以實證醫學來看政策形成

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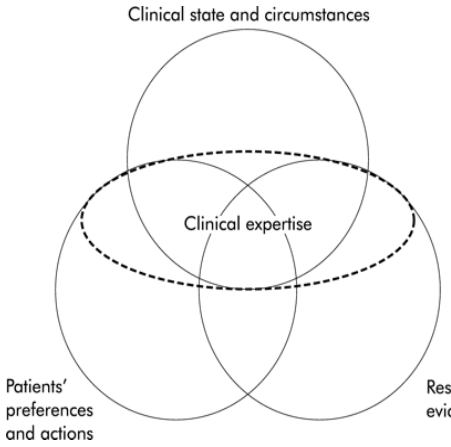
2017/02/18

Trusted evidence.
Informed decisions.
Better health.

What is Evidence-Based Medicine?



"Evidence-based medicine is the integration of best research evidence with clinical expertise and patient values"

(Sackett DL, Rosenberg WMC, Gray JAM, Haynes RB, Richardson WS, 1996)

EBM - 5 Steps

- **Ask** clinical questions
  - Forming an answerable question
- **Acquire** the best evidence
  - Search for best evidence
- **Appraise** the evidence
  - Validity
  - Importance
  - Practice
- **Apply** evidence to patient care
  - Integrate with clinical expertise and patient preferences
- **Assess** the outcome
  - Evaluate one's performance

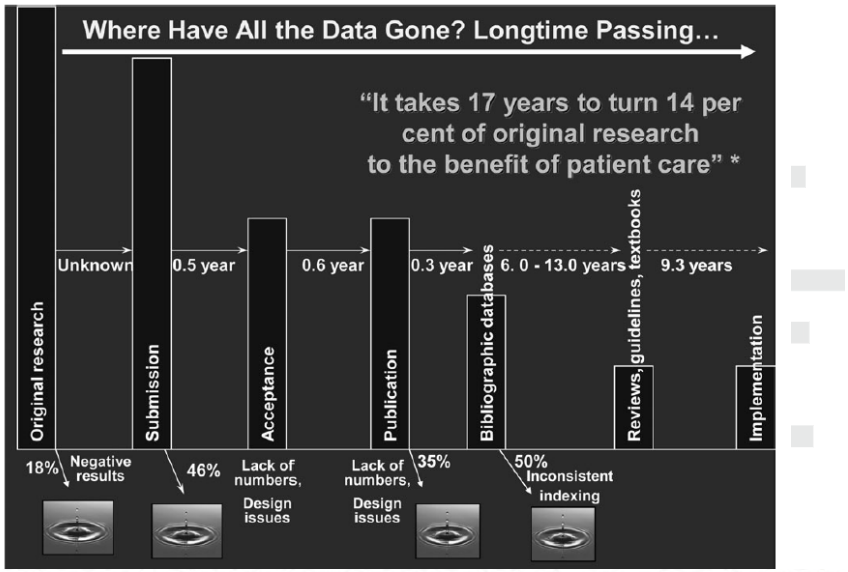
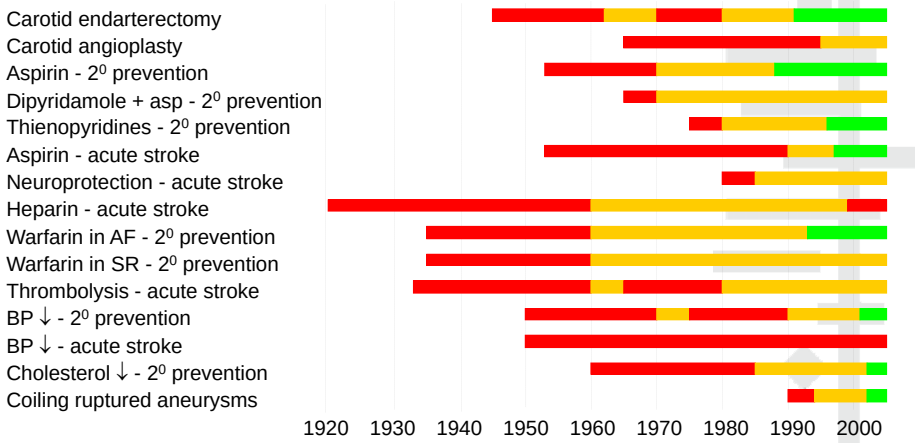


FIGURE 2 *The leakage points in the flow of original research into practice and the lag time between points as estimated by Balas from a variety of sources. Source: based on data reviewed and summarized by Balas EA, Boren SA. Managing clinical knowledge for health care improvement. Yearbook of Medical Informatics 2000: Patient-centered Systems. Stuttgart, Germany: Schattauer, 2000: 65–70*

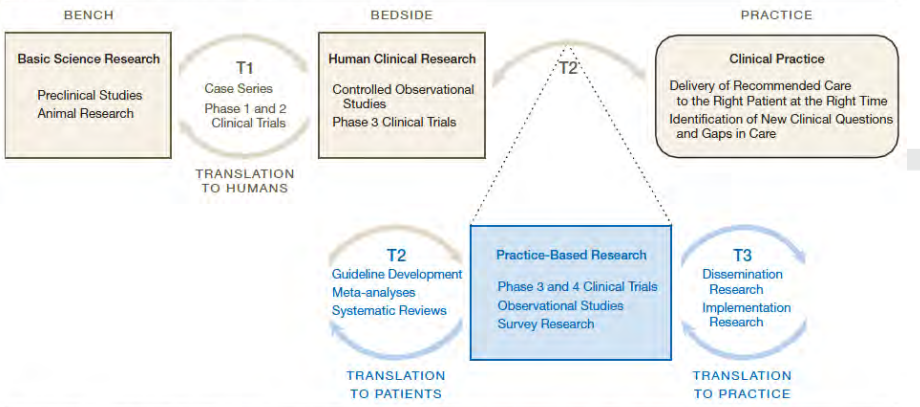
Treatments for stroke: from suggestion through randomised trials to routine clinical practice



Charles Warlow, The Willis Lecture 2003: Evaluating Treatments for Stroke Patients Too Slowly Time to Get Out of Second Gear. Stroke, 2004;35:2211-2219

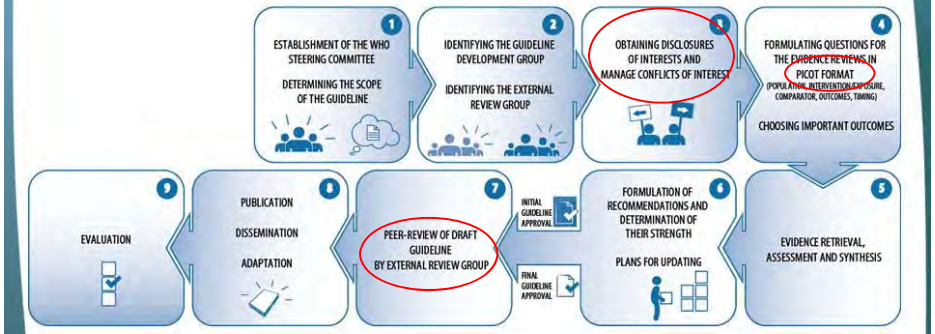
Research to Translation - 知識轉譯

Figure. "Blue Highways" on the NIH Roadmap — Westfall, Mold and Fagnan, JAMA, 2007; 297(4):403-406



The current National Institutes of Health (NIH) Roadmap for Medical Research includes 2 major research laboratories (bench and bedside) and 2 translational steps (T1 and T2). Historically, moving new medical discoveries into clinical practice (T2) has been haphazard, occurring largely through continuing medical education programs, pharmaceutical detailing, and guideline development. Proposed expansion of the NIH Roadmap (blue) includes an additional research laboratory (Practice-based Research) and translational step (T3) to improve incorporation of research discoveries into day-to-day clinical care. The research roadmap is a continuum, with overlap between sites of research and translational steps. The figure includes examples of the types of research common in each research laboratory and translational step. This map is not exhaustive; other important types of research that might be included are community-based participatory research, public health research, and health policy analysis.

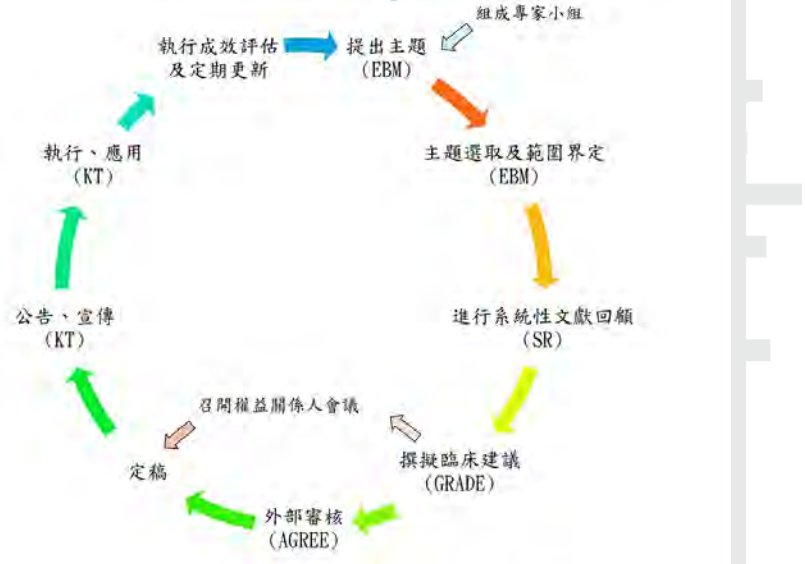
WHO evidence-informed guideline development process

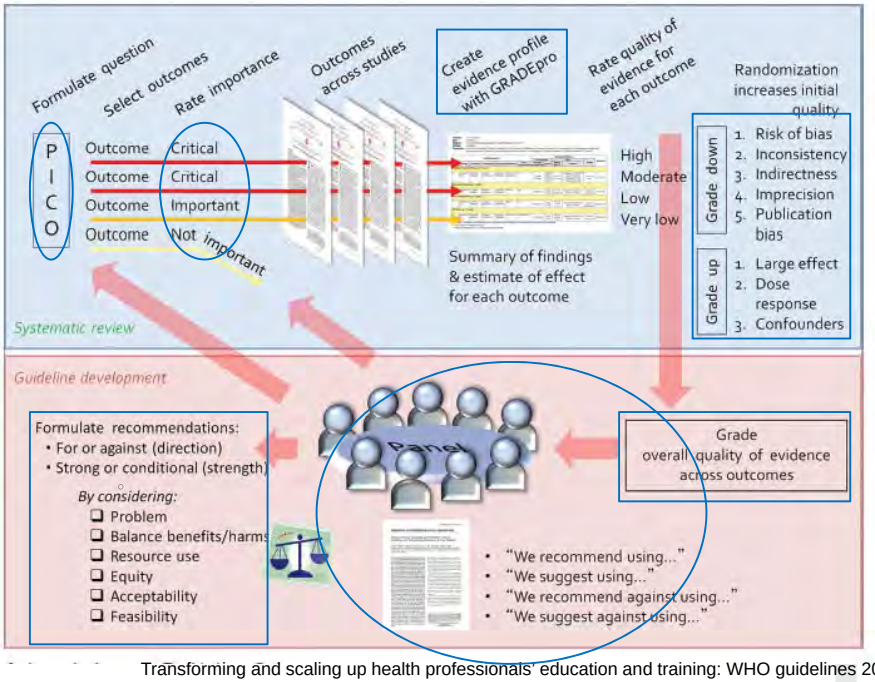


Evidence & Programme Guidance
Department of Nutrition for Health and Development

World Health Organization

COPD Guideline Development Process





Transforming and scaling up health professionals' education and training: WHO guidelines 2013

JAMA Surgery Original Investigation

Effect of a Clinical Practice Guideline for Pediatric Complicated Appendicitis

Table 4. Patient Outcomes

Outcome	No. (%) Pre-CPG (n = 191)	Post-CPG (n = 122)	RR (95% CI)	P Value
Postoperative length of stay, median, d	5.1	4.6	NA	.03
Any adverse event	59 (30.9)	27 (22.1)	0.72 (0.48-1.06)	.09
ED visit	27 (14.1)	14 (11.5)	0.81 (0.44-1.49)	.50
Readmission	31 (16.2)	14 (11.5)	0.71 (0.39-1.27)	.24
Return to OR	18 (9.4)	4 (3.3)	0.35 (0.12-1.00)	.04
SSI				
Organ-space (intra-abdominal abscess)	46 (24.1)	12 (9.8)	0.41 (0.23-0.74)	.002
Incisional (superficial or deep)	4 (2.1)	2 (1.6)	0.78 (0.15-4.21)	>.99

Abbreviations: CPG, clinical practice guideline; ED, emergency department; NA, not applicable; OR, operating room; RR, relative risk; SSI, surgical site infection.

JAMA Surg. 2016;151(5):e160194. doi:10.1001/jamasurg.2016.0194

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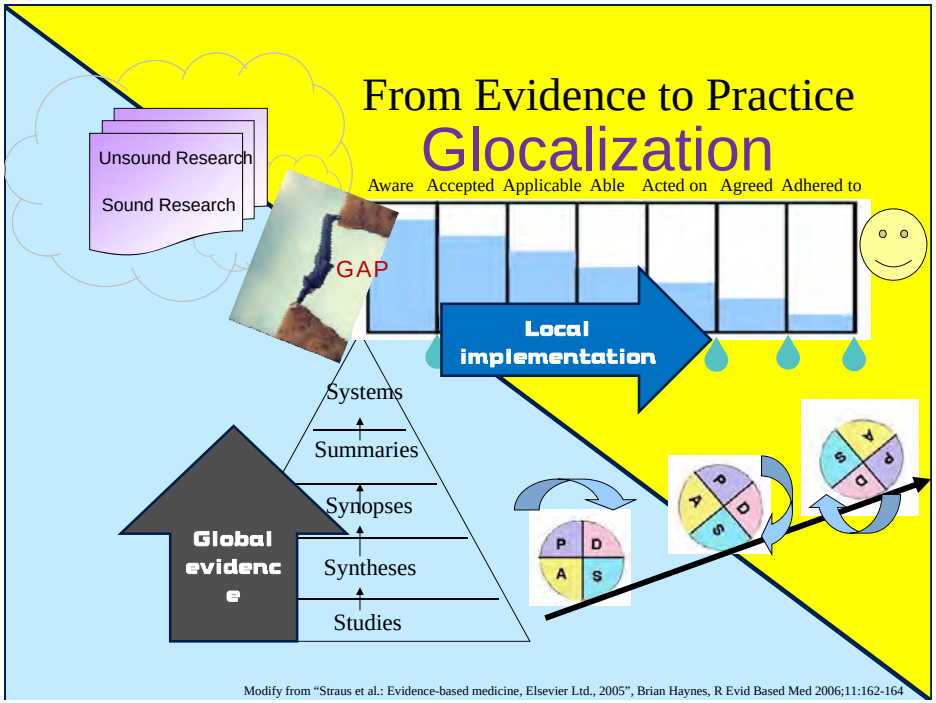
Table 3. Resource Use by CPG Status

Resource	No. (%) Pre-CPG (n = 191)	Post-CPG (n = 122)	RR (95% CI)	P Value
WBC count prior to discharge	84 (44)	5 (4.1)	0.09 (0.05-0.17)	<.001
PICC at any time	58 (30.4)	3 (2.5)	0.08 (0.04-0.18)	<.001
Any IR procedure	23 (12.0)	3 (2.5)	0.20 (0.07-0.58)	.003
Receipt of parenteral nutrition	22 (11.5)	2 (1.6)	0.14 (0.04-0.47)	.001
Postoperative				
CT	56 (29.3)	16 (13.1)	0.45 (0.28-0.72)	.001
Ultrasonography	8 (4.2)	1 (0.8)	0.20 (0.02-1.54)	.10

Abbreviations: CPG, clinical practice guideline; CT, computed tomography; IR, interventional radiology; PICC, peripherally inserted central catheter; RR, relative risk; WBC, white blood cell.

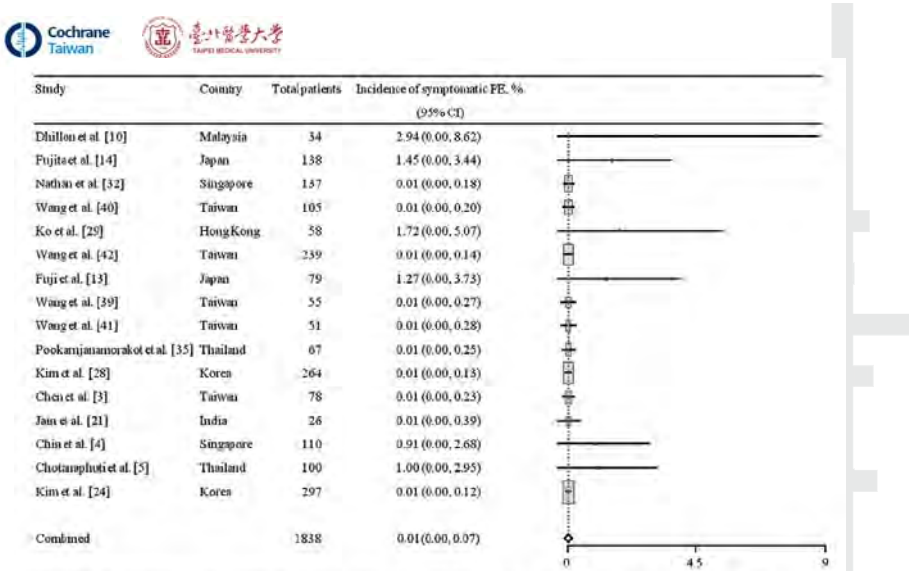
JAMA Surg. 2016;151(5):e160194. doi:10.1001/jamasurg.2016.0194



Modify from "Straus et al.: Evidence-based medicine, Elsevier Ltd., 2005", Brian Haynes, R Evid Based Med 2006;11:162-164

Why we need local developed CPG?

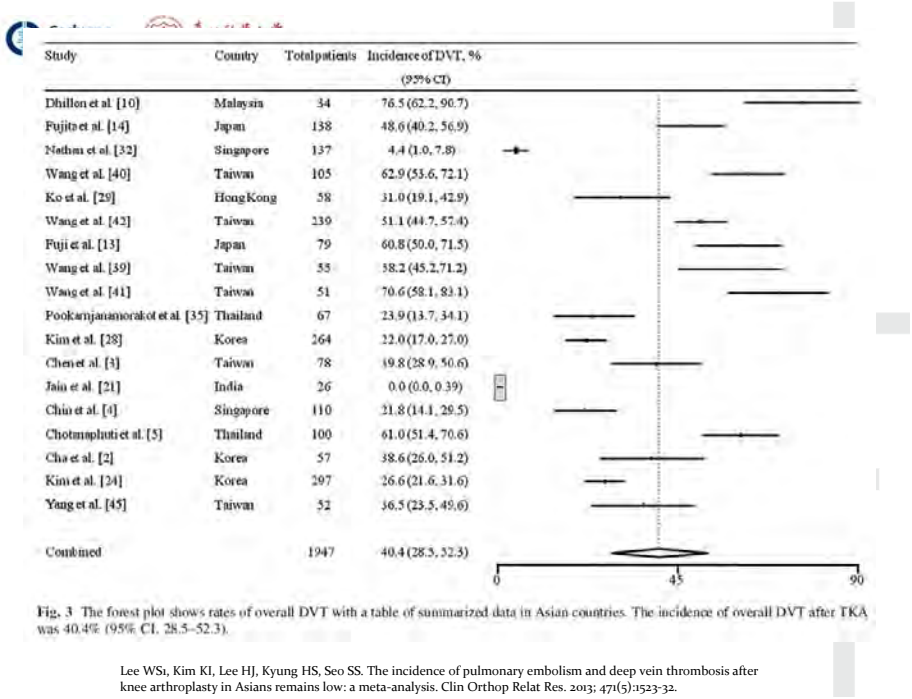
The incidence of symptomatic deep vein thrombosis and pulmonary embolism are less common following total knee replacement without chemo-prophylactic in East Asian countries, therefore guidelines would be different from CPG of Caucasians.



Study	Country	Total patients	Incidence of symptomatic PE, % (95% CI)
Dhillon et al. [10]	Malaysia	34	2.94 (0.00, 8.62)
Fujita et al. [14]	Japan	138	1.45 (0.00, 3.44)
Nathan et al. [32]	Singapore	137	0.01 (0.00, 0.18)
Wang et al. [40]	Taiwan	105	0.01 (0.00, 0.20)
Ko et al. [29]	HongKong	58	1.72 (0.00, 5.07)
Wang et al. [42]	Taiwan	239	0.01 (0.00, 0.14)
Fuji et al. [13]	Japan	79	1.27 (0.00, 3.73)
Wang et al. [39]	Taiwan	55	0.01 (0.00, 0.27)
Wang et al. [41]	Taiwan	51	0.01 (0.00, 0.28)
Pookarnjanamorakot et al. [35]	Thailand	67	0.01 (0.00, 0.25)
Kim et al. [28]	Korea	264	0.01 (0.00, 0.13)
Chen et al. [3]	Taiwan	78	0.01 (0.00, 0.23)
Jain et al. [21]	India	26	0.01 (0.00, 0.39)
Chin et al. [4]	Singapore	110	0.91 (0.00, 2.68)
Chotiamphuti et al. [5]	Thailand	100	1.00 (0.00, 2.95)
Kim et al. [24]	Korea	297	0.01 (0.00, 0.12)
Combined		1838	0.01 (0.00, 0.07)

Fig. 2 The forest plot shows rates of symptomatic PE with a table of summarized data in Asian countries. The incidence of symptomatic PE was extremely low (0.01%; 95% CI, 0.00–0.07).

Lee WS1, Kim KI, Lee HJ, Kyung HS, Seo SS. The incidence of pulmonary embolism and deep vein thrombosis after knee arthroplasty in Asians remains low: a meta-analysis. Clin Orthop Relat Res. 2013; 471(5):1523-32.



Study	Country	Total patients	Incidence of DVT, % (95% CI)
Dhillon et al. [10]	Malaysia	34	76.5 (62.2, 90.7)
Fujita et al. [14]	Japan	138	48.6 (40.2, 56.9)
Nathan et al. [32]	Singapore	137	4.4 (1.0, 7.8)
Wang et al. [40]	Taiwan	105	62.9 (53.6, 72.1)
Ko et al. [29]	HongKong	58	31.0 (19.1, 42.9)
Wang et al. [42]	Taiwan	239	51.1 (44.7, 57.4)
Fuji et al. [13]	Japan	79	60.8 (50.0, 71.5)
Wang et al. [39]	Taiwan	55	58.2 (45.2, 71.2)
Wang et al. [41]	Taiwan	51	70.6 (58.1, 83.1)
Pookarnjanamorakot et al. [35]	Thailand	67	23.9 (13.7, 34.1)
Kim et al. [28]	Korea	264	22.0 (17.0, 27.0)
Chen et al. [3]	Taiwan	78	39.8 (28.9, 50.6)
Jain et al. [21]	India	26	0.0 (0.0, 0.39)
Chin et al. [4]	Singapore	110	21.8 (14.1, 29.5)
Chotiamphuti et al. [5]	Thailand	100	61.0 (51.4, 70.6)
Cha et al. [2]	Korea	57	38.6 (26.0, 51.2)
Kim et al. [24]	Korea	297	26.6 (21.6, 31.6)
Yang et al. [45]	Taiwan	52	36.5 (23.5, 49.6)
Combined		1947	40.4 (28.5, 52.3)

Fig. 3 The forest plot shows rates of overall DVT with a table of summarized data in Asian countries. The incidence of overall DVT after TKA was 40.4% (95% CI, 28.5–52.3).

Lee WS1, Kim KI, Lee HJ, Kyung HS, Seo SS. The incidence of pulmonary embolism and deep vein thrombosis after knee arthroplasty in Asians remains low: a meta-analysis. Clin Orthop Relat Res. 2013; 471(5):1523-32.

Evidence-Based Health Policy
實證基礎的健康政策

Trusted evidence.
Informed decisions.
Better health.

Barriers to Implementing Effective Public Health Policy

Barrier	Example
Lack of value placed on prevention	Only a small percentage of the annual US health care budget is allocated to population-wide approaches.
Insufficient evidence base	The scientific evidence on effectiveness of some interventions is lacking or the evidence is changing over time.
Mismatched time horizons	Election cycles, policy processes, and research time often do not match well.
Power of vested interests	Certain unhealthy interests (e.g., tobacco, asbestos) hold disproportionate influence.
Researchers isolated from the policy process	The lack of personal contact between researchers and policymakers can lead to lack of progress, and researchers do not see it as their responsibility to think through the policy implications of their work.
Policymaking process can be complex and messy	Evidence-based policy occurs in complex systems and social psychology suggests that decision-makers often rely on habit, stereotypes, and cultural norms for the vast majority of decisions.
Individuals in any one discipline may not understand the policymaking process as a whole	Transdisciplinary approaches are more likely to bring all of the necessary skills to the table.
Practitioners lack the skills to influence evidence-based policy	Much of the formal training in public health (e.g., masters of public health training) contains insufficient emphasis on policy-related competencies.

National Institutes of Health Journal List:: Am J Public Healthv.99(9); Sep 2009PMC2724448

Barriers to Implementing Effective Public Health Policy
有效的公共健康政策之推展障礙

- **Lack of value placed on prevention: budget**
  欠缺對預防投資的重視: 經費
- **Insufficient evidence base: lacking or changing overtime**
  欠缺相關的實證: 缺少或不斷在改變
- **Mismatched time horizons: Election cycles, policy processes, and research time often do not match well.**
  不搭配的時間性: 選舉週期, 政策流程, 以及研究時間等經常不相配合
- **Power of vested interests: Certain unhealthy interests (e.g., tobacco, asbestos) hold disproportionate influence.**
  眾多利益關係者的角力: 特定不健康的利益團體(如菸, 石棉)把持不成比例的影響力。

Barriers to Implementing Effective Public Health Policy
有效的公共健康政策之推展障礙

- **Researchers isolated from the policy process: Lack of personal contact between researchers and policymakers can lead to lack of progress, and researchers do not see it as their responsibility to think through the policy implications of their work.**
  研究者被排除於政策制定流程之外: 研究者欠缺與政策制定者個人溝通的管道，且研究者也不認為考量其工作對政策影響為其責任。
- **Individuals in any one discipline may not understand the policy making process as a whole: Transdisciplinary approaches are more likely to bring all of the necessary skills to the table.**
  個別專業人員不一定瞭解政策制定的全盤過程: 跨專業的方法較可能將所有需要的技能齊聚一堂。

Barriers to Implementing Effective Public Health Policy
有效的公共健康政策之推展障礙

- **Policymaking process can be complex and messy: Evidence-based policy occurs in complex systems and social psychology suggests that decision-makers often rely on habit, stereotypes, and cultural norms for the vast majority of decisions.**
  政策制定的過程複雜且混亂: 實證政策形成於複雜的體系及社會心理，因而決策者多半仰賴於大多數習慣的決定、制式及文化常規。
- **Practitioners lack the skills to influence evidence-based policy: Much of the formal training contains insufficient emphasis on policy-related competencies.**
  實務人員欠缺影響實證政策的技能: 很多正式訓練其實缺乏對政策所需能力的著墨。

Evidences 證據

- Quantitative: can take many forms, ranging from scientific information in peer-reviewed journals, to data from surveillance systems, and systemic reviews to evaluations of individual programs or policies.
  定量: 可能有很多種形式，範圍由同儕審查期刊的科學資訊，到監測體系的資料，及評估個別計畫或政策的系統性文獻回顧
- Qualitative: Qualitative evidence involves non-numerical observations. Qualitative evidence can make use of the narrative form as a powerful means of influencing policy deliberations, setting priorities, and proposing policy solutions. 定性:
  定性證據包括非數據性的觀察，定性證據可以敘述性形式提供政策考量、優先序選定及提出政策解答的有力影響。

Domains of Evidence-Based Health Policy
實證衛生政策的面向

- Process: To understand approaches to enhance the likelihood of policy adoption.
  過程: 政策的適用可行性
- Content: To identify specific policy elements that are likely to be effective.
  內容: 找出對特定政策可能有效的要點
- Outcome: To document the potential impact of policy.
  結果: 記錄潛在的政策影響

Evidence-Based Health Policy

Example #1

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Table 1. Recommended activities for early detection of selected cancers

Site of cancer	Activities for	
	Early diagnosis	Screening
Breast	Yes	Yes[a]
Cervix	Yes	Yes
Colon and rectum	Yes	Yes[b]
Oral cavity	Yes	Yes
Naso-pharynx	Yes	No
Larynx	Yes	No
Lung	No	No
Oesophagus	No	No
Stomach	Yes	No
Skin melanoma	Yes	No
Other skin cancers	Yes	No
Ovary	No	No
Urinary bladder	Yes	No
Prostate	Yes	No
Retinoblastoma	Yes	No
Testis	Yes	No

[a] Screening for breast cancer using mammography is recommended in high-resource settings only.
[b] In high-resource settings only.

Among all cancers, screening has been proven to do more benefit than harm in 4 sites of cancers.

Not beneficial

WHO, 2007

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The NEW ENGLAND JOURNAL of MEDICINE

Mortality Results from a Randomized Prostate-Cancer Screening Trial

U.S. Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial

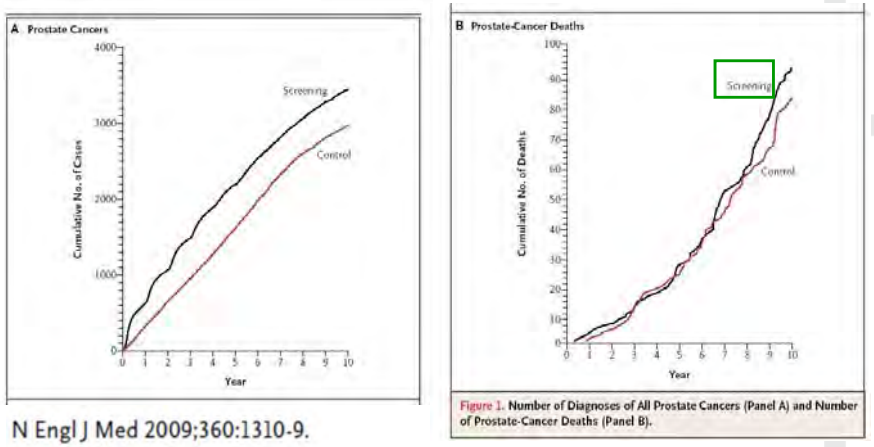

Figure 1. Number of Diagnoses of All Prostate Cancers (Panel A) and Number of Prostate-Cancer Deaths (Panel B).

N Engl J Med 2009;360:1310-9.

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Development of a national system for comprehensive cancer prevention and control in Taiwan

Dr. Shu-Ti Chiou, Director-General, Health Promotion Administration (HPA), R.O.C. (Taiwan)

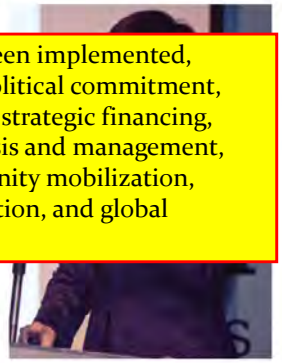
Edited by: Dr. Sofia Ribeiro, **Young Gasteiner**, Dr. Dun-Cheng **Young Taiwaners**

In this session, Health Promotion Administration (HPA) Director-General Chiou talked about the development of a national system for comprehensive cancer prevention and control in Taiwan. Cancer has been the leading cause of death in Taiwan for the past 31 years, so there are a lot of things that need to be done in Taiwan.

Seven strategies have been implemented, including: high-level political commitment, tobacco surcharges and strategic financing, early detection, diagnosis and management, prevention and community mobilization, surveillance and evaluation, and global collaboration.

She gave many effective examples, such as promoting cancer screening for early detection and early treatment, enhancing

concluded that primary prevention results in high efficiency and would reduce cancer incidence rates in the long term, while expanded cancer screening services improve cancer stage distribution in the short term. There is still a lot of work to be done, from improving the quality of medical care to providing patient-centered services and promoting the life quality of cancer survivors. Finally, the



aim of the national cancer control program in Taiwan is to reduce the mortality rate drastically over 8-10 years.

Seven strategies have been implemented, including: high-level political commitment, tobacco surcharges and strategic financing, early detection, diagnosis and management, prevention and community mobilization, surveillance and evaluation, and global collaboration.

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Evidence-Based Health Policy

Example #2

Trusted evidence.
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Still 檢討ing~~~

Analysis 01.01. Comparison 01 Glucosamine versus placebo, Outcome 01 Pain

Review: Glucosamine therapy for treating osteoarthritis
Comparison: 01 Glucosamine versus placebo
Outcome: 01 Pain

Forest plot

Study	Glucosamine N	Glucosamine Mean(SD)	Placebo N	Placebo Mean(SD)	Standardised Mean Difference (Random) 95% CI	Weight (%)	Standardised Mean Difference (Random) 95% CI
Cibere 2004	71	129.72 (113.23)	66	129.62 (118.02)		7.7	0.00 [-0.33, 0.34]
Crolle 1980	15	0.21 (0.43)	15	1.13 (0.89)		5.6	-1.28 [-2.08, -0.49]
D'ambrosio 1981	15	0.33 (0.12)	15	1.20 (0.19)		2.8	-5.33 [-6.94, -3.71]
Drovanti 1980	40	0.95 (0.82)	40	1.88 (0.44)		7.0	-1.40 [-1.89, -0.91]
Houpt 1999	45	7.14 (4.01)	53	7.65 (4.13)		7.4	-0.12 [-0.52, 0.27]
Hughes 2002	39	7.50 (4.81)	39	7.35 (4.38)		7.2	0.03 [-0.41, 0.48]
McAlindon 2004	101	6.80 (3.30)	104	6.60 (4.20)		7.9	0.05 [-0.22, 0.33]
Pavelka 2002	101	4.61 (3.45)	101	5.03 (3.13)		7.9	-0.13 [-0.40, 0.15]
Pujalte 1980	10	1.25 (0.25)	10	2.36 (0.79)		4.4	-1.81 [-2.89, -0.74]
Reginster 2001	106	156.10 (101.90)	106	164.20 (104.50)		7.9	-0.08 [-0.35, 0.19]
Rindone 2000	49	3.20 (2.50)	49	3.40 (2.50)		7.4	-0.08 [-0.48, 0.32]
Rovati 1997	79	24.30 (19.30)	77	50.00 (22.00)		7.6	-1.24 [-1.58, -0.89]
Usha 2004	30	0.65 (0.71)	28	1.16 (0.76)		6.9	-0.68 [-1.22, -0.15]
Vajaradul 1981	28	0.18 (0.16)	26	0.69 (0.92)		6.7	-0.78 [-1.33, -0.22]
Zenk 2002	13	-74.70 (26.30)	10	-76.50 (25.10)		5.5	0.07 [-0.76, 0.89]
Total (95% CI)	742		739			100.0	-0.61 [-0.95, -0.28]

Test for heterogeneity chi-square=121.50 df=14 p=<0.0001 I² =88.5%
Test for overall effect z=3.63 p=0.0003

-4.0 -2.0 0
Favours Glucosamine

不分研究品質時，總合結果較favor Glucosamine

Cochrane Taiwan

Main results

This update includes 25 studies with 4963 patients. Analysis restricted to studies with adequate allocation concealment failed to show any benefit of glucosamine for pain (based on a pooled measure of different pain scales) and WOMAC pain, function and stiffness subscales; however, it was found to be better than placebo using the Lequesne index (standardized mean difference (SMD) -0.54; 95% confidence interval (CI) -0.96 to -0.12). Collectively, the 25 RCTs favoured glucosamine with a 22% (change from baseline) improvement in pain (SMD -0.47; 95% CI -0.72 to -0.23) and a 11% (change from baseline) improvement in function using the Lequesne index (SMD -0.47; 95% CI -0.82 to -0.12). However, the results were not uniformly positive and the reasons for this remain unexplained. WOMAC pain, function and stiffness outcomes did not reach statistical significance.

Towheed et al. *Cochrane Database of Systematic Reviews, 2005, Issue 2*

Analysis 03.01. Comparison 03 Glucosamine versus placebo (Allocation concealment A), Outcome 01 Pain

Review: Glucosamine therapy for treating osteoarthritis
Comparison: 03 Glucosamine versus placebo (Allocation concealment A)
Outcome: 01 Pain

Forest plot

Study	Glucosamine N	Glucosamine Mean(SD)	Placebo N	Placebo Mean(SD)	Standardised Mean Difference (Random) 95% CI	Weight (%)	Standardised Mean Difference (Random) 95% CI
Cibere 2004	71	129.72 (113.23)	66	129.62 (118.02)		13.3	0.00 [-0.33, 0.34]
Houpt 1999	45	7.14 (4.01)	53	7.65 (4.13)		12.4	-0.12 [-0.52, 0.27]
Hughes 2002	39	7.50 (4.81)	39	7.35 (4.38)		11.8	0.03 [-0.41, 0.48]
McAlindon 2004	101	6.80 (3.30)	104	6.60 (4.20)		14.0	0.05 [-0.22, 0.33]
Pavelka 2002	101	4.61 (3.45)	101	5.03 (3.13)		14.0	-0.13 [-0.40, 0.15]
Reginster 2001	106	156.10 (101.90)	106	164.20 (104.50)		14.0	-0.08 [-0.35, 0.19]
Rovati 1997	79	24.30 (19.30)	77	50.00 (22.00)		13.1	-1.24 [-1.58, -0.89]
Zenk 2002	13	-74.70 (26.30)	10	-76.50 (25.10)		7.3	0.07 [-0.76, 0.89]
Total (95% CI)	555		556			100.0	-0.19 [-0.50, 0.11]

Test for heterogeneity chi-square=42.29 df=7 p=<0.00001 I² =83.4%
Test for overall effect z=1.22 p=0.2

異質性高

-4.0 -2.0 0 2.0 4.0
Favours Glucosamine Favours Placebo

只選品質較佳之研究時，總合結果則未達顯著差異

Cochrane Taiwan

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glucosamine | Filter | Do not do | Published | Impact Level

Do not offer glucosamine or chondroiton products for the management of osteoarthritis.	Do not do recommendation	June 2015	
The use of glucosamine products is not recommended for the treatment of osteoarthritis.	Do not do recommendation	June 2015	
Do not offer **glucosamine** or chondroiton products for the management of osteoarthritis.	Do not do	February 2014	Unclassified
The use of **glucosamine** products is not recommended for the treatment of osteoarthritis.	Do not do	February 2008	Unclassified

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Evidence-Based Health Policy

Example #3

Trusted evidence.
Informed decisions.
Better health.

考科藍文獻回顧報告亦顯示提醒病人，可以有效地提高疫苗接種率[20]，以及慢性病長期用藥的遵從性[21]。也可以用簡訊的方式提醒病人疫苗接種[22]。

另外，公告公正透明的品質指標本身，亦可以促進品質指標的執行

[20] Jacobson VJ, Szilagyi P. Patient reminder and patient recall systems to improve immunization rates.Cochrane Database Syst Rev. 2005 Jul 20;(3):CD003941.

[21] Mahtani KR, Heneghan CJ, Glasziou PP, Perera R. Reminder packaging for improving adherence to self-administered long-term medications. Cochrane Database Syst Rev. 2011 Sep 7;9:CD005025.

[22] Ahlers-Schmidt CR, Hart T, Chesser A, Williams KS, Yaghmai B, Shah-Haque S, Wittler RR. Using Human Factors Techniques to Design Text Message Reminders for Childhood Immunization. Health Educ Behav. 2011 October 10.

提高疫苗接種 北市推簡訊服務

【聯合報／記者邱瓊玉／即時報導

為提高北市新生兒的疫苗接種率，北市衛生局推出「嬰幼兒預防接種簡訊及電子郵件接種資訊系統」，從3月8日起，設籍北市的家長只要上衛生局網頁登錄新生兒的資料，就可在接種日前7天收到通知簡訊，接種率可望提升至93.3%以上。

【2012/02/21 聯合報】

Evidence-based auditing

例如行政院衛生署–全民健康保險醫療品質資訊公開網(http://www.nhi.gov.tw/mqinfo/)對各院所的糖尿病實證品質指標(evidence - based quality indicators–DM)之公開，可以看到整體病人有做空腹血脂測驗及檢驗尿中微蛋白的檢測比率已逐年增加。

Evidence-based quality indicators

我們還有許多事情要做，大家勉勵。

Trusted evidence.
Informed decisions.
Better health.

謝謝聆聽

Trusted evidence.
Informed decisions.
Better health.