

*實證醫學

Evidence Based Medicine(EBM)

PICO

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實證醫學組

* 實證醫學的五個步驟

- 1) Ask an answerable question [問可以回答的問題]
- 2) Search for the best evidences [搜尋最佳證據]
- 3) Critically appraise those evidences [嚴格的文獻評讀]
- 4) Apply to the patient [臨床應用]
- 5) Evaluate our performance [評估與稽核以上步驟]

* 提出一個可回答的問題

- * 臨床工作人員在面對個案時，常有很多的「不確定性」。我們將需要知道答案的資料轉化成為可以回答的問題。好的問題可以提供搜尋文獻正確方向。

- * 問題可區分為：
 - ① 背景問題(Background question): 關於疾病的一般性問題。
 - ② 前景問題(Foreground question): 關於運用特殊知識來處置疾病的問題。

*Background Questions

- * Ask for general knowledge of a disorder
- * A question root (who, what, where, when, why, how)
- * e.g.: Who is high risk for stomach cancer ?
How to insert Foley catheter ?
What is the side effect of aspirin ?
- * Background resources: textbooks, Online Harrison, Access Medicine
 - * Answering only background question is insufficient to help getting the best available care to our patient

*Foreground Questions

*Ask for specific knowledge about managing patients with a disorder

*e.g.: In patient with coronary artery disease, does use of aspirin benefit to him/her ?

---→ not a good formulated question in the 1st step of EBM practice

*Foreground Questions

*Have four essential components:

Patient and/or problem

Intervention

Comparison

Outcomes

*PATIENT

*Age

*Sex

*Underlying disease

*Disease characteristic

*PATIENT

- * In patient with coronary artery disease, does use of aspirin benefit to him/her ?
- * **Age** – Child ? Teenager ? Adult ? Elderly ?
- * **Sex** – Male or Female
- * **Underlying disease** – Diabetes mellitus ? Old intracranial hemorrhage ? Hypertension ?
- * **Disease characteristic** – Angina pectoris ? Unstable angina ? Myocardial infarction ?

* Intervention & Comparison

* **Intervention** --- new or challenging treatment

* **Comparison** --- old or conventional treatment

*Outcome

*Outcome --- Outcome which you want to measure or achieve. What is your target endpoint ?

*Questions

*In patient with coronary artery disease, does use of aspirin benefit to him/her ?

*Better formulated question:

In elderly man who had myocardial infarction, does the use of oral aspirin decrease his cardiovascular event and mortality ?

*記得先寫出一整句問題，再把問題套入**PICO**的模式呈現。

In elderly man who had myocardial infarction, does the use of oral aspirin decrease his cardiovascular event and mortality ?

* **P:** Elderly man who had MI

* **I:** oral aspirin

* **C:** placebo

* **O:** decrease cardiovascular event and mortality (3 point MACE)

3 point MACE(major adverse cardiovascular event):
nonfatal stroke, nonfatal MI, cardiovascular death

*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

- *Establishing the power of an intervention to differentiate between those with and without a target condition of disease

*Prognosis

- *Estimating the future course of a patient's disease

*Therapy

- *P: Adult patient with acute cholecystitis
- *I: laparoscopic cholecystectomy
- *C: open cholecystectomy
- *O: Clinical improvement (endpoint: mortality rate, post-operation sepsis, wound infection, duration of hospital stay)

*Harm

*P: In elderly hypertensive patient who has non-valvular atrial fibrillation

*I: dabigatran

*C: warfarin

*O: risk of intracranial hemorrhage

*Diagnosis

- *P: Adult patient with chest pain intermittently
- *I: accuracy of thallium perfusion scan
- *C: compare to exercise EKG
- *O: for diagnosing significant coronary artery disease

*Prognosis

*P: in elderly man > 65 years old with diabetes

*I: having thrombotic stroke

*C: having hemorrhagic stroke

*O: risk of death in the first year

Type of question	Suggested best type of study
Therapy	RCT > cohort > case control > case series
Harm	RCT > cohort > case control > case series
Diagnosis	Prospective, blind comparison to a reference > case control
Prognosis	cohort study > case control > case series

*P: Adult who is healthy

*I: smoking for 20 years

*C: never smoke

*O: risk of lung cancer

*T: ??

*P: Adult who is healthy

*I: smoking for 20 years

*C: never smoke

*O: risk of lung cancer

*T: **Harm/Etiology**

*P: Adult man who is a chronic smoker for > 20 years

*I: having small cell lung cancer

*C: having non-small cell lung cancer

*O: 5 years survival rate

*T: ??

*P: Adult man who is a chronic smoker for > 20 years

*I: having small cell lung cancer

*C: having non-small cell lung cancer

*O: 5 years survival rate

*T: **Prognosis**

*P: Adult man who is a chronic smoker for
> 20 years, having small cell lung cancer

*I: chemotherapy only

*C: surgical resection of the cancer only

*O: 5 years survival rate

*T: ??

*P: Adult man who is a chronic smoker for > 20 years, having small cell lung cancer

*I: chemotherapy only

*C: surgical resection of the cancer only

*O: 5 years survival rate

*T: **Therapy**

*P: Adult man who has microcytic anemia

*I: check ferritin level

*C: check serum iron & TIBC level
(transferrin saturation)

*O: diagnosis of iron deficiency anemia

*T: ??

*P: Adult man who has microcytic anemia

*I: check ferritin level

*C: check serum iron & TIBC level
(transferrin saturation)

*O: diagnosis of iron deficiency anemia

*T: **Diagnosis**

*Scenario

*王先生今年**55**歲, 平時很健康, 最近體檢時發現自己的膽固醇過高。他從報章的廣告上看到說桂格燕麥片有降膽固醇的功效。現在的不良廠商很多, 王先生怕自己會受騙。你是他的親戚, 他知道你是學醫/護理的, 特別跑來問你的意見。

* Ask an answerable question

* In an otherwise healthy man who has hypercholesterolemia, can oat reduce his blood cholesterol level ?

*P: Healthy adult man with hypercholesterolemia

*I: eating oat

*C: placebo

*O: decrement of blood cholesterol level

*T: Therapy

*Scenario

*李先生、50歲、是位交通警察。他本身有糖尿病及高血壓，定時於台中市某區域醫院的門診拿藥治療。李先生平時血壓及血糖皆控制不錯，收縮壓約 130 - 140 mmHg，空腹血糖約120 - 140 mg/dl。在一次處理交通事故中，李先生不幸被大卡車撞擊，陷入昏迷狀態。他被送入加護病房，電腦斷層顯示有腦內出血。緊急手術後，李先生尚未清醒。醫生為了要降低其腦壓，用了 iv Mannitol。李先生的血糖在加護病房中異常高，約在 200 - 350 mg/dl之間。李先生的姪兒是位醫學生，他質疑是否用了Mannitol才會使血糖變這麼高？用Mannitol是必要的嗎？

*Scenario

*李先生、50歲、是位交通警察。他本身有糖尿病及高血壓，定時於台中市某區域醫院的門診拿藥治療。李先生平時血壓及血糖皆控制不錯，收縮壓約 130 - 140 mmHg，空腹血糖約120 - 140 mg/dl。在一次處理交通事故中，李先生不幸被大卡車撞擊，陷入昏迷狀態。他被送入加護病房，電腦斷層顯示有腦內出血。緊急手術後，李先生尚未清醒。醫生為了要降低其腦壓，用了 iv Mannitol。李先生的血糖在加護病房中異常高，約在 200 - 350 mg/dl之間。李先生的姪兒是位醫學生，**他質疑是否用了Mannitol才會使血糖變這麼高？用Mannitol是必要的嗎？**

*Ask a question

*P:

*I:

*C:

*O:

*T:

*** Will the use of iv mannitol increase the blood glucose level in adult man with hypertension and diabetes who had intracranial hemorrhage status post craniotomy ?**

***P:** An adult man with hypertension and diabetes, had intracranial hemorrhage, post operation/ craniotomy

***I:** Use IV Mannitol

***C:** Placebo

***O:** Increase blood glucose level/hyperglycemia

***T:** Harm

*Scenario

*李先生、50歲、是位交通警察。他本身有糖尿病及高血壓，定時於台中市某區域醫院的門診拿藥治療。李先生平時血壓及血糖皆控制不錯，收縮壓約 130 - 140 mmHg，空腹血糖約 120 - 140 mg/dl。在一次處理交通事故中，李先生不幸被大卡車撞擊，陷入昏迷狀態。他被送入加護病房，電腦斷層顯示有腦內出血。緊急手術後，李先生尚未清醒。醫生為了要降低其腦壓，用了 iv Mannitol。李先生的血糖在加護病房中異常高，約在 200 - 350 mg/dl之間。李先生的姪兒是位醫學生，他質疑是否用了Mannitol才會使血糖變這麼高？ **用Mannitol是必要的嗎？**

*** Can the use of iv mannitol reduce intracranial pressure and decrease mortality rate in adult man with hypertension and diabetes who had intracranial hemorrhage status post craniotomy ?**

*P: An adult man with hypertension and diabetes, had intracranial hemorrhage, post operation/ craniotomy

*I: Use IV Mannitol

*C: Placebo

*O: Reduce intracranial pressure, mortality rate

*T: Therapy

 **Thank You**