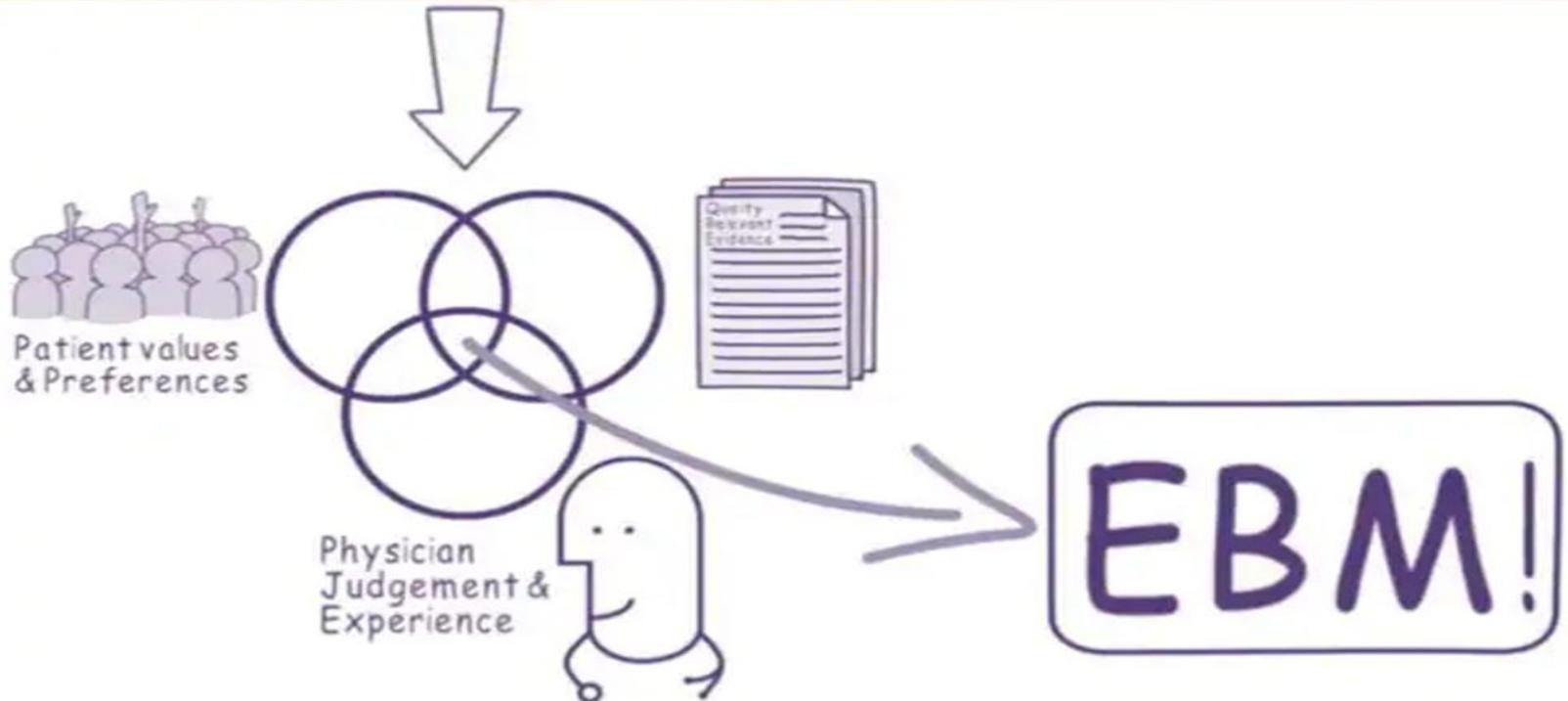


Evidence based medicine

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EBM INCLUDES:



What is Evidence based medicine?

- Evidence based medicine is honest (conscientious), wise (judicious) and clear use of current best evidence in making decisions about the care of individual patients.
- The integration of the best evidence from systematic research with physician experience and patients values

Clinical
Expertise

Best
Evidence

EBM

Patient
Values

EBM. Why ?

- On graduation , the graduate has a crowded brain with so much up-to –date background knowledge while nil experience.
- On facing patient, he/ she asks: “which piece of all my knowledge I need here ?”



As time Pass

- The Knowledge inside his/her brain gets little and little. Instead he/she now has clinical experience which sometimes entails doing the same mistakes with increasing level of confidence .

As more time Pass

- He/She is now an expert.
- He/She feels not in need for new knowledge.
- He/She is not accepting that there is something better than what he/she is doing.

Benefits of Evidence-Based Medical practice (proponents)

- **New skills of literature research & evaluation.**
- **Appraisal of research for patients benefits.**
- **Better self satisfaction with work on scientific background.**
- **Legal support for our choices.**
- **Better results of our practice.**
- **Solution for conditions that usually have unsatisfactory results.**

EBM HAS TRIPLE AIM OBJECTIVE

- IMPROVED QUALITY
- IMPROVED PATIENT
SATISFACTION
- REDUCED COSTS

EBM METHOD:

It is done by 5 steps

Step 1:

Assess the patient condition

Step 2:

To ask a question

Step 3:

Aquire the best evidence

Step 4:

Appraise the evidence

Step 5:

Apply the evidence to patient



Step 1:

Assess the patient condition:

- History.
- Diagnosis :
 - Physical Examination
 - Objective data-Lab details like
X rays, blood tests
- Differential diagnosis should be conducted in all the diseases.

Step 2:

ASK A QUESTION:

- Asking a clinical questions to patient by pharmacist after assessment?
- PICO is the useful tool in asking a clearly focused question.
- The complicated clinical question can be dissected into small parts (PICO) and in a way that the patient can clearly structure the question.
- The terms of PICO can be used in searching for medical literature.

P: patient

I: intervention

C: comparison

O: outcome

4 ELEMENTS WHILE ASKING THE QUESTION:

the patient or problem being addressed	Patient
the intervention or exposure being considered	Intervention
the comparison intervention or exposure when relevant	Comparison
the clinical outcomes of interest	Outcome

EXAMPLE:

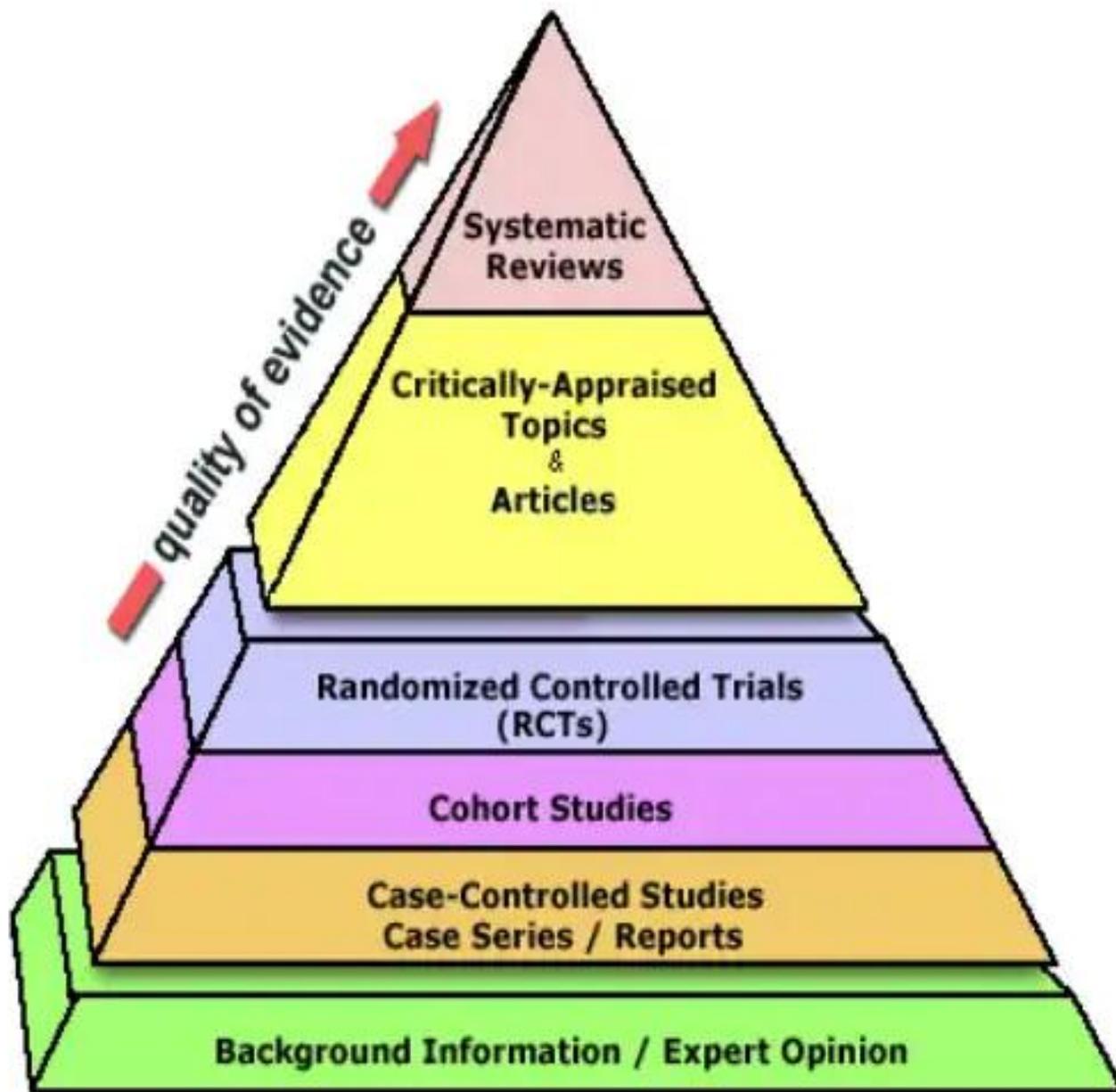
Adults who have suffered a heart attack in the past month	Patient
Aspirin	Intervention
No treatment/placebo	Comparison
Death	Outcome

Step 3:

TO ACQUIRE BEST EVIDENCE:

High quality evidence is obtained from:

- ❖ Textbooks
- ❖ Medline or Pub med search
- ❖ Clinical research
- ❖ Systematic reviews
- ❖ Browse online electronic databases



Step 4:

APPRASIAL OF EVIDENCE:

Apprasial means

Verifying the results valid?

What are the results?

Are the results suited to our patient?

- **Screening for internal validity and relevance.**
- **Determining the intent of the article.**
- **Evaluating the validity based on its intent.**
- **Critically appraise articles yourself.**

Step 5:

APPLY THE EVIDENCE:

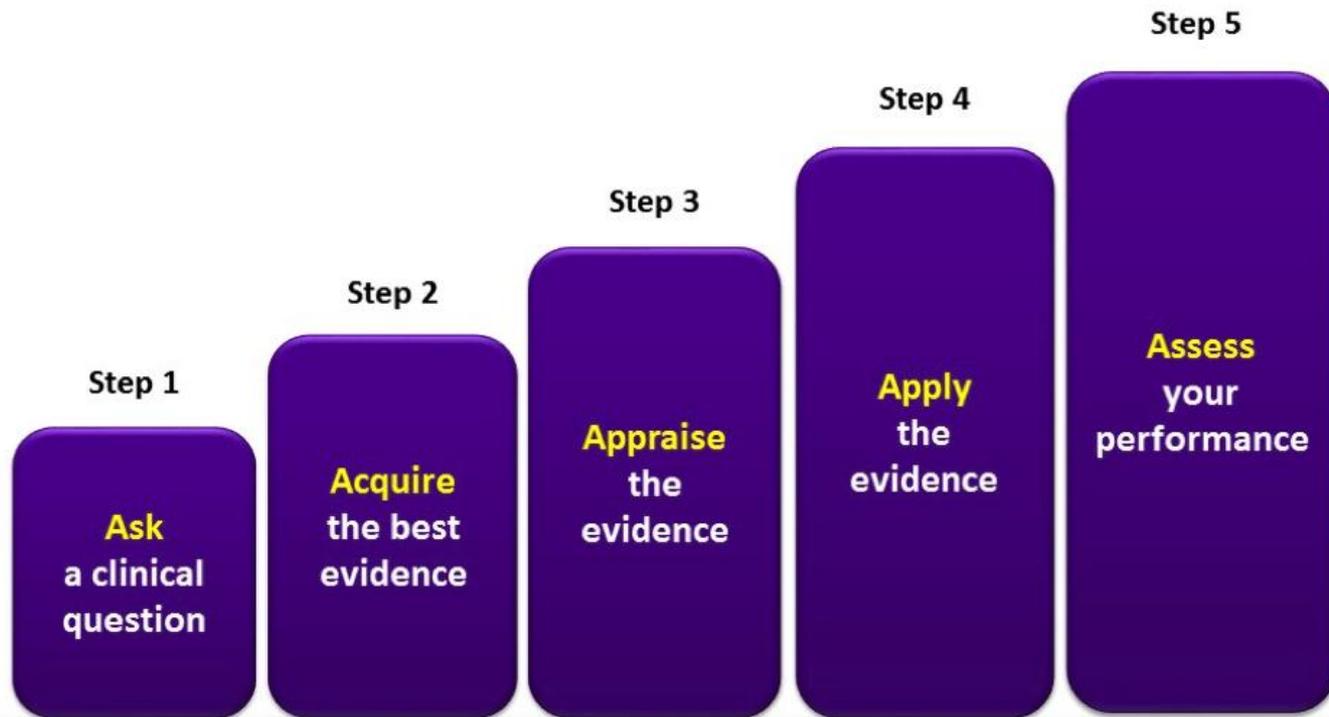
- Best documented critically appraised research evidence is already with us.
- Patient values to be considered while applying evidence are
 - Economical/Financial status of patient.
 - No contraindication for drug to be applied.
 - Dosage form preferred.
- Integrate the evidence with clinical expertise and patient preferences.
- Evidence is applied on patient.

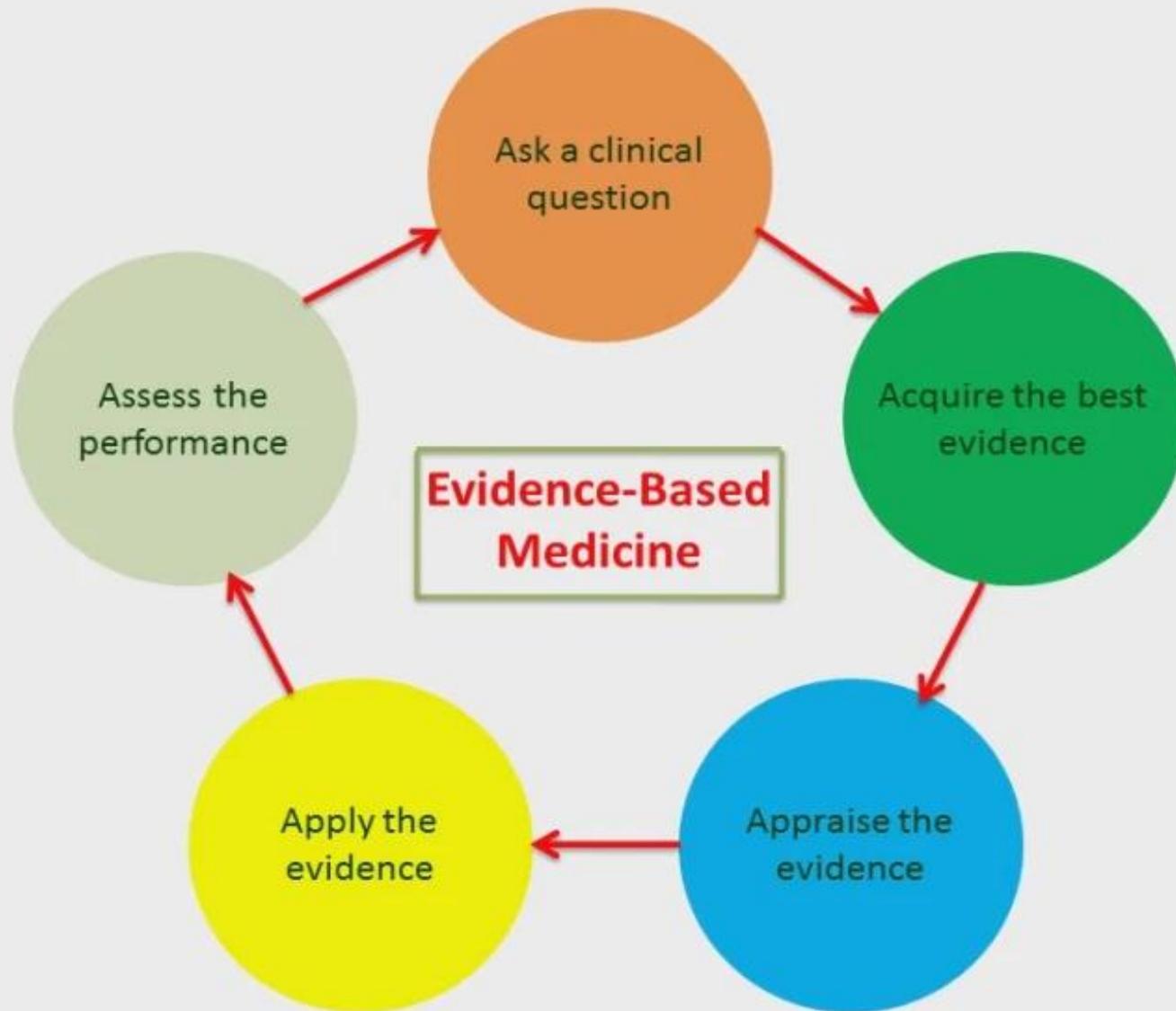
5 A model of Evidence Based Medicine

Steps

- **Assessment** of patient & problem (patient).
- **Asking** proper question about the patient problem (PICO question)
- **Acquiring** the best available evidence that answer that question.
- **Appraisal** of the evidence for its validity & usefulness (Evaluation).
- **Applying** the results of appraised evidence to the patient (patient).

The 5 Steps of Evidence-Based Medicine





Clinical scenario to show the difference between background questions & Foreground question = EBM question=PICO question= 4 parts question

- Hatem is 4 years old, presented with idiopathic thrombocytopenic purpura (ITP) , mild gum bleeding
- He is clinically stable, and his physical examination is otherwise normal
- Complete blood count is totally normal apart from severe thrombocytopenia (platelet count < 10000 /mm)
- You decided to admit him and start treatment with intravenous immunoglobulin (IVIG).
- One student asked you if treatment with pulsed high dose methyl prednisolone would result in similar improvement & much lower cost for the hospital.

Background questions = Non EBM questions =
Not developed specifically for certain patient

- What is idiopathic thrombocytopenic purpura (ITP) ?
- What is the clinical signs & symptoms?
- How can we diagnose this disease?
- What are the treatment options for?

PICO = EBM question = developed specifically from certain situation

- In child suffering from ITP does treatment with steroids, compared to IVIG results in rapid cure (treatment question)
- In children suffering from ITP is complete blood picture as accurate as bone marrow aspirate in diagnosis (diagnosis question)

Access

- **Access to evidence comes After developing the PICO question by :**
- **Efficient internet search for Relevant research with strong study design**



Efficient internet & journals search

- Meta analysis or Systematic Review (IF NOT FOUND)
- Effectiveness of a therapy (RCT)
- Effectiveness of a diagnostic test (Validity of a test)
- Harm of a therapy by (RCT or Cohort or Case control).
- Prognosis of a disease by (Cohort)

Efficient literature search

Try to find :

- 1 . **Meta analysis or systematic review** of well designed randomized controlled trials
- 2 . Strong evidence of a **well RCT** of appropriate size.
- 3 . Cohort study.
- 4 . Case control study.
- 5 . Multiple cross sectional studies

Systemic Review

- Collection of *all* evidences in a particular field of research by *systematic search of literature and unpublished sources* and evaluation of these evidences *using predefined quality criteria*.
- **Journalistic (non-systematic) review**
It differs from systematic review as only some evidences on a topic are collected with author's personal opinion.
- (overviews written by experts in the field)

Meta-analysis

- Meta-analysis is the systemic process of combining the numerical results of different research studies using statistical methods to obtain a numerical estimate of an overall effect
- It is combining the results of several clinical studies on the same topic to drive a definitive conclusion from varied and sometimes contradictory results

Meta-analysis versus systemic review

Similarity:

- Both entail systemic search of literature and unpublished sources to collect all what are similar to research question.

Difference:

- Meta-analysis attempts to statistically analyse the aggregated results to drive single integrated conclusion while systematic review does not do so.

Literature Review

- **Summarizes** a topic that is **broad** in scope (e.x. cancer treatment)
- **Qualitative**
- May use sources that are **biased**
- Does **not** define what types of studies will be included (looks at everything)

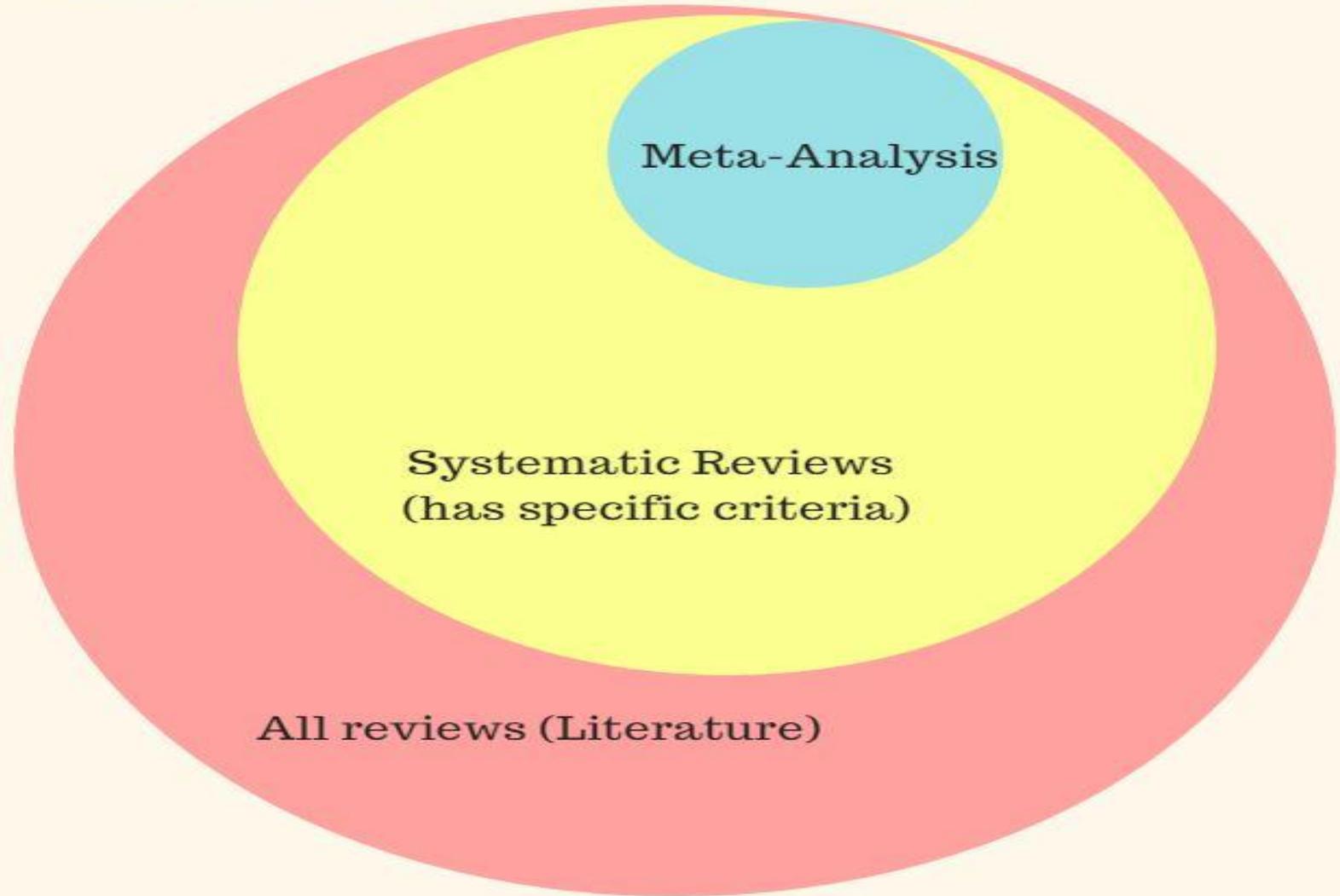
Systematic Review

- Answers a **specific clinical question** (e.x. PICO) (e.x. Is Vitamin C or Chemotherapy a better cancer treatment in patients over the age of 40?)
- **Defines** a specific search strategy; lists what will be **included and excluded** in articles selected
- Can include a meta-analysis within the review (but not necessary)

Meta-Analysis

- Looks at studies from a systemic review
- Purpose: Combines similar studies and pulls **data** to get a **statistically significant** result
- Important because **statistical analysis** may overturn results of smaller clinical trials

How Are Reviews Related?



Evaluating the clinical literature.

Why?

The clinician must always keep in mind that:

- Not all the published papers in scientific journals or on the web contain the best results or conclusions about disease management.
- Results can be fabricated.
- Conclusion may be obtained from small study. Sample which cannot be generalized on all patients.
- Wrong techniques or methodology.
- Data were analyzed by improper statistical methods.

A photograph of a white card with the words "Thank you" written in purple cursive. The card is placed on a light-colored, marbled surface. To the left of the card is a bouquet of small purple flowers with green leaves. To the right of the card is a black pen with a white grip and a silver clip. In the background, there is a pink and white patterned gift box.

Thank
you