



Question Forming

Lee Chee Siong (李智雄)

Center for Evidence-based Medicine
Department of Clinical Education and Training
Kaohsiung Medical University Hospital



Clinical Medicine

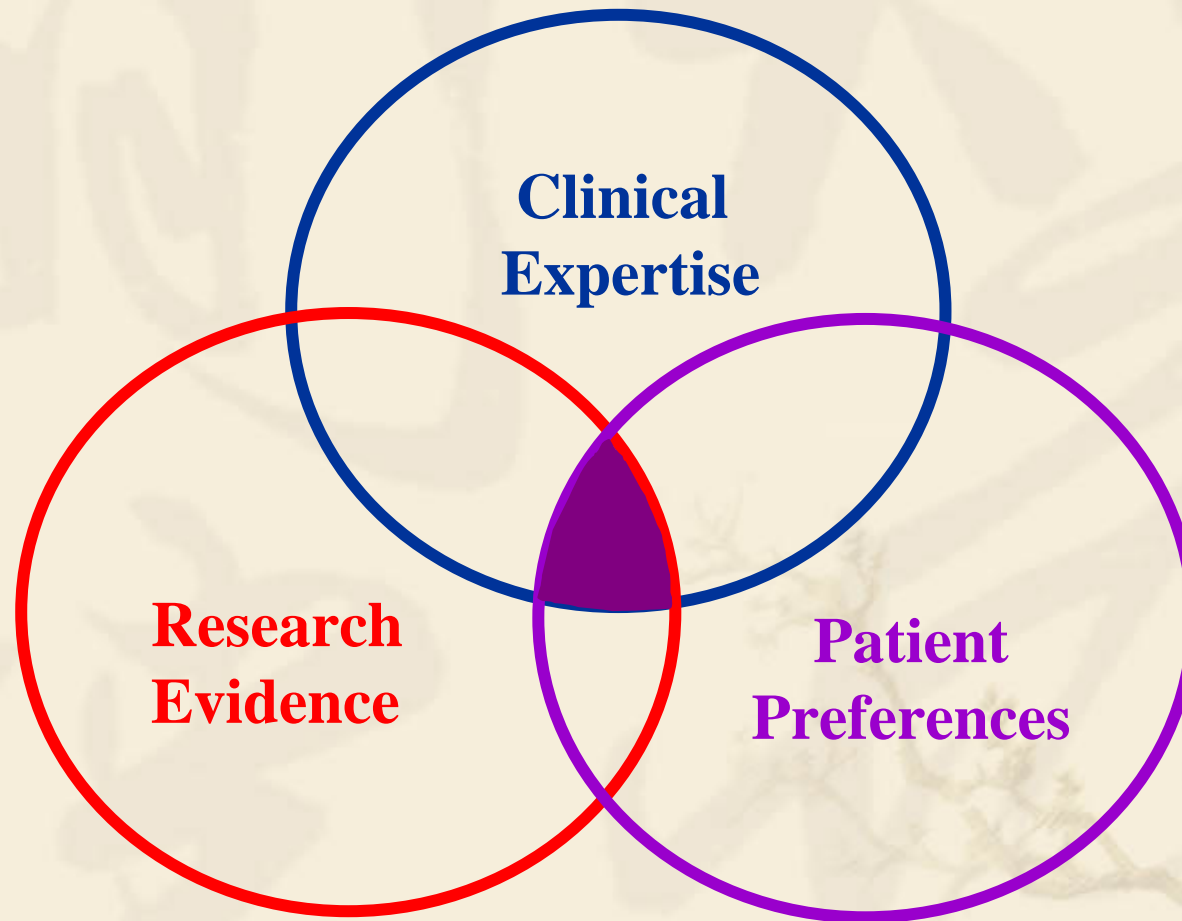
- ❖ Dr. William Osler:
 - ❧ A science of **uncertainty** and an art of **probability**
- ❖ Disagreement
- ❖ Multi-morbidity
- ❖ Task of clinicians: **Clinical judgement**
- ❖ Evidence-based medicine aims at the reduction of uncertainty

Evidence-based Medicine

A **clinical skill** that provides you with

- the tools you need to find important new medical research quickly and easily
- and to work out its implications for your clinical practice

Evidence-based Decision Making



執行EBM的五個步驟 (I)

1. 問問題 (可以回答的問題)

↻ **Converting the need for information into an answerable question.**

2. 找資料 (可獲得最好的證據資訊)

↻ **Search the database and tracking down the best evidence.**

3. 分析判斷 (文獻的效度與重要性)

↻ **Critical appraising that evidence for its validity and importance.**

執行EBM的五個步驟 (II)

4. 臨床應用 (整合三大層面)

∞ Integrating the critical appraising with our clinical expertise and our patient's unique biology, values and circumstances.

5. 評估成果 (執行EBM的效率)

∞ Evaluating our effectiveness and efficiency in executing step 1- 4 and seeking ways to improve them both for next time.

Why We Need to Form Questions ?

- ❖ Identify our knowledge gap
- ❖ Confirm the content of a question
- ❖ Guide the direction of literature search
- ❖ Train to generate questions
- ❖ Prioritize questions to be answered

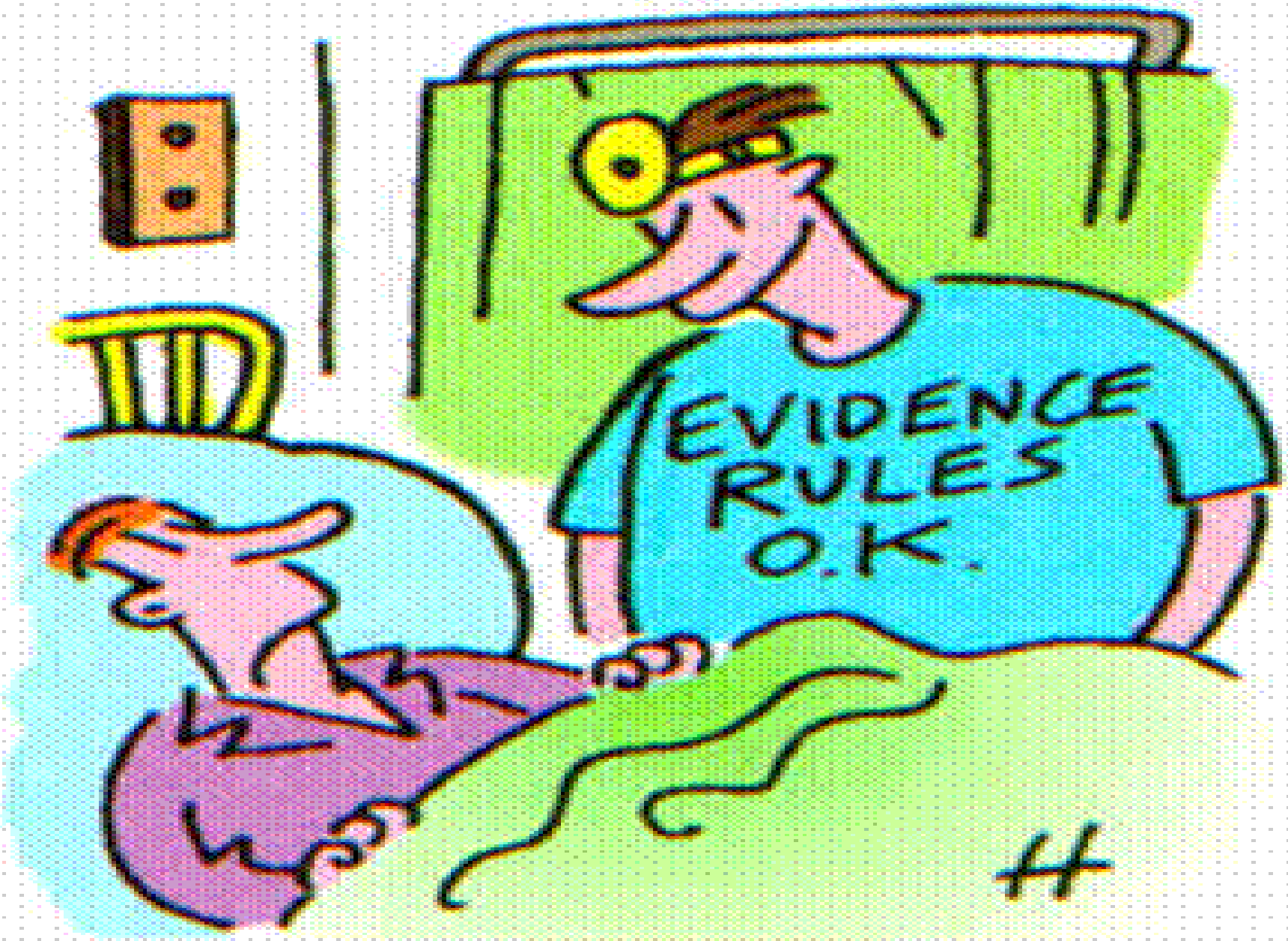


Ask an answerable question

臨床問題從哪裡來？



EBM is the process begins and ends with patients !!!!



Case Scenario

- ❖ A 80 y/o man admitted for dyspnea and fever
- ❖ 4 days ago, low grade fever, chills, myalgias, rhinorrhea, dry cough
- ❖ 1 day ago, DOE, purulent sputum, shaking chill and chest pain with inspiration
- ❖ PH: H/T for 20 years well controlled with diuretic, no smoking, no DM
- ❖ PE: RR: 28/min, PR: 108/min, BT:30°C, bronchophony and egophony in the left posterior lung field
- ❖ Blood test: leucocytosis and hyponatremia
- ❖ Plan: CXR, sputum studies, O2 and antimicrobial therapy

Medical Student's Questions

- ❖ What is pneumonia ?
- ❖ What microbial organisms can cause community-acquired pneumonia ?
- ❖ How does pneumonia cause egophony?
- ❖ How to diagnose a pneumonia ?
- ❖ Who is going to get pneumonia ?

Resident's Questions

- ❖ In patients with suspected pneumonia, are any clinical findings sufficiently powerful to confirm or exclude pneumonia, or is a CXR necessary for the diagnosis?
- ❖ In patients with community-acquired pneumonia, is the probability of Legionella infection sufficiently high to warrant considering covering this organism with the initial antibiotic choice?
- ❖ In patients with community-acquired pneumonia, do clinical features predict outcome well enough that low risk patients can be treated at home?

Attending Physician's Questions

- ❖ In hospitalized community-acquired pneumonia, does empirical coverage of atypical pathogen reduce mortality ?
- ❖ How good is CRP in the diagnosis of lower respiratory tract infection ?

Background questions

- Ask for general knowledge about a disorder
- Two components:
 - A question root (who, what, where, when, how, why)
 - What is the disorder ?
 - What causes it ?
 - How does it present ?
 - What are some treatment options ?
 - A disorder, or an aspect of disorder
- Background resources: textbooks, narrative reviews in journals (Online Harrison, UpToDate)

Answering only background questions is insufficient to help getting the best available care to our patients

Foreground questions

- Ask for specific knowledge about managing patients with a disorder
- Four (or three): **PICO**
 - **P**atient and/or problem
 - **I**ntervention (exposure, test)
 - **C**omparison intervention (if relevant)
 - **O**utcomes

PECOT

What types of participants?

- Disease or condition of interest
- Potential co-morbidity
- Setting
- Demographic factors
- Task of clinical problem

What types of intervention?

- Types of treatment
- Type of diagnostic test
- Type of causative agent
- Type of prognostic factor

What types of outcomes?

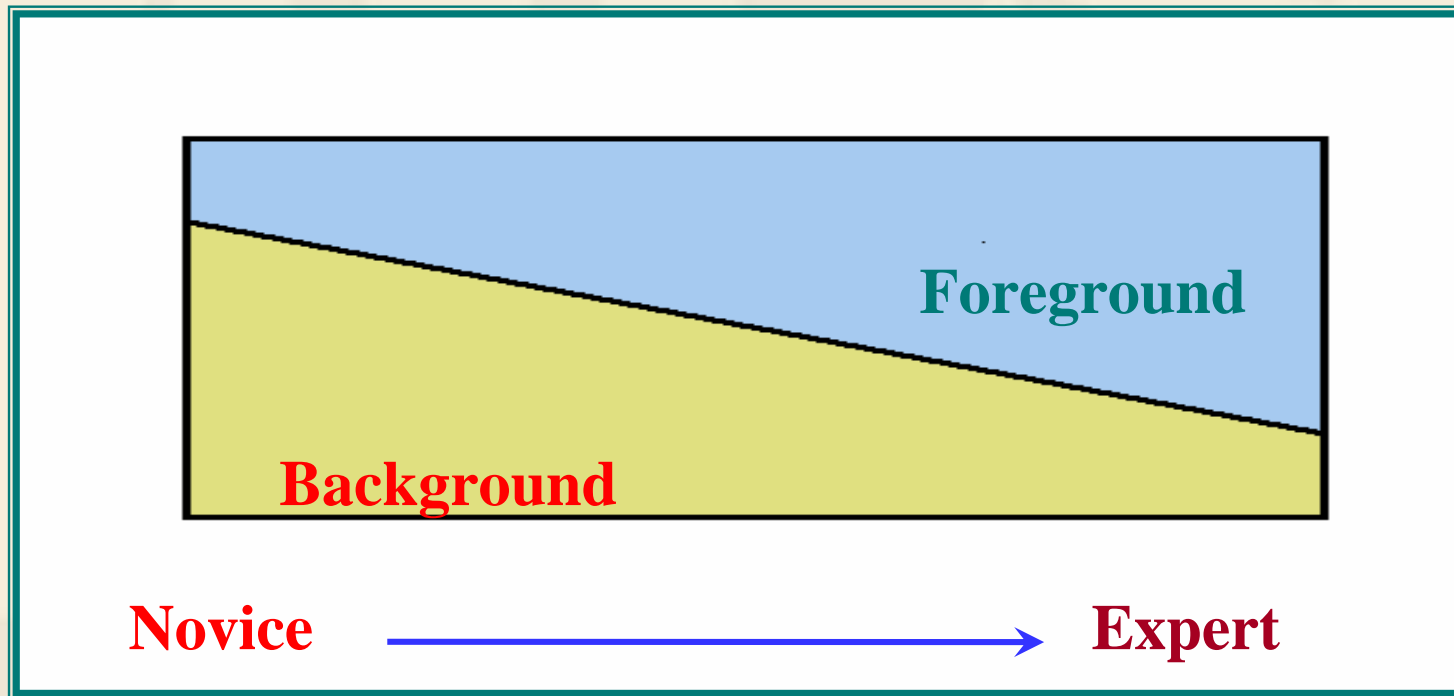
- For causation, outcome is disease
- For diagnostic test, outcome is disease of interest
- For treatment include all outcomes important to people making decisions to define success of therapy
- For prognosis, outcome is the chosen endpoint of the disease

Outcome must be clinically important

Formulate A PICO Question

P	Patient or population	Describes patient (age, sex, race, past medical history, etc)	A 50 year-old woman with a family history of breast cancer
I	Intervention	What happens or is to be done; treatment, diagnostic test, exposure, screening	Hormone replacement therapy
C	Comparison	Compared to what? Nothing, placebo, gold standard, another intervention	Placebo
O	Outcomes	What is the effect of the intervention? (Be specific, mortality after a particular time period, hospitalizations)	Prevention of Alzheimer's disease

Background 與 Foreground 問題的關係



- ◆ Novice asked more background questions
- ◆ Expert asked more foreground questions

Ask an answerable question?

問一個可以回答的問題？

- 臨床發現 (clinical findings)
- 病因 (etiology)
- 疾病的臨床表徵 (clinical manifestations of diseases)
- 鑑別診斷與診斷檢查 (DDx & diagnostic test)
- 治療 (therapy)
- 預後 (prognosis)
- 預防措施 (prevention)
- 經驗與意義 (experience & meaning)
- 自我進步 (self-improvement)

Determining question type

❖ Therapy

☞ Determining the effect of different treatments on improving patient function or avoiding adverse events

❖ Harm

☞ Ascertaining the effects of potentially harmful agents (including the vary therapies we would be interested) on patient function, morbidity, and mortality

❖ Diagnosis (tests)

☞ Establishing the power of an intervention to differentiate between those with & without a target condition of disease

❖ Prognosis

☞ Estimating the future course of a patient's disease

Economic analysis, quality of life measurement

Case Scenario

Department of Nephrology

- ❖ A 29 year-old man with past history of
 - ❧ Chronic kidney disease, stage V, pre-dialysis stage, ADPKD related
 - ❧ Autosomal - dominant polycystic kidney disease (ADPKD)
 - ❧ Gouty arthritis
 - ❧ CAD post stenting
 - ❧ Hypertension
- ❖ Family asked:
 - “Could the patient received peritoneal dialysis other than hemodialysis???.……”

Background information: ADPKD

- ❖ Hereditary disorder, prevalence : 1/1000
- ❖ Mutations with pkd1 (85%) and pkd2 (15%)
- ❖ Formation of renal cysts in the kidney and other organs (liver, pancreas, spleen)
- ❖ Symptoms progress with age
- ❖ The major cause of morbidity is progressive renal dysfunction
- ❖ Half of patients with ADPKD undergo renal replacement therapy by age 60 years
- ❖ Cause of mortality:
 - ❧ Cardiovascular, on dialysis
 - ❧ Infection, on dialysis
 - ❧ Subarachnoidal hemorrhage from intracranial aneurysms (ICAs)

Asking Questions


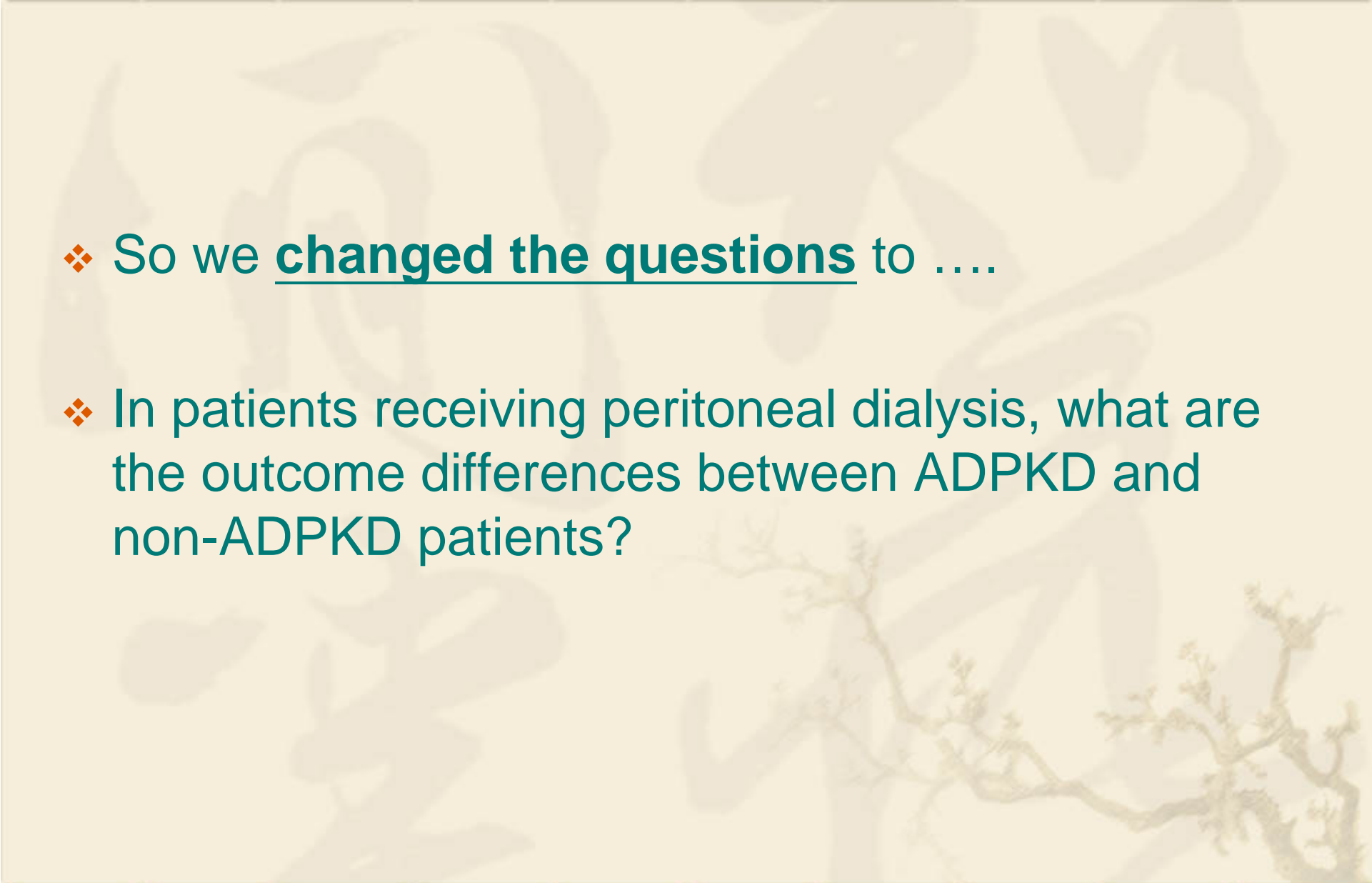
- ❖ Could ADPKD patients receive peritoneal dialysis??
- ❖ For ADPKD patients, would peritoneal dialysis increase morbidity and mortality if compared with hemodialysis??
- ❖ What are the outcome differences between peritoneal dialysis and hemodialysis in ADPKD patients ??

Thinking process

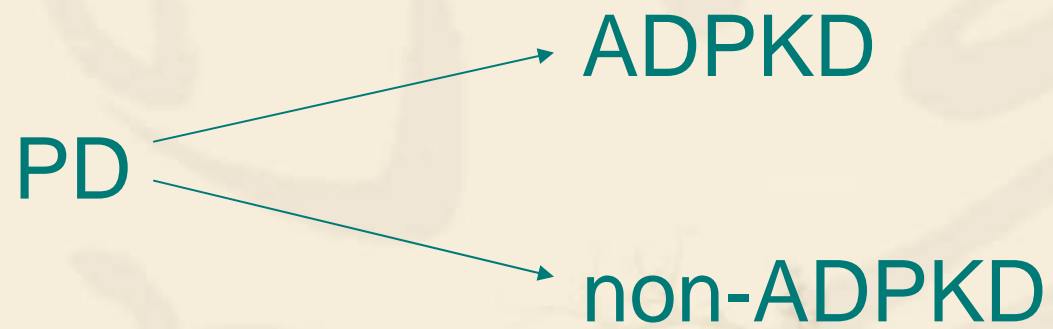


P.I.C.O.

- ❖ P (patient):
 - ☞ Patient of ADPKD, ESRD
- ❖ I (intervention):
 - ☞ Peritoneal dialysis
- ❖ C (comparison):
 - ☞ Hemodialysis
- ❖ O (outcome):
 - ☞ Prognosis, morbidity, and mortality

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- 
- ❖ So we changed the questions to
 - ❖ In patients receiving peritoneal dialysis, what are the outcome differences between ADPKD and non-ADPKD patients?

Thinking process



P.I.C.O.

- ❖ P (patient):
 - ⌘ Patient on peritoneal dialysis
- ❖ I (intervention):
 - ⌘ ADPKD
- ❖ C (comparison):
 - ⌘ Non-ADPKD
- ❖ O (outcome):
 - ⌘ Prognosis, morbidity, and mortality

Case Scenario

Department of Dermatology

- ❖ 39-year-old female
- ❖ Chief Complaint : A pigmented lesion on her third toe of the right foot for more than ten years and gradually spread out in the recent 3 years. An increase in the size of the lesion over the past several months.
- ❖ Past history: denied any systemic disease
- ❖ Family history: unremarkable

2.5x2.3 cm mottled pigmented patch



Clinical Problem

- ❖ **How accurate is dermoscopy in diagnosing malignant melanoma in patients with melanocytic lesions?**

PICO

- ❖ Patient / problem
Melanocytic lesions of acral sites
- ❖ Intervention (therapy, diagnostic test, exposure)
Dermoscopy
- ❖ Comparison
Histopathology
- ❖ Outcome
Diagnosis of malignant melanoma (Sensitivity 及 Specificity)

病患基本資料

- ❖ 病歷號碼：21XXX133
- ❖ 姓名：邱 X 晴
- ❖ 年齡：23歲
- ❖ 職業：學生

- ❖ 婦產科初診：94 / 08 / 09
- ❖ 中醫婦科初診：95 / 12 / 25

個案病歷摘要

- ❖ 主訴: 93/08 起無月經
- ❖ 初經: 83年
- ❖ 現病史: 這位23歲的女病患因無月經一年，於94/08/09 至婦產科就診
- ❖ 95/12/25 至中醫部就診
- ❖ 自96/01 停服荷爾蒙藥物，改服中藥
- ❖ 過去病史: 過敏性鼻炎

Asking an answerable question

- ❖ 相較於賀爾蒙治療，利用中醫藥治療繼發性閉經，是否能有效改善病人的卵巢功能與恢復正常經期

提出可回答的問題

Patient：繼發性閉經

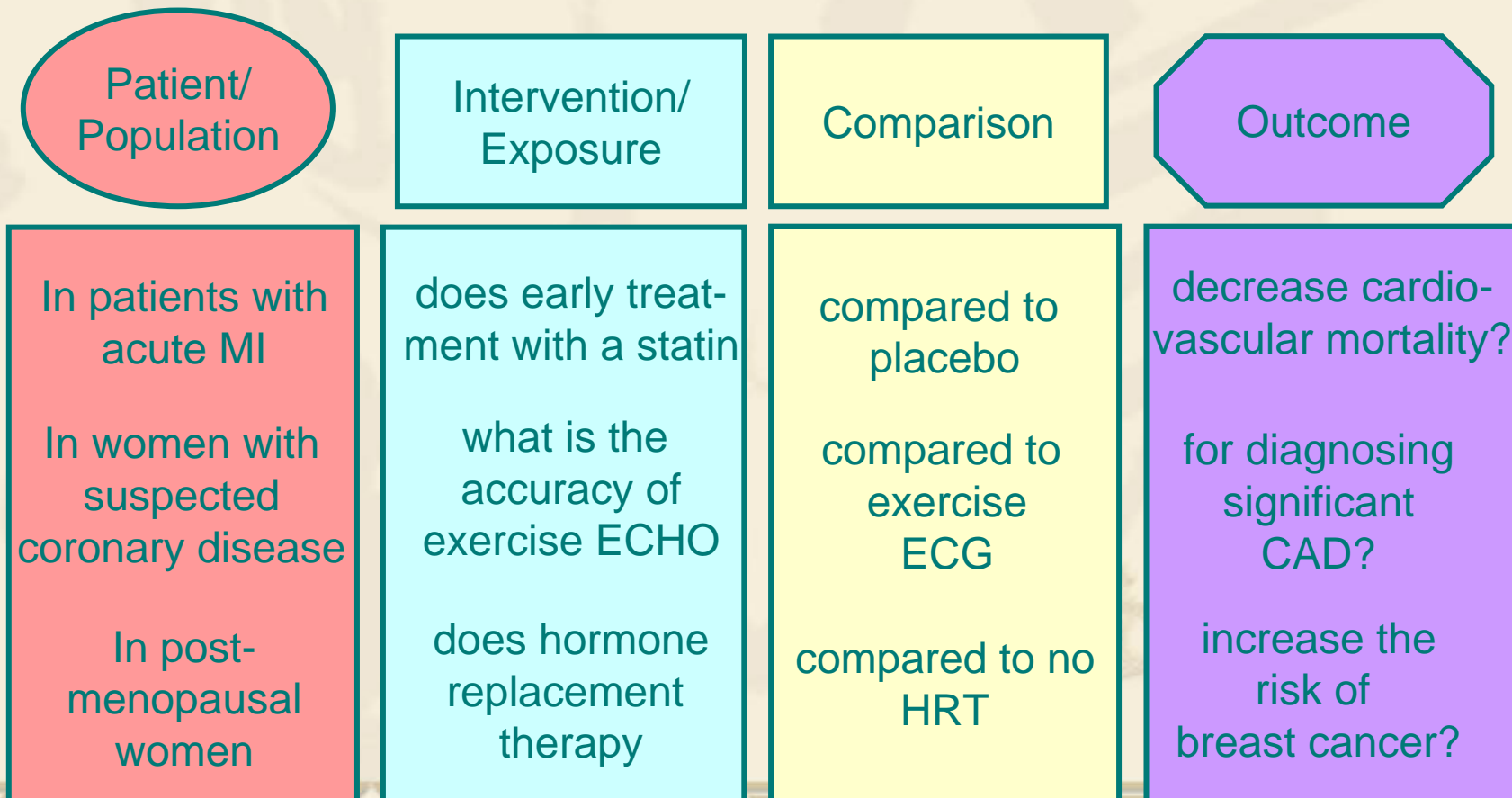
Intervention：使用中醫藥治療繼發性閉經

Comparison：荷爾蒙療法

Outcome：月經周期恢復正常，卵巢功能

Ask Clinical Questions

Components of Clinical Questions



Formulate an Answerable Question

- ❖ Patient or Population: _____
 - ❖ Intervention or Indicator: _____
 - ❖ Comparator: _____
 - ❖ Outcome: _____
- Question sentence: _____
- _____

Think about:

- **What type of question is this ?**
- **What would be the ideal study type ?**
- **What would be the best feasible study type ?**

Why We Need To Use PICO

- ❖ Efficient – you know what you want in your limited time
- ❖ To help identifying research types that answer our questions,
- ❖ Improve search precision
- ❖ Understand the patient faster and better
- ❖ Retainable knowledge acquired through comprehensive but easy method
- ❖ Teaching: more focused and efficient

Problems in Posing Answerable Questions

- ❖ When we are puzzled by a patient but don't know where to start
- ❖ When we have trouble articulating the question
- ❖ When we have more questions than time

Patient-Centered Questions

- ❖ “What do you think is the problem?”
- ❖ “Have you any thoughts about what treatment you need?”
- ❖ “What alternatives have you heard about?”
- ❖ “What benefits do you need?”

Incorporating patient’s responses into our PICO will ensure patient-centered answers that enhance the quality of our consultations

Factors To Consider When Deciding Which Question To Answer First

- ❖ Which question is most important to the patient's well-being ?
- ❖ Which question is most relevant to our learner's needs ?
- ❖ Which question is most feasible to answer within the time we have available ?
- ❖ Which question is most interesting ?
- ❖ Which question is most likely to recur in our practice ?

Teaching The “Asking Questions”

- ❖ Good questions are the backbone of both practicing and teaching EBM
- ❖ Patients serve as the starting point
- ❖ Questions that are both patient-based and learner-centered
- ❖ As with other clinical skills, teach “asking question” best by modeling using examples

Key Steps in Teaching “Asking Questions”

❖ Recognize

☞ To identify combinations of a patient’s needs and a learner’s needs

❖ Select

☞ To select the one that best fits the needs at that clinical moment

❖ Guide

☞ To guide the learner in transforming knowledge gaps into well-built clinical questions

❖ Assess

☞ To assess the learner’s performance and skill at asking pertinent, answerable clinical questions

在「提出臨床問題」方面的自我評估

- ❖ 我提出的問題是否具有臨床重要性？
- ❖ 我是否明確的陳述了我的問題？
 - ☞ 我的foreground question 是否可以清楚的寫成PICO？
 - ☞ 我的background question 是否包括what, when, how, who等字根？
- ❖ 我是否清楚的知道自己問題的定位？（亦即可以定位自己的問題是屬於診斷上的、治療上的、預後上的或流行病學上的），並據以提出問題？
- ❖ 對於無法立刻回答的問題，我是否有任何方式將問題紀錄起來以備將來有空時再找答案？