHAPTER TAKEAWAY

- ✓ **Compare** study population with your patient before applying evidence
 - ✓ **Patient-important outcomes** matter more than surrogate measures
 - ✓ **External validity** determines whether findings apply to your setting
 - ✓ **Valid studies** may still have limited applicability
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CHAPTER 3

Balancing Benefits, Harms, and Patient Values

Clinical decisions require balancing potential benefits against possible harms.

Do the Benefits Outweigh the Harms?

The Duke Workshop Manual recommends asking: *"Are the likely benefits worth the potential harms and costs?"*

Consider the Benefits

- Improved survival
- Reduced symptoms
- Better function
- Prevention of complications

Consider the Harms

- Adverse effects
- Complications
- Burden of treatment
- Additional monitoring

Consider Costs

- Financial cost
- Time requirements
- Healthcare resources
- Accessibility

EVIDENCE PEARL

The most effective treatment is not always the best treatment for every patient.

The Role of Patient Values and Preferences

Evidence-Based Healthcare is fundamentally **patient-centred**.

Research evidence should be integrated with each patient's goals, preferences, and circumstances.

Examples of Patient Preferences

- Willingness to accept treatment risks
- Lifestyle considerations
- Cultural or religious beliefs
- Financial constraints
- Desired quality of life
- Personal treatment goals

Shared Decision-Making Process

Clinician + Patient + Best Available Evidence

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Individualized Care Plan

EVIDENCE PEARL

Evidence supports decisions; patients make choices.

When Evidence and Patient Preferences Differ

Sometimes the treatment supported by research evidence is not the treatment chosen by the patient.

Evidence-Based Healthcare respects informed patient choices.

Example Process

Evidence supports anticoagulation for atrial fibrillation

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Patient fears bleeding complications

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Clinician explains:

- Benefits
- Risks
- Alternatives

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Patient participates in the final decision

Shared Decision-Making Requires

- ✓ Honest communication
- ✓ Respect for autonomy

- ✓ Clear explanation of benefits and harms
- ✓ Understanding patient goals

EVIDENCE PEARL

The "best" treatment is the one that combines the best evidence with an informed patient's values.

CHAPTER TAKEAWAY

- ✓ **Balance** benefits, harms, and costs for each patient
 - ✓ **Patient values** are essential to evidence-based decisions
 - ✓ **Shared decision-making** respects patient autonomy
 - ✓ **Different patients** may reasonably choose different treatments
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CHAPTER 4

Making Evidence-Informed Decisions

Applying evidence is a deliberate clinical judgement—not an automatic process.

A Practical Framework for Applying Evidence

Before using research findings in patient care, ask yourself:

Step 1: Is the evidence trustworthy?

- ✓ Valid study methodology

Step 2: Are the results clinically meaningful?

- ✓ Meaningful treatment effect

Step 3: Is my patient sufficiently similar?

- ✓ Appropriate study population

Step 4: Do expected benefits outweigh harms and costs?

- ✓ Favorable benefit-harm balance

Step 5: Does the patient agree after informed discussion?

- ✓ Shared decision-making

Final Decision

Apply | Modify | Do Not Apply

EVIDENCE PEARL

Good clinical decisions require both evidence and judgement.

Clinical Example: Applying Evidence Step by Step

Clinical Scenario

A 72-year-old woman with knee osteoarthritis is considering exercise therapy.

A high-quality randomized controlled trial demonstrates that structured exercise improves pain and physical function.

Applying the Evidence

Step 1: Is the study valid?

✓ Yes

Step 2: Are the results clinically important?

✓ Yes

Step 3: Is the patient similar to those in the study?

✓ Similar age and condition

Step 4: Do the benefits outweigh the harms?

✓ Benefits outweigh minimal risks

Step 5: Does the treatment align with the patient's preferences?

✓ The patient prefers non-pharmacological treatment and is motivated to participate

Clinical Decision

Recommend supervised exercise therapy with shared decision-making and regular follow-up.

EVIDENCE PEARL

Evidence becomes meaningful only when it is translated into individualized patient care.

Why Evidence May Not Be Applied

High-quality evidence does not always mean "use it."

Possible Reasons

- ✓ Patient differs substantially from the study population
- ✓ Important comorbidities were excluded
- ✓ Risks outweigh expected benefits
- ✓ Required resources are unavailable
- ✓ The patient declines the intervention after informed discussion

Clinical Reflection

Evidence answers: "Can this intervention work?"

Clinical judgement asks: "Should I use it for this patient?"

EVIDENCE PEARL

The correct decision is not always to apply the evidence exactly as published.

CHAPTER TAKEAWAY

- ✓ **Five-step framework** guides evidence application
 - ✓ **Clinical judgement** is essential for individualized care
 - ✓ **Valid evidence** may not always be appropriate
 - ✓ **Patient-centred decisions** consider individual circumstances
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Module Summary

What You Learned

By completing Module 4, you should now be able to:

- ✓ **Explain** the purpose of the Apply step
 - ✓ **Determine** whether study participants resemble your patient
 - ✓ **Evaluate** patient-important outcomes
 - ✓ **Balance** benefits, harms, and costs
 - ✓ **Incorporate** patient values into decision-making
 - ✓ **Make** individualized evidence-informed clinical decisions
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The Complete Evidence Cycle

- ✓ **Assess** → Clinical problem identification
- ✓ **Ask** → Focused clinical question
- ✓ **Acquire** → Search for evidence
- ✓ **Appraise** → Evaluate evidence quality
- ✓ **Apply** → Integrate evidence with patient care

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Next Step: Assess → Evaluate outcomes and reflect on decisions

Final Knowledge Check

Case Study

A 68-year-old man with chronic heart failure is eligible for a medication shown in a high-quality randomized controlled trial to reduce hospital admissions.

However:

- He has advanced chronic kidney disease
- The trial excluded patients with severe renal impairment
- The medication is expensive
- The patient prefers to minimize daily medicines

APPLY

Using the five-step framework, determine whether this evidence should be:

- **Applied** as studied?
- **Modified** for this patient?
- **Not applied** in this case?

Consider: exclusion criteria, comorbidities, patient values, and resource implications.

REMEMBER

Key Take-Home Messages

Evidence informs decisions—but thoughtful clinicians individualize them

The best evidence is useful only when it benefits the patient sitting in front of you

Evidence-based healthcare seeks the best decision for the individual patient, not simply the average patient in a clinical trial

Good clinical decisions require both evidence and judgement

Looking Ahead: Module 5 – ASSESS

In the next module, you will learn how to:

- Evaluate patient outcomes
- Reflect on your clinical decision
- Identify opportunities for improvement
- Complete the Evidence Cycle

EVIDENCE PEARL

Evidence-Based Healthcare is complete only when we evaluate the results of our decisions.

References: Duke University Evidence-Based Practice Workshop Manual (Abbreviated Version 2024)