LEARNING MODULE FOR PATIENTS AND THE PUBLIC:

ACE agency for care effectiveness

How is clinical effectiveness assessed in health technology assessment (HTA)?

QUICK RECAP

Health technology assessment (HTA) considers various types of evidence to help decision-makers determine the value of a new health technology compared to alternatives. While HTA processes may differ across countries, they generally follow similar steps to gather the **best available evidence**, ensuring that decisions are transparent, evidence-based and aligned with the needs and priorities of patients and the health system.

What is clinical efficacy?

Clinical efficacy measures the benefits and harms of a health technology under **ideal circumstances**, such as in a **controlled clinical trial**.

What is clinical effectiveness?

Clinical effectiveness describes how well a health technology **works** compared with other options when used in **everyday medical care.** This is important because results can differ from clinical trials, where conditions are more controlled. For example, if a patient takes the wrong dose of their medicine or misses a dose, it may not work as well or achieve the same effect seen in a clinical trial.

Clinical effectiveness is measured using **actual patient outcomes** that can be grouped as:

Improved health status such as survival, cure, or an improvement in symptoms or quality of life.

Worsening health status such as adverse reactions, or number of hospitalisations or deaths.

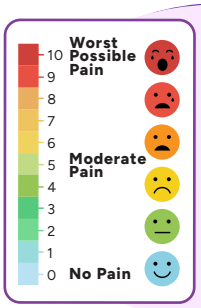
Both efficacy and effectiveness studies can provide useful information about the effect of a health technology and help decision-makers understand how well it works compared to alternative options.

What is clinical importance?

Clinical importance refers to whether a treatment benefit is **important to patients and healthcare professionals**. A health technology may be clinically effective (it works), but the improvement might be too small to be considered important in practice (clinically important).

One way to understand this is through the **minimal clinically important difference (MCID)**. This is the smallest change in an outcome that patients would consider meaningful.

For example, pain is often measured using a pain score. If you have knee pain that makes climbing stairs hard, a small reduction in your pain score might not make a noticeable difference in your daily life. The MCID represents the smallest reduction in pain that you feel is beneficial.



A pain score is a subjective measurement of pain intensity, usually on a scale of 0 (no pain) to 10 (worst pain imaginable).

Improvement lower than the MCID

If a new treatment lowers your pain score from 8 to 6, this 2-point improvement may not be enough for you to be able to climb stairs easily.

Improvement higher than the MCID

However, if the pain score drops from 8 to 4 and you can climb stairs more comfortably, this 4-point improvement makes an important difference to your daily life.

Even if a study shows a health technology 'works' statistically, the improvement must be noticeable and meaningful to the patient to be considered clinically important.

How is information gathered to determine clinical effectiveness?

For each HTA, clinical effectiveness is assessed by reviewing all relevant research. This process includes the following steps:

1. **Searching for evidence:** Researchers carry out comprehensive searches across different sources to **find studies** on the health technology being evaluated.
2. **Selecting relevant studies:** Studies are screened using pre-defined criteria to make sure they are **relevant** to the evaluation.
3. **Checking study quality:** The selected studies are **carefully reviewed** using quality assessment tools. Where possible, findings are also checked against other sources to confirm accuracy.
4. **Analysing the evidence:** Key information is **extracted**, **analysed** and **combined** to answer important questions about how well the health technology works, how safe it is, and its overall outcomes.

How do stakeholders provide input into an HTA?

At the start of each HTA, stakeholders such as clinicians, patients, caregivers, and health technology companies who have an interest or expertise in the HTA topic, are invited to provide evidence and share their views. Their perspectives help decision-makers understand and interpret the evidence, so their recommendations are practical and relevant to the people affected by them.

QUIZ

1. Which statement best describes clinical effectiveness?

A. It measures how well a health technology works under ideal conditions in a clinical trial

B. It measures how well a health technology improves patient outcomes in real-world settings

C. It refers to patient satisfaction with a health technology

2. Which of the following is true about the information used to assess the clinical effectiveness of a health technology?

A. Any information can be used without checking its quality

B. Information from a single source is enough to determine clinical effectiveness

C. The best available evidence from multiple reliable sources should be used where possible

Note down your answers and **click here** to see the correct answers on the next page.

ANSWERS

1. Which statement best describes clinical effectiveness?

A. It measures how well a health technology works under ideal conditions in a clinical trial

B. It measures how well a health technology improves patient outcomes in real-world settings ✓

C. It refers to patient satisfaction with a health technology

B: Clinical effectiveness describes how well a health technology works in real-world conditions compared to other available options, and is measured using different patient-relevant outcomes. Decision-makers will consider questions such as:

- Is the health technology more effective and/or safer than alternatives?
- Are the benefits of the health technology important to patients?

2. Which of the following is true about the information used to assess the clinical effectiveness of a health technology?

A. Any information can be used without checking its quality

B. Information from a single source is enough to determine clinical effectiveness

C. The best available evidence from multiple reliable sources should be used where possible ✓

C: In an HTA, the best available evidence from local and international sources is gathered using a comprehensive search strategy, checked for quality and analysed to determine the clinical effectiveness of the health technology. Decision-makers consider questions such as:

- Is the evidence strong or weak?
- How confident are we that patients will experience the benefits of the health technology seen in the evidence?
- How relevant are the study findings to patients in Singapore?

Learning Modules are developed by the Consumer Engagement and Education (CEE) team at ACE. For more information about other educational resources or opportunities to get involved in ACE's work, please refer to our webpage or contact us at ace_cee@moh.gov.sg.

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