PICO

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大綱

(1) 實證問題的形成

(2) 量性與質性的**PICO/PICo**

(3) 如何建構一個實證的問題

(4) 實證的資源

(5) **PICO/PICo**問題的型態

(6) 實證的證據等級

發生了什麼事？為什麼？
他經歷了什麼？如何幫他建構一個好的經驗？

實證醫學的五大步驟

PICO / PICo

Question
Search
Appraisal
Application
Audit

(1) 實證問題形成

- 成效及經濟回顧 (review):
  - **P**opulation
  - **I**ntervention
  - **C**omparator
  - **O**utcome

- 質性及文本資料回顧:
  - **P**opulation
  - **P**henomena of **I**nterest
  - **Co**ntext

如何發現問題

- 多花時間在照顧病人
- 與護理同仁一起討論病人的問題及需要
- 自己評估與診斷 再看病例
- 閱讀實證文章

- **Write it down**
  - Anytime, anywhere you got a question
  - Try to write down problem list before leaving ward

問 題 來 源

- 臨床發現
  - 病史
  - 物理檢查
  - 檢驗異常
- 身體評估
- 家庭評估
- 病因

- 預後評估
- 治療療效
- 併發症
- 預防
- 護理措施
- 護理管理
- 成本效應
- 生活品質

因果關係問題

- **Population:**
  - 最重要人口學特性及因素；
    排除那些人？
  - 如何處置/暴露？
  - 什麼場所 (如醫院或社區等)

因果關係問題

- 處置:
  - 主要的護理處置（治療組）
  - 控制 **(passive or active)**
    - **Passive (placebo, no treatment, standard care, or a waiting list control)**
    - **Active (variation of the intervention, a drug, or kind of therapy)**

因果關係問題

- 結果
  - 確認主要結果，以達臨床相關的結論
  - 附帶結果可能需要
  - 確保結果之陳述中立，需涵蓋效益及副作用
  - 避免代言研究結果，除非清楚背後的理由
  - 考量為何結果測量的類型和時機，會影響測量的結果。

相關效果問題

- 與實驗型回顧同樣的標準，雖然不需要做比較，而是依其問題，例如：
  - 兒童及成年病人及其訪客對醫院訪客政策之影響

    (The Impact of Hospital Visiting Hour Policies on Pediatric and Adult Patients and their Visitors. 2009, L Smith; J Medves; M.B. Harrison; J Tranmer; B Waytuck. International Journal of Evidence Based Health Care, 7(2) 38-79.)

經驗性的問題

- 問題的元素之角色和特殊性在質性及文本回顧中較少相關。

  （The role and specificity of the elements of the question are no less pertinent in qualitative and textual reviews）

(2) 量性研究 PICO 與質性研究 PICo的設定

(2.1)量性研究 PICO

- PICo: (how to create searchable questions in Evidence Based Medicine)

* Define the P opulation
* Define the I ntervention
* Define C omparison Intervention(s)
* Define the O utcome(s)

e.g.
For 15-19 year old males [P], does HDL-cholesterol screening by their GP (famliy doctor) [I], compared with diet counselling by their GP [C] increase the HDL cholesterol level at age 35 and at what cost in $ per % of increased HDL-cholesterol ratio compared to the non-intervention group [O].

- **How would you describe your Patient or Patient group?**

What characteristics of your Patient/s are important? Age, gender, condition, etc can all be very significant.

- **What Nursing Intervention or Indicator (therapy, diagnostic test or exposure) are you interested in?**

Defining the Nursing Intervention is often the central part of PICO.

- **What alternative or different option do you want to Compare your nursing intervention to?**

  You might want to **Compare** the chosen nursing intervention to another intervention or to no intervention.

- **What measurable Outcome/s are you interested in? Outcome** is the final aspect of PICO. Some examples include: quality of life, anxiety, uncertainty, symptoms of asthma, accuracy of diagnosis or mortality.

- Now rewrite your original clinical question to follow the PICO format. For example:

- **In** children with pain **how does play therapy compared with routine nursing care effect** levels of pain

步驟一: 形成臨床問題

案例：化學治療病人常有噁心嘔吐之副作用

☐ **P: Patient –** 化學治療病人

☐ **I: Intervention –** 穴位刺激

☐ **C: Comparison –** 有穴位刺激 VS 無穴位刺激

☐ **O: Outcome –** 噁心嘔吐程度

1A：穴位刺激是否能減輕化學治療病人之噁心嘔吐**?**

步驟一： 形成臨床問題

案例：張先生患大腸直腸癌經常覺得疲倦、很累。

- **P: Patient –** 癌症病人

- **I: Intervention –** 運動

- **C: Comparison –** 運動 VS 常規照護

- **O: Outcome –** 疲倦

1A：運動是否能改善癌症病人之疲倦？

步驟一:形成臨床問題

案例：ICU使用呼吸器之病人無法講話、躁動不安？

☐ **P**atient – 使用呼吸器重症病人

☐ **I**ntervention – 音樂治療

☐ **C**omparison – 音樂治療 VS 常規照護

☐ **O**utcome – 焦慮

☐ **T**ype of **S**tudy – **RCTs or case-control study**

1A：音樂治療能否降低呼吸器使用重症病人之焦慮？

步驟一：形成臨床問題

案例：癌症病房病人感染率高?

☐ **P: Patient –** 　　　癌症病房/病人

☐ **I: Intervention –** 　　洗手

☐ **C: Comparison –** 　　常規照護

☐ **O: Outcome –** 　　感染率

1A：洗手能否降低癌症病人感染率?

Locating Evidence

A sample database search for the clinical question:

Does handwashing among healthcare workers reduce hospital acquired infection?

Susan Kaplan Jacobs/Health Sciences Librarian

Bobst Library 5th Floor, #512

email: susan.jacobs@nyu.edu   phone: 212-998-2432

Locating Evidence

A sample database search for the clinical question:

What is the effectiveness of CPM therapy following knee replacement in achieving optimal range of motion?

Susan Kaplan Jacobs/Health Sciences Librarian
Bobst Library 5th Floor, office #512
email: susan.jacobs@nyu.edu   phone: 212-998-2432

如何將病人健康問題轉成可以回答的問題?

病人主要問題

針對兩項健康問題進行實證文獻搜尋、評讀、佐證與評值

健康問題	一、氣體交換障礙 /肺擴張不全	二、皮膚完整性受損 /與腹瀉有關
Q	呼吸器病人採45度半坐臥是否能有效預防呼吸器相關性肺炎?	腹瀉病人使用氧化鋅藥膏是否能改善失禁性皮膚炎?
P	呼吸器病人	腹瀉病人
I	45度半坐臥	使用氧化鋅藥膏
C	一般臥位或小於45度半坐臥	未使用氧化鋅藥膏或其他治療
O	呼吸器相關性肺炎(VAP)	失禁性皮膚炎
S	系統性文獻回顧、整合分析、隨機對照試驗	系統性文獻回顧、隨機對照試驗、臨床指引

如何將病人健康問題轉成可以回答的問題?

四、病人健康問題與護理考量

健康問題： 病人缺乏適應和解決問題之能力／與認知偏差有關	健康問題： 家庭因應能力失調/與對憂鬱症缺乏認知有關
實證問題： 認知行為治療是否影響憂鬱症個案的因應能力？	實證問題： 疾病認知之心理衛生教育(psycho-education)可否提升家屬因應能力？
P：憂鬱症個案	P：憂鬱症個案家屬
I：認知行為治療	I：提供疾病認知心理衛生教育
C：未給予認知行為治療	C：未提供疾病認知心理衛生教育
O：因應能力	O：家屬因應能力
S：隨機對照試驗、系統性文獻回顧、世代研究	S：隨機對照試驗、系統性文獻回顧、世代研究

如何將病人健康問題轉成可以回答的問題?

健康問題一：疼痛／與類風濕性關節炎引起之關節及肌肉炎性反應有關	健康問題二：睡眠型態紊亂／與關節疼痛及心理壓力有關
實證問題：類風濕性關節炎病人執行手部運動可否改善關節疼痛？	實證問題：睡眠障礙成人執行穴位按壓可否改善睡眠品質？
P：類風濕性關節炎病人	P：有睡眠障礙成人
I：執行手部運動	I：執行穴位按壓
C：未執行手部運動	C：未執行穴位按壓
O：關節疼痛程度	O：睡眠品質
S：系統性文獻回顧、隨機對照試驗	S：系統性文獻回顧、隨機對照試驗

PICO Worksheet and Search Strategy

- Name_____

1. Define your question using PICO by identifying: Problem, Intervention, Comparison Group and Outcomes.

Your question should be used to help establish your search strategy.

- Patient/Problem_____
- Intervention_____
- Comparison_____
- Outcome_____
- Write out your question:_____

_____

_____

Well Built Clinical Question

Elements of a Good Question:	Your Question:
PATIENT OR PROBLEM: How would you describe a group of patients similar to you? What are the most important characteristics of the patient?	
INTERVENTION, EXPOSURE, PROGNOSTIC FACTOR: What main intervention are you considering? What do you want to do with this patient?	
COMPARISON: What is the main alternative being considered, if any?	
OUTCOME What are you trying to accomplish, measure, improve or affect?	
The well-built clinical question is:	
Type of Question: How would you categorize this question?	
Type of Study: What would be the best study design to answer this question?	

The well-built clinical question: a key to evidence-based decisions
Richardson, WS. et al. *ACP Journal Club*, v123:A12, Nov-Dec, 1995.

Users' guides to the medical literature : a manual for evidence-based clinical practice / The Evidence-Based Medicine Working Group ; edited by G. Guyatt, D. Rennie. Chicago, IL : AMA Press, c2002.

(2.2)質性研究 PICo

2.2.1 Cochrane qualitative collaboration

❑ **Goals:**
  ❑ Demonstrate the value of qualitative research through systematic reviews
  ❑ Disseminate methodological standards to aid the evaluation of qualitative research
  ❑ Promote the synthesis and integration of qualitative research within the broader literature synthesize
 ❑ Provide some training in qualitative methods synthesis

(http://cqrmg.cochrane.org/supplemental-handbook-guidance
http://www.cochrane.org/contact/methods-groups#qualitative-research-methods-group)

PIcO

During scoping, the following questions need to be asked:

- Population: How can characteristics of the eligible populations influence effectiveness (attitudes, beliefs, knowledge, behaviours)?

- Intervention: Is the intervention relevant, appropriate, and acceptable to patients, the public, providers, and/or policymakers?

- Outcome(s): Do patients, the public, providers, and/or policymakers think that the outcomes are relevant, appropriate, and acceptable?

Figure 1. Integrative review approach. (Berg *et al.*)
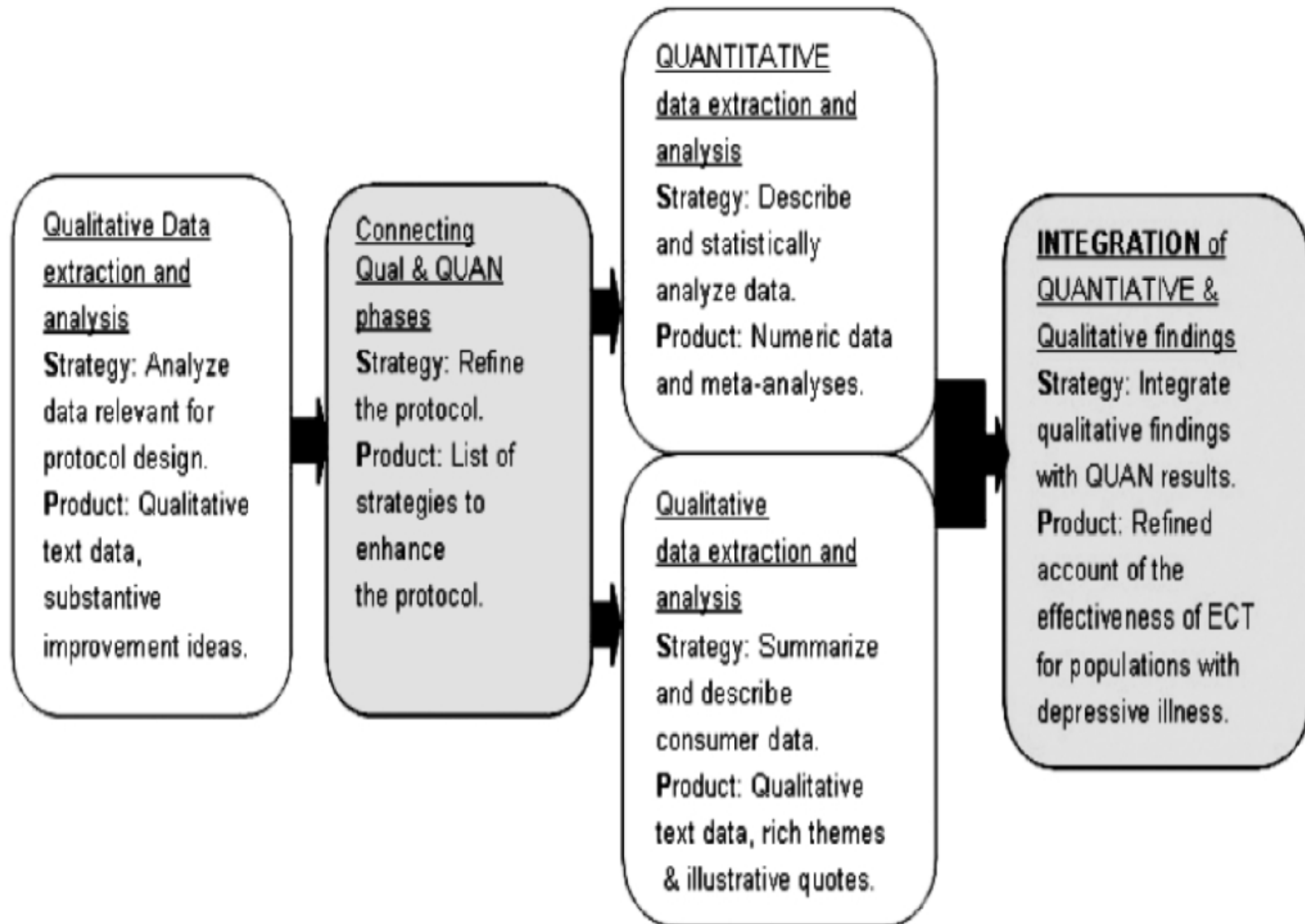
- **[O12-2] Integrating quantitative and qualitative evidence in Cochrane reviews: a novel methodological approach** *Rigmor C Berg , Kari Ann Leiknes, Geir Smedslund, Simon Nygaard Øverland, Karianne Thune Hammerstrøm, Bjørg Høie.* **2009 Cochrane Colloquium Abstracts Journal**

- **Cochrane Qualitative Research Methods Group.** *Angela Harden, Karin Hannes, Craig Lockwood, Jane Noyes, Janet Harris and Andrew Booth*

- **Qualitative research can address many different questions including those around the appropriateness and implementation of interventions and patient and public perspectives. The integration of qualitative research within Cochrane reviews of the effects of interventions presents new challenges and opportunities for the Collaboration and the Cochrane Qualitative Research Methods Group (CQRMG) provides a network to advise on, debate and research solutions to these challenges.**

- **The first Cochrane review formally to integrate a synthesis of qualitative research was published by the Cochrane Consumers and Communication Review Group in March 2011.1 The review set out to evaluate the effects of interventions to notify and support consumers in situations where exposure to the risk of Creutzfeldt-Jakob disease (CJD) or variant CJD has occurred as a result of medical treatment.**

- **In this review, a lack of relevant trials led the authors to synthesize qualitative and other types of relevant research**

Never mind the qualitative feel the depth! The evolving role of qualitative research in Cochrane intervention reviews

1. Evidence from at least one systematic review of well designed qualitative studies.
2. Evidence from at least one systematic review of well designed mixed method evidence (qualitative, surveys etc)
3. Evidence from at least one well conducted qualitative study, or qualitative process evaluation published in peer review journals.
4. Evidence from well designed research and consumer surveys.
5. Evidence in the form of opinions from lay people, respected authorities, descriptive studies and reports from third sector, public organisations and committees.
6. Evidence from quantitative studies including randomised and nonrandomised and case controlled studies without embedded qualitative or mixed method process evaluation.

Figure 1. Hierarchy of evidence for views and experiences of interventions and service delivery contexts

In the handbook, we outline that qualitative research can contribute to Cochrane intervention reviews in four ways:

(1) Informing reviews by using evidence from qualitative research to help define and refine the question, and to ensure the review includes appropriate studies and addresses important outcomes;

(2) Enhancing reviews by synthesising evidence from qualitative research identified whilst looking for evidence of effectiveness;

(3) Extending reviews by undertaking a search to specifically seek out evidence from qualitative studies to address questions directly related to the effectiveness review; and

(4) Supplementing reviews by synthesising qualitative evidence within a stand-alone, but complementary, qualitative review to address questions on aspects other than effectiveness.

2.2.2 Joanna Briggs Institute PICo

- P : *Types of participants.*
- I : *Interesting phenomenon.*
- Co : *Context.*

- Study: qualitative inquiry, phenomenon, hermenutic phenomenology, ethnography, focus group, action research, grounded theory, systematic review… etc.

案例(量性)

■ 一位**15**歲青少年常有偏頭痛，至門診求醫，問及是否可以接受放鬆治療課程，醫生開始查詢相關治療之訊息。

■ PICO
  □ P：青少年常有偏頭痛
  □ I：行為治療（放鬆治療課程）
  □ C：其他常規治療
  □ O：減少疼痛

案例(質性)

- P：*Types of participants.* Children begin to be concerned about body image changes from the age of six (Hartston & Leifer, 2004). Therefore, the participants of interest were the children and adolescents with cancer from six to twenty years of age. In this systemic review, there were no restrictions on the type, severity, and prognosis of cancers. Expected diagnoses included leukaemia and central nervous system tumours but other types of cancer were also included.

- I：*Interesting phenomenon.* The review focused on the body image experience of children and adolescents with cancer when facing cancer treatment, as well as the impact of change in body image on these young people.

- Co：*Context.* Children with cancer receiving chemotherapy or radiotherapy in hospital and at home.

(3) 如何架構一個實證醫學問題?

"Background" vs "Foreground" Questions

Information vs Evidence

"Background" Questions

- 希望獲得疾病的**General Information**
- 由兩個基本部分組成
  - **6W (who, what, where, when, why, how)** 加一個動詞
  - 一個疾病, 病徵或臨床表現

"What is autoimmune hepatitis?"

"When do complications of lupus abdominal vasculitis usually occur?"

Information Sources of Background Questions

Online Databases
(UptoDate, eMedicine, Harrison-on-line)
Review Articles of Journals
Updated Textbook

"Foreground" Questions

- 希望獲得處理病患的specific knowledge
- 預期有答案 Searchable answers
- 能比較各項選擇的優劣 Focus on evidence
- 決定行動方向 Decision-making oriented
- **Have four (or three) essential components:**
  1. **Patient and/or problem**
  2. **Intervention**
  3. **Comparison intervention (if relevant)**
  4. **Outcomes**

"In patients with AMI, does use of ACEI leads to less recurrence of MI?"

對急性心肌梗塞患者使用ACEI可否減少梗塞復發率?

Information Sources of Foreground Questions

EBM Databases

Cochrane Databases

ACP Journal Club

National Guidelines Clearing House…

(4) 實證的資源

Meta-Search Tools ("Federated" search tools)

- **TRIP (Turning Research Into Practice) Database Plus**
  http://www.tripdatabase.com/

- **SUMSearch**   http://sumsearch.org/

- **Filtered Resources**
  Filtered resources *appraise the quality of studies and often make recommendations for practice.*

Systematic Reviews / Meta-Analyses

- **The Cochrane Database of Systematic Reviews**
  https://arch.library.nyu.edu/databases/proxy/NYU03092

- **The Database of Abstracts of Reviews of Effects (DARE)**
  https://ezproxy.library.nyu.edu/login?url=http://www.mrw.interscience.wiley.com/cochrane/cochrane_cldare_articles_fs.html

- **PROSPERO International Prospective Register of Systematic Reviews** http://www.crd.york.ac.uk/prospero/

- **OT Seeker** http://www.otseeker.com/

- **PubMed Health**. http://www.ncbi.nlm.nih.gov/pubmedhealth/

Critically-Appraised Topics Authors of critically-appraised topics evaluate and synthesize multiple research studies

- **American Psychiatric Association (APA) Practice Guidelines:** https://library.med.nyu.edu/sso/ezproxy_form.php
- **AHRQ Evidence Based Practice** [with links to Evidence-based Practice Center (EPC) Evidence Reports] http://www.ahrq.gov/clinic/epcix.htm
- **Annual Reviews**   http://arch.library.nyu.edu/databases/proxy/NYU00418
- **Clin-eguide Clinical Decision Support https://arch.library.nyu.edu/databases/proxy/NYU04230**
- **Clinical Evidence** https://arch.library.nyu.edu/databases/proxy/NYU00640
- **HSTAT U.S. Health Services Technology Assessment** http://www.ncbi.nlm.nih.gov/books/NBK16710/
- **National Guideline Clearinghouse** http://www.guideline.gov/
- **Natural Standard** https://arch.library.nyu.edu/databases/proxy/NYU02599
- **OT CATS** http://www.otcats.com/
- **OT Seeker** http://www.otseeker.com/
- **PEDro** http://www.pedro.org.au/
- **PIER** https://arch.library.nyu.edu/databases/proxy/NYU00701
- **PubMed Health** http://www.ncbi.nlm.nih.gov/pubmedhealth/

Critically-Appraised Individual Articles

- **The ACP Journal Club**
  https://arch.library.nyu.edu/databases/proxy/NYU02702
  Bandolier http://www.medicine.ox.ac.uk/bandolier/

- **EvidenceUpdates (BMJ)** http://plus.mcmaster.ca/EvidenceUpdates/

- **"Evidence-Based…" Journal series** https://getit.library.nyu.edu/

Example

- *Evidence-Based Complementary and Alternative Medicine* (electronic access only)
- *Evidence-Based Dentistry* (electronic access only)
- *Evidence-Based Medicine* (electronic access only)
- *Evidence Based Mental Health*
  Also in print version: Bobst RA410.A1 E95
- *Evidence-Based Nursing* Bobst RT85.5.E95 Recommended reading: "Purpose and Procedure," "EBN Notebook," columns in each issue. The inside back cover of each print issue includes a glossary of terms used in evidence-based health care.
- *Journal of Evidence Based Dental Practice* (electronic access only)
  Worldviews on Evidence Based Nursing (electronic access only)   the Evidence Digest column provides summaries of recent studies.
- Faculty of 1000 Medicine the world's top clinicians and researchers select, rate and evaluate the most important and influential articles, presenting a continuously updated, authoritative guide to the medical literature>
- KT+ Knowledge Translation Plus.
- Nursing+ Best Evidence for Nursing Care

Unfiltered Resources

- **CINAHL Plus via Ebsco** https://arch.library.nyu.edu/databases/proxy/NYU00202

- **EMBASE**https://arch.library.nyu.edu/databases/proxy/NYU00270

- **Medline via PubMed**http://www.ncbi.nlm.nih.gov/pubmed/?myncbishare=nyulibs

- **Medline via Ovid** https://arch.library.nyu.edu/databases/proxy/NYU00117

- **OT Search (AOTA Occupational Therapy Search** https://ezproxy.library.nyu.edu/login?URL=http://www.aota.org/otsearch/

- **PsycINFO** https://arch.library.nyu.edu/databases/proxy/NYU01622

- **Scopus** https://arch.library.nyu.edu/databases/proxy/NYU00819

- **Statistical Insight https://arch.library.nyu.edu/databases/proxy/NYU02619**

- **Virginia Henderson International Nursing Library (VHINL) http://www.nursinglibrary.org/vhl/**

- **Web of Science** https://arch.library.nyu.edu/databases/proxy/NYU00731

Evidence-Based Healthcare Information Sites

- **Centre for Evidence-Based Medicine (Oxford University)** http://www.cebm.net/

- **Centre for Evidence-Based Medicine (Toronto)** http://ktclearinghouse.ca/cebm/practise/

- **Evidence-Based Medicine** http://guides.mclibrary.duke.edu/ebm

- **Netting the Evidence** http://www.shef.ac.uk/scharr/ir/netting/

- **Users' Guides to Evidence-Based Practice** http://www.jamaevidence.com/

Background Information/Expert Opinion

- **AccessMedicine**
  https://arch.library.nyu.edu/databases/proxy/NYU02258
- **CINAHLPlus**
  https://arch.library.nyu.edu/databases/proxy/NYU00202
- **Clin-eguide Clinical Decision Support**
  https://arch.library.nyu.edu/databases/proxy/NYU04230
- **Clinical Evidence**
  https://arch.library.nyu.edu/databases/proxy/NYU00640
- **Ebrary**
  https://arch.library.nyu.edu/databases/proxy/NYU00541
- **Gale Virtual Reference Library**
  http://arch.library.nyu.edu/databases/proxy/NYU03275
- **Harrison's Online**
  http://www.accessmedicine.com/resourceTOC.aspx?resourceID=4
- **MD Consult**
  https://arch.library.nyu.edu/databases/proxy/NYU01209
- **Medscape Reference**
  Http://www.medscape.com/
- **MICROMEDEX 2.0**
  https://arch.library.nyu.edu/databases/proxy/NYU03881
- **Oxford Reference Online**
  https://arch.library.nyu.edu/databases/proxy/NYU00540
- **STATREF**
  https://arch.library.nyu.edu/databases/proxy/NYU00701
- **UpToDate**
  http://www.uptodate.com/contents/search

(5) PICO問題的型態

Foreground
Questions
前景問題

對於醫學

每個人都會有不懂
的背景問題

Background
Questions
背景問題

*At least SARS
teach us this...*

Experience with Condition

Classify EBM Problems

- **Therapy 治療性問題**
- **Diagnosis 診斷性問題**
- **Prognosis 預後性問題**
- **Harm 傷害性問題**

These classifications are useful in helping you pick a good search strategy for finding studies that apply to your problem

Type of EBM Problems

1. Therapy/nursing intervention/healing

- 可以給患者什麼治療(照護方式)及不同的治療選擇會有什麼效果

2. Diagnosis

- 某特定檢查可信度(reliability)及臨床效度如何
- 一般在評估決定這個檢查對病患的幫助有多大來決定要不要開這項檢查。
- 'Gold standard' test 黃金標準檢查
  - 目前最有信效度足以確定診斷的方式
  - 或最廣為接受的檢驗方式
    - 但有其侷限性

3. Prognosis

- 患者本身的特定因素對患者未來健康 patient's future health, 壽命life span,及生活品質quality of life的影響.

  - How does DM affect lifespan and quality of life of an elderly patient undergoing surgery for prostate cancer compare with those for a similar patient who chooses not to undergo the surgery?

4. Harm

- "Untoward effect"不希望出現的效果

- 有關患者疾病與可能原因的關聯性

  - Does a diet rich in saturated fats increase the risk of heart disease? And if so, by how much?

各類問題最佳文獻研究型態

1. **Therapy/nursing intervention/healing or prevention:**
   - prospective, <u>randomized controlled trial</u> (RCT)
2. **Harm / Etiology:**
   - <u>RCT, cohort or case-control study</u> (probably retrospective)
3. **Diagnosis:**
   - <u>prospective</u> <u>cohort study</u> with good quality validation against "gold standard"
4. **Prognosis:**
   - <u>prospective cohort study</u>

主題選擇 Topic Selection

- **Choose a common answerable clinical problem**
  - "A", Common, Clinical
- **Difference from what you know/think**
- **Prompt changes of your regular management**
- **Avoid topics**
  - Rarities, unusual manifestations of disease

以 PICO 架構問題

Patient or Problem	Intervention	Comparison intervention	Outcome
描述病患、疾病或病徵的型態	包括： ·Exposure ·Diagnostic test ·Prognostic factor ·Therapy ·Patient perception etc.	通常用於與治療或診斷性檢查問題相關的問題 其他問題可以沒有本項	對您的病患和您有意義的臨床結果

■ 用一句話寫下您的問題

以 PICO 架構問題: How to Start

	Patient or Problem	Intervention	Comparison intervention	Outcome
內容	描述病患、疾病或病徵的型態	包括： ·**Exposure** ·**Diagnostic test** ·**Prognostic factors** ·**Therapy** ·**Patient perception etc.**	通常用於與治療或診斷性檢查問題相關的問題 其他問題可以沒有本項	對您的病患和您有意義的臨床結果
How to Start	想想如何描述類似我們病人所屬族群	我們病人將接受的主要處置是什麼？	什麼可以取代病人將接受的主要處置	我們或病人希望達成的結果是什麼？希望受到的影響是什麼？

Clinical Scenario

- **56**歲男性商人, 一週前剛進行例行健康檢查, 結果一切正常，他計劃週日要搭經濟艙機位去荷蘭洽商

- 他問您有關以穿著彈性襪預防下肢靜脈血栓 ("經濟艙症候群 Economy class syndrome") 的意見

Focus-on Question

Patient or Problem	Intervention	Comparison intervention	Outcome
Description of the patient or the target disorder of interest 無易產生血栓危險因子的一般人進行長途經濟艙飛行	•**Exposure** •**Diagnostic test** •**Prognostic factor** •**Therapy** •**Patient perception** 全程穿著彈性襪預防下肢深部靜脈血栓	**Relevant most often when looking at therapy questions** 全程不穿彈性襪	**Clinical outcome of interest to you and your patient** 飛行後下肢深部靜脈血栓發生率

- 無易產生血栓危險因子的一般人進行長途經濟艙飛行全程穿著彈性襪是否可以預防飛行後產生下肢深部靜脈血栓？

☐ PICO構建時的常見問題
Patient or Problem

只把病例的基本資料填入就當成P
- **56歲男性**
  - **57**歲就不行嗎**?**

    描述病患符合的族群會更好

- 中年健康男性: **Better "P"**
- 要問自己, 更擴大範圍會有什麼差別嗎**?**
  - 特別是性別 / 人種 / 兒童 / 生活地區 / 工作

☐ PICO構建時的常見問題

 Outcome

用非數量化的描述

- 飛行後產生下肢深部靜脈血栓
  - 怎麼定義
  - 如何度量
  - 何時度量
  - 要如何比較"好"和"不好"結果

改用數量化的描述：Better "O"

- 飛行後以超音波測出下肢深部靜脈血栓發生"率"
  - 多一個"率"　就差很多
  - 時間點清楚

再問自己　"是否符合醫師／患者／家屬的期待"

臨床情境

PM 15:20 CCU-12 住進了一位因急性左前胸疼痛並冒冷汗而至急診的58歲的新病人，這位男性銀行經理之前有11年高血壓病史使用Tenormin 100mg QD治療，近4年來體檢空腹血糖在124-136mg/dL間，但未用藥物治療。雖然未有明顯禁忌症，病患平時未服用low dose Aspirin。

病患昨晚尾牙宴後又與同事去KTV至清晨0:40動身回家時發覺左胸如大石壓痛併冒冷汗，因此立即被送至鄰近地區醫院急診，

雖心電圖沒有明顯變化，但CK/CK-MB昇高且Troponin-T測試呈陽性反應，因此被使用血栓溶解劑 streptokinase，但至中午患者仍覺胸痛且追蹤EKG出現ST變化，故轉至本院。

進行理學檢查時發現病患左側肢體較無力。

急性心肌梗塞患者使用 *ACEI*可否減少梗塞復發率?

Patient or Problem	Intervention	Comparison intervention	Outcome
Description of the patient or the target disorder of interest	·**Exposure** ·**Diagnostic test** ·**Prognostic factor** ·**Therapy** ·**Patient perception**	**Relevant most often when looking at therapy questions**	**Clinical outcome of interest to you and your patient**
急性心肌梗塞患者	Use of ACEI	No use of ACEI	心肌梗塞復發率

Therapy   Diagnosis

Prognosis   Harm

急性心肌梗塞患者使用血栓溶解劑 *rt-PA*是否可比 *streptokinase*減少腦出血發生率?

Patient or Problem	**I**ntervention	**C**omparison intervention	**O**utcome
Description of the patient or the target disorder of interest	·**Exposure** ·**Diagnostic test** ·**Prognostic factor** ·**Therapy** ·**Patient perception**	**Relevant most often when looking at therapy questions**	**Clinical outcome of interest to you and your patient**
急性心肌梗塞患者	血栓溶解劑 rt-PA	血栓溶解劑 streptokinase	腦出血發生率

Therapy   Diagnosis

Prognosis   Harm

EKG無明顯變化的急性心肌梗塞患者使用 2D Cardiac Echo for wall motion changes與Troponin-T test，何者正確診斷率較高?

Patient or Problem	**I**ntervention	**C**omparison intervention	**O**utcome
Description of the patient or the target disorder of interest	·Exposure ·Diagnostic test ·Prognostic factor ·Therapy ·Patient perception	Relevant most often when looking at therapy questions	Clinical outcome of interest to you and your patient
EKG無明顯變化的急性心肌梗塞患者	2D Cardiac Echo for wall motion changes	Troponin-T test	心肌梗塞診斷率

Therapy Diagnosis

Prognosis Harm

糖尿病*患者發生急性心肌梗塞是否有較高的梗塞復發率?*

Patient or Problem	Intervention	Comparison intervention	Outcome
Description of the patient or the target disorder of interest 急性心肌梗塞患者	**·Exposure** **·Diagnostic test** **·Prognostic factor** **·Therapy** **·Patient perception** 糖尿病患者	**Relevant most often when looking at therapy questions** 非糖尿病患者	**Clinical outcome of interest to you and your patient** 心肌梗塞復發率

Therapy　　　　　　　Diagnosis

Prognosis　　　　　　Harm

急性心肌梗塞患者使用 *low dose Aspirin* 可否減少梗塞復發率*?*

Patient or Problem	Intervention	Comparison intervention	Outcome
Description of the patient or the target disorder of interest	·Exposure ·Diagnostic test ·Prognostic factor ·Therapy ·Patient perception	Relevant most often when looking at therapy questions	Clinical outcome of interest to you and your patient
急性心肌梗塞患者	Low dose Aspirin	No low dose Aspirin	心肌梗塞復發率

Therapy   Diagnosis

Prognosis   Harm

急性心肌梗塞患者使用 *low dose Aspirin* 是否增加上消化道出血發生率?

Patient or Problem	Intervention	Comparison intervention	Outcome
Description of the patient or the target disorder of interest	·Exposure ·Diagnostic test ·Prognostic factor ·Therapy ·Patient perception	Relevant most often when looking at therapy questions	Clinical outcome of interest to you and your patient
急性心肌梗塞患者	Low dose Aspirin	No low dose Aspirin	上消化道出血發生率

Therapy   Diagnosis

Prognosis   Harm

糖尿病患者產生急性心肌梗塞後使用**low dose Aspirin**減少心肌梗塞復發率與一般急性心肌梗塞患者是否不同**?**

糖尿病是否影響low dose Aspirin對心肌梗塞復發的療效?

Aspirin對心肌梗塞復發的療效
= 心肌梗塞復發率的減少
= 預防率 of [心肌梗塞復發]

糖尿病是否影響*Aspirin*對心肌梗塞復發預防率**?**

對急性心肌梗塞患者，糖尿病是否影響low dose Aspirin對心肌梗塞復發預防率？

Patient or Problem	Intervention	Comparison intervention	Outcome
Description of the patient or the target disorder of interest	·Exposure ·Diagnostic test ·Prognostic factor ·Therapy ·Patient perception	Relevant most often when looking at therapy questions	Clinical outcome of interest to you and your patient
急性心肌梗塞患者使用Low dose Aspirin	糖尿病患者	非糖尿病患者	Low dose Aspirin對心肌梗塞復發的預防率

Therapy   Diagnosis

Prognosis   Harm

使用呼吸器病人的經驗

Patient or Problem	Interesting phenomenon	Context
使用呼吸器的成人	·使用呼吸器病人的經驗	於加護病房病房或居家使用呼吸器

不同類型的**EBM**式問題有不同的最強證據效力研究設計

針對不同類型**EBM**式問題

同一類的研究設計也會有不同的證據等級

(6) 實證證據等級

Evidence Pyramid

Meta-Analysis Meta-synthesis

Systematic Review

Randomized Controlled Trial Qualitative Research Method

Cohort studies

Case Control studies

Case Series/Case Reports

Animal research

Evidence的有用度

Usefulness = Relevance x Validity / Effort

有用度 = 相關性 x 證據強度 / 取得證據的困難度

PICO好壞 *證據強度* *搜尋技巧*

Level of Evidence 實證證據等級

	Level 1 證據力最高	Level 2	Level 3	Level 4
Therapy Harm	RCT	**Cohort**	**Case-control**	**Case-series**
Prognosis	**Cohort**	**Retrospective Cohort**	- - - - - - - - - - - - - - - - - - -	**Case-series**
Diagnosis	**Validating Cohort**	**Exploratory Cohort**	**Non-consecutive**	**Case-control**
*Differential Diagnosis	**Prospective Cohort**	**Retrospective Cohort**	**Non-consecutive Cohort**	**Case-series**

Levels of Evidence

The current JBI levels of evidence for feasibility, appropriateness, meaningfulness, effectiveness and economics have four levels with an emphasis on synthesised evidence in the hierarchy.

Level of Evidence	Feasibility F (1-4)	Appropriateness A (1-4)	Meaningfulness M (1-4)	Effectiveness E (1-4)	Economic Evidence EE (1-4)
1.	Metasynthesis of research with unequivocal synthesised findings	Metasynthesis of research with unequivocal synthesised findings	Metasynthesis of research with unequivocal synthesised findings	Meta-analysis (with homogeneity) of experimental studies (eg RCT with concealed randomisation) OR One or more large experimental studies with narrow confidence intervals	Metasynthesis (with homogeneity) of evaluations of important alternative interventions comparing all clinically relevant outcomes against appropriate cost measurement, and including a clinically sensible sensitivity analysis
2.	Metasynthesis of research with credible synthesised findings	Metasynthesis of research with credible synthesised findings	Metasynthesis of research with credible synthesised findings	One or more smaller RCTs with wider confidence intervals OR Quasi-experimental studies (without randomisation)	Evaluations of important alternative interventions comparing all clinically relevant outcomes against appropriate cost measurement, and including a clinically sensible sensitivity analysis
3.	a. Metasynthesis of text/opinion with credible synthesised findings b. One or more single research studies of high quality	a. Metasynthesis of text/opinion with credible synthesised findings b. One or more single research studies of high quality	a. Metasynthesis of text/opinion with credible synthesised findings b. One or more single research studies of high quality	a. Cohort studies (with control group) b. Case-controlled c. Observational studies (without control group)	Evaluations of important alternative interventions comparing a limited number of appropriate cost measurement, without a clinically sensible sensitivity analysis
4.	Expert opinion	Expert opinion	Expert opinion	Expert opinion, or physiology bench research, or consensus	Expert opinion, or based on economic theory

Oxford Center
for Evidence-based Medicine Levels of Evidence (May 2001)

Level	Therapy
1a	系統性回顧 Systematic review（分析數個隨機臨床對照試驗，其結果均類似）
1b	設計良好，結果精確之隨機臨床對照試驗
1c	All or none
2a	系統性回顧（分析數個世代研究，其結果均類似）
2b	世代研究 Cohort study;設計粗糙之隨機臨床對照試驗
2c	"Outcomes" Research; Ecological studies
3a	系統性回顧（分析數個病例-對照研究，其結果均類似）
3b	病例－對照研究 Case-control study
4	某家醫院的十年經驗；設計不良之世代研究 及病例－對照研究
5	未經考證之專家個人意見，基礎研究，細胞實驗，生理實驗，動物實驗…的結果

請多多指教！！