

Knowledge translation to improve health care quality

Li-Chi Chiang, RN., PhD
Professor, School of Nursing
National Defense Medical Center



What is Knowledge Translation?


GEORGE & FAY YEE
Centre for Healthcare Innovation

KNOWLEDGE TRANSLATION =

synthesis

Involves synthesizing results of individual research studies and interpreting findings or results in the context of global evidence. Synthesis is regarded as the fundamental unit of KT when considering potential for widespread implementation.

exchange

The two-way sharing of knowledge between research producers and users, often called “integrated KT”. Involving end users as partners leads to more solutions-focussed research, with results that are more likely to be implemented and sustainable.

application

Often called “implementation”, application refers to putting research into practice, policy and/or action. Wherever possible, KT theory should be used to inform application in order to advance our understanding of what interventions work, why, and in what contexts.

dissemination

Sometimes referred to as “end-of-grant KT”, dissemination refers to the communication or sharing of research results. Traditionally limited to peer-reviewed publications and conference presentations, non-traditional dissemination strategies are expanding rapidly along with the KT movement.

of KNOWLEDGE to **IMPROVE**

health

the
healthcare
system

health
service
delivery

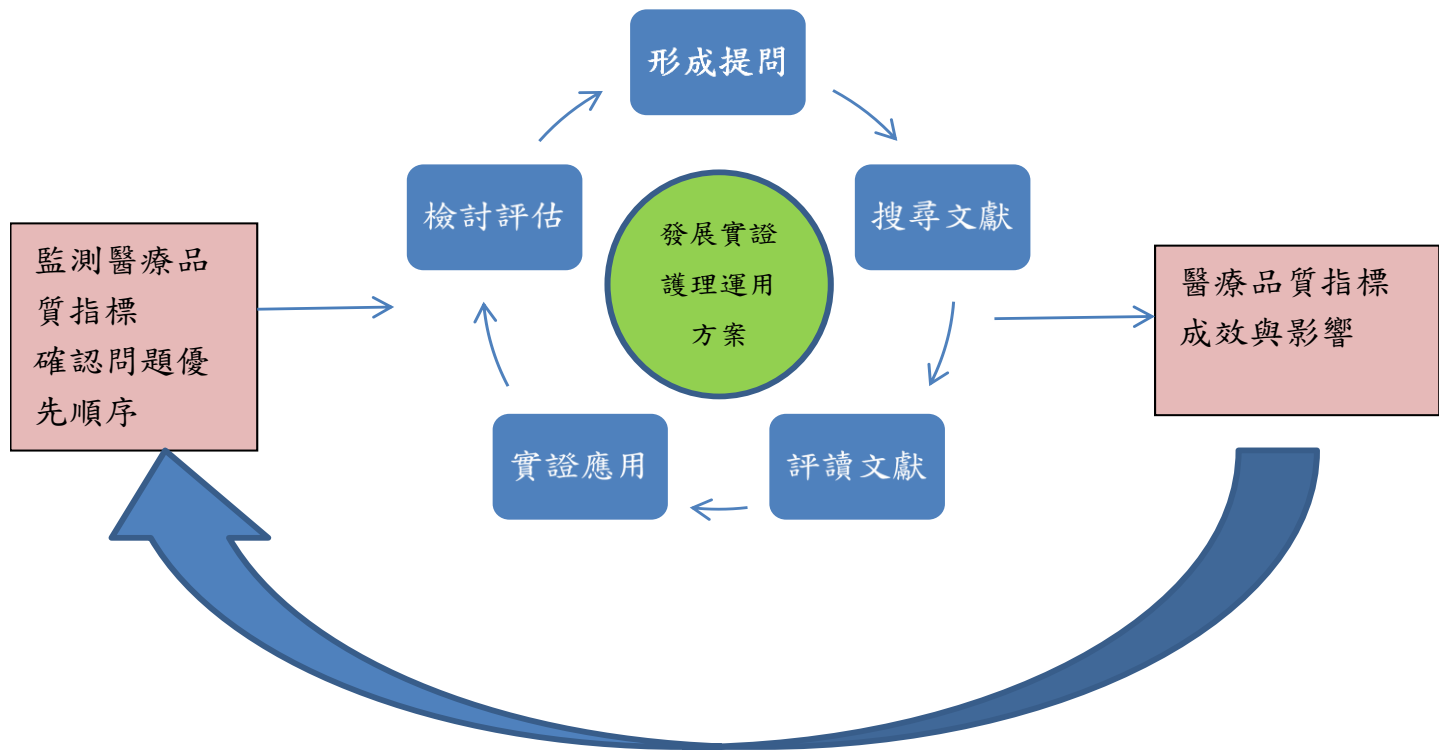


Fig. The relationship between health care quality and evidence-based practice

Knowledge synthesis to improve...



Why knowledge translation

- ▶ **Gap** between evidence-to-practice
- ▶ **Unsatisfied problems** among patients, families, medical personals.
- ▶ Continuous **quality improvement** for hospitals
- ▶ Equal distribution of **resources** for department
- ▶ 各單位要持續改善品質**PDCA**
- ▶ 尋找未來**研究**主題與方向
- ▶ 分析健康照護系統的行政、組織、人員等的**支持系統**之可能問題

Knowledge Translation

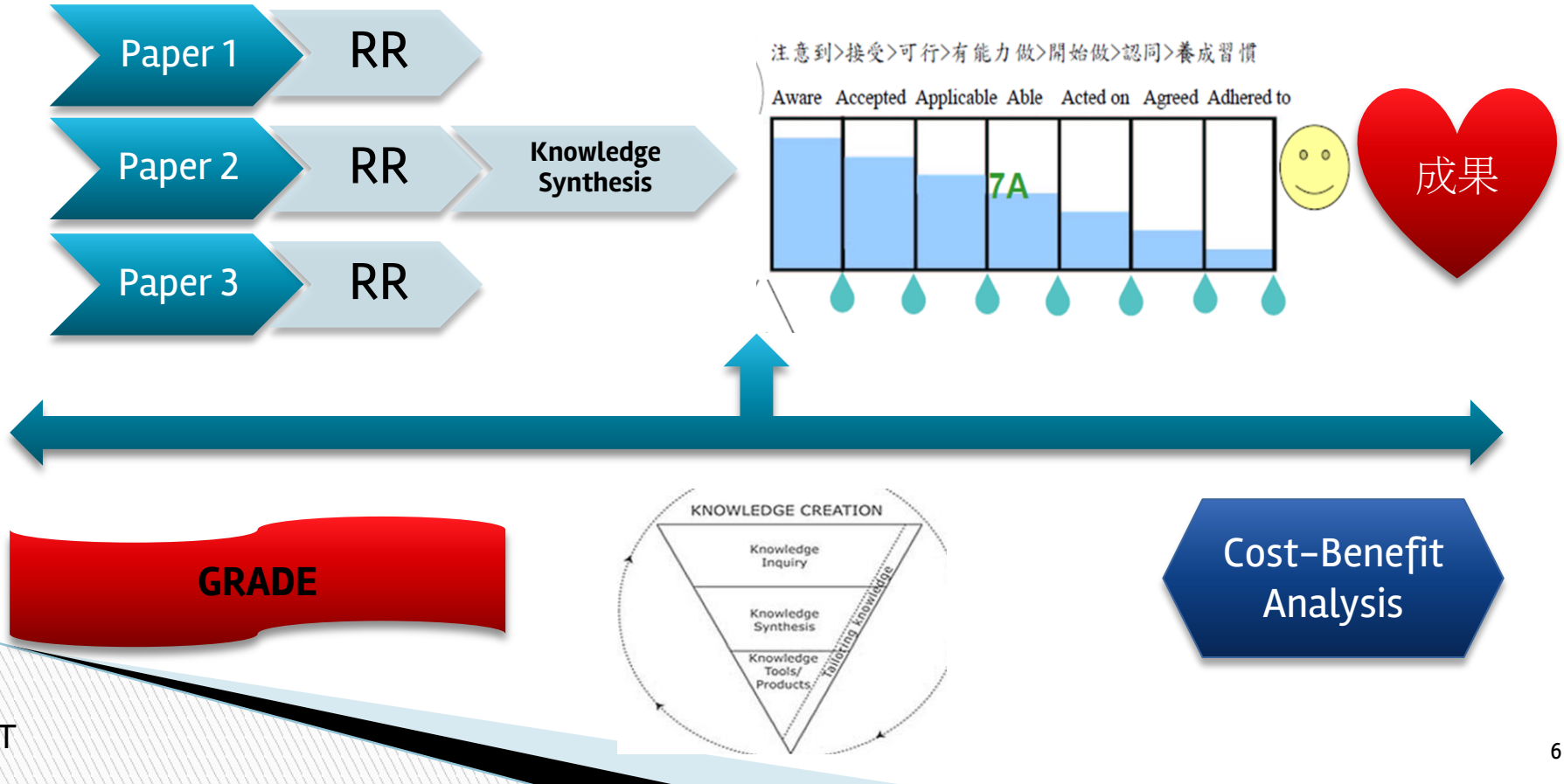
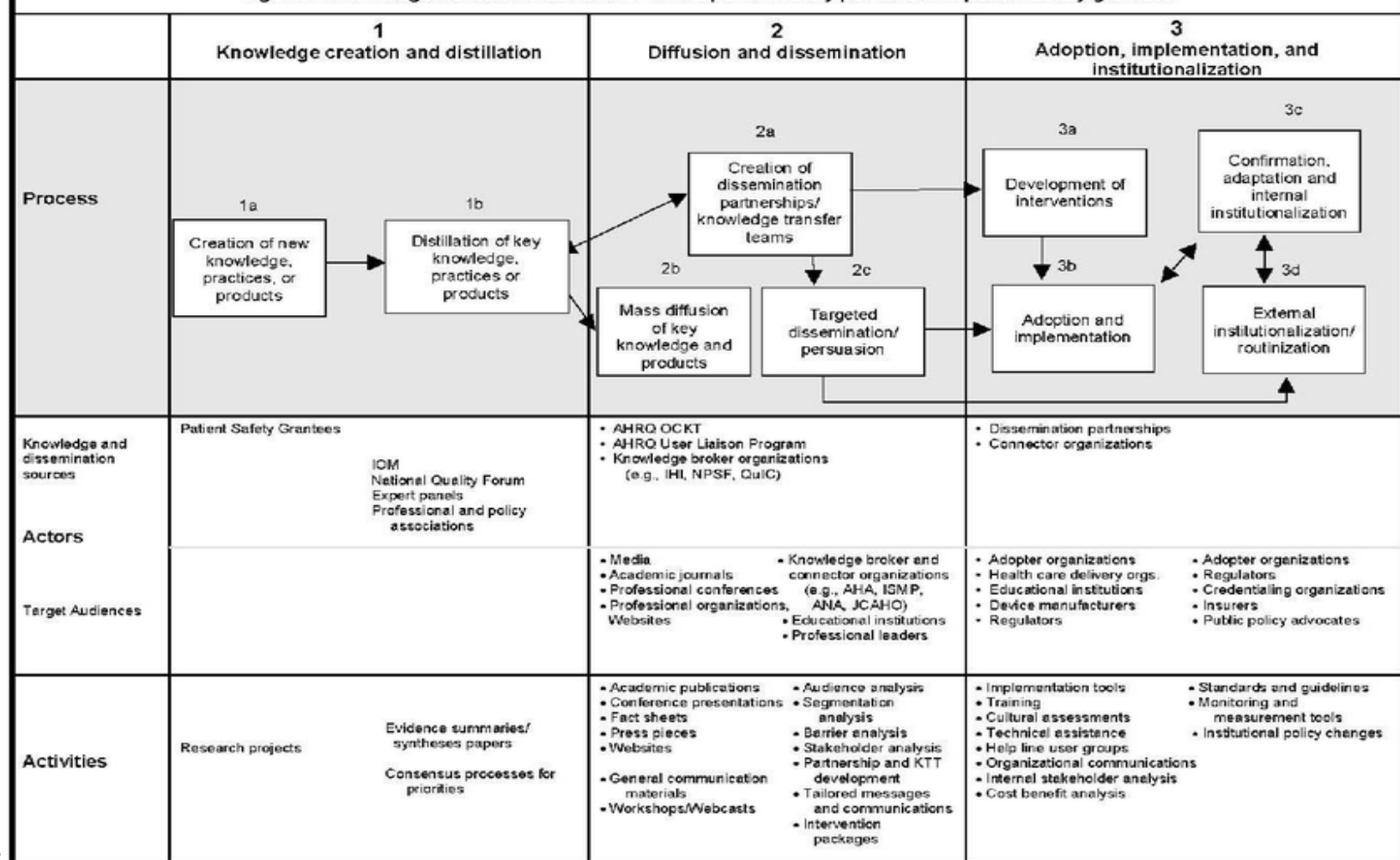


Figure 1. Knowledge transfer framework for AHRQ patient safety portfolio and patient safety grantees



Nieva, V., Murphy, R., Ridley, N., Donaldson, N., Combes, J., Mitchell, P., et al. (2005). From science to service: a framework for the transfer of patient safety research into practice, *Advances in Patient Safety: From Research to Implementation* (Vol. 2). Rockville, MD: Agency for Healthcare Research and Quality.

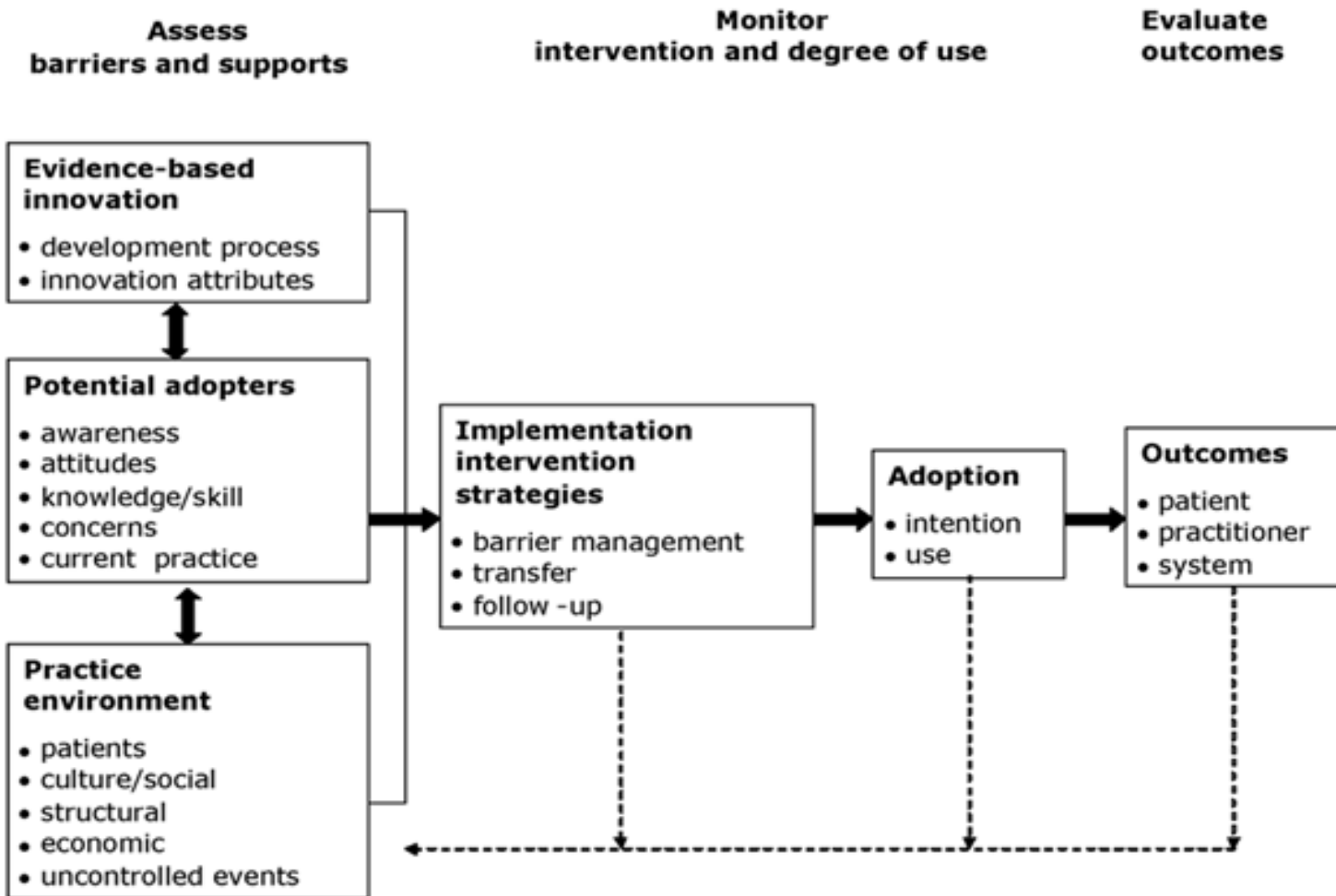
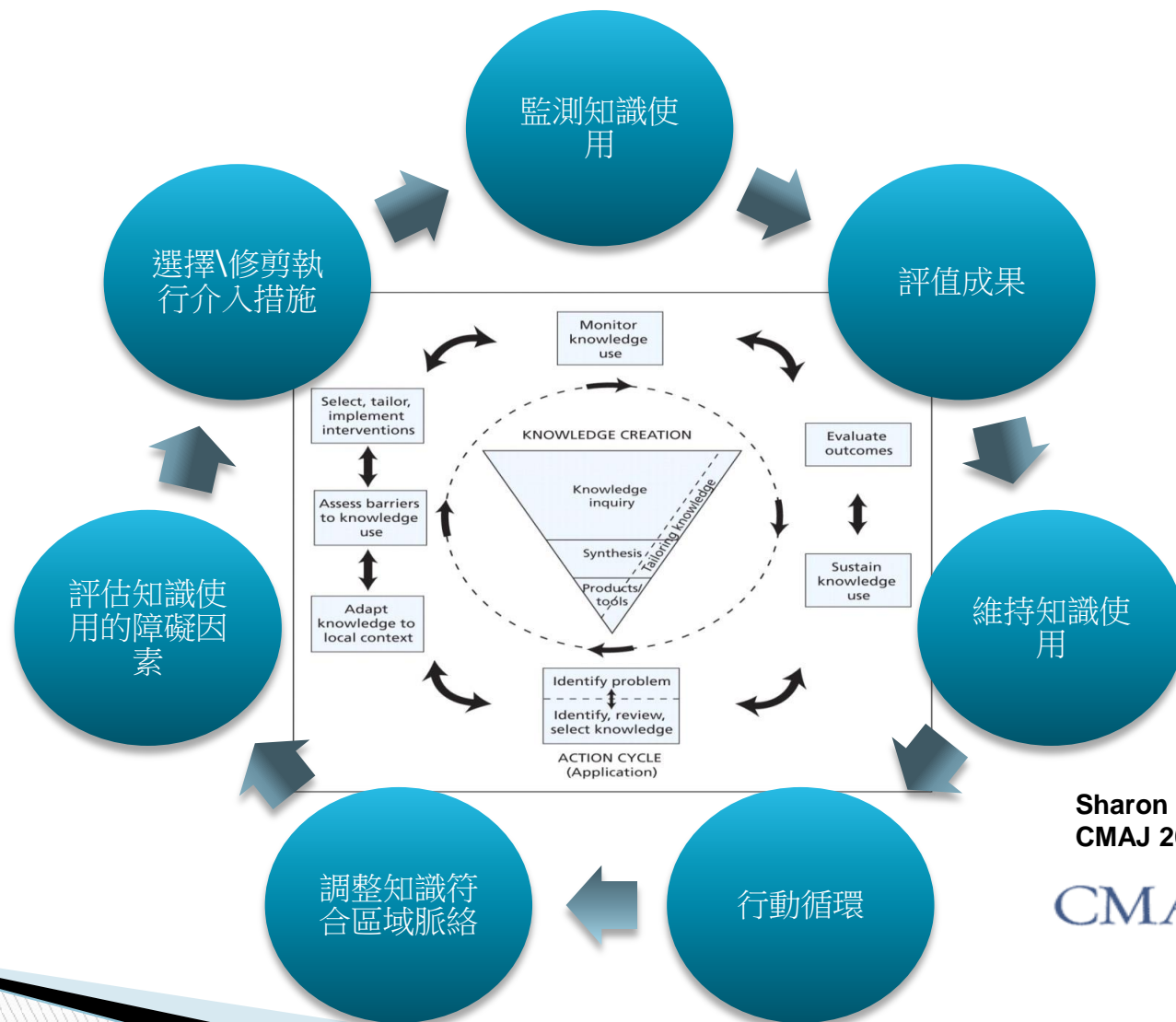


Figure . The Ottawa Model of Research Use



Sharon E. Straus et al.
CMAJ 2009;181:165-168

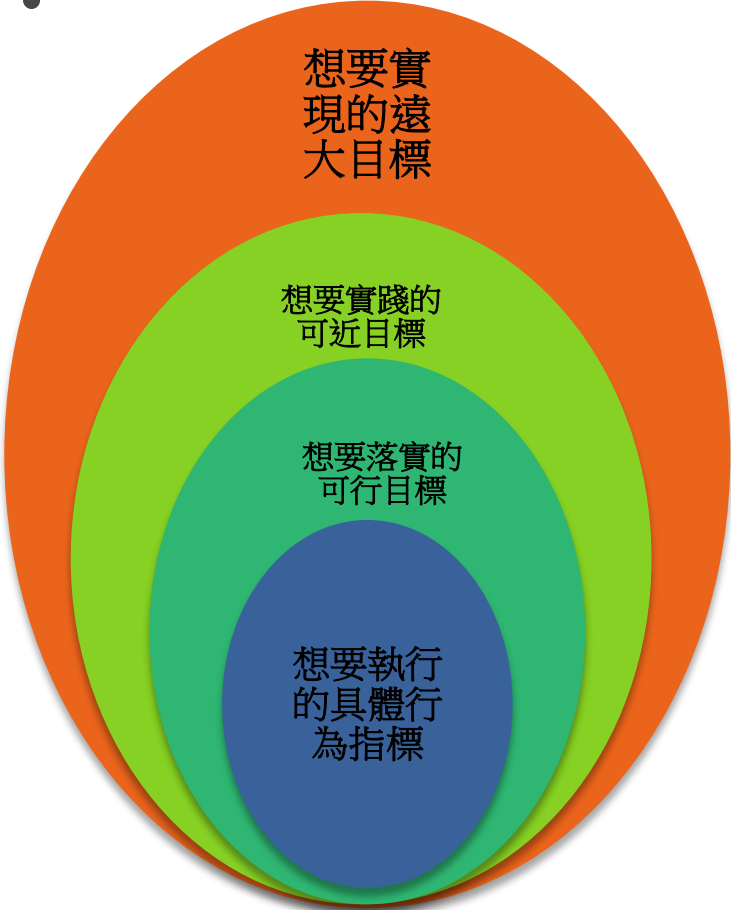
CMAJ·JAMC

Figure 1: The knowledge-to-action framework.

知識轉譯一對象 Who??



- ▶ 個人
- ▶ 家庭
- ▶ 社區
- ▶ 醫療院所
- 機構
- ▶ 全國



發展知識轉譯的問題與研究

- ▶ 發展實證應用過程中可能發生的問題(questions)，知識轉譯的問題(KT questions)
- ▶ 評估應用的過程(大環境、中環境、小環境)中在知識轉譯過程中可能會遇到問題
 - ◆ 資源面
 - 人力
 - 物力
 - 財力
 - ◆ 知識技能面
 - ◆ 硬體設施
- ◆ 發展解決的策略
- ◆ 研究策略改善機制
- ◆ 評價執行成效

**KT question
is not
PICO**

研擬各種找出問題的方法

改變作法有不
一致的認知



人員認為此項證
據的建議與其現
有的工作流程不
一致

透過研究方法找出問題之所在

長官認為將
多花費經費

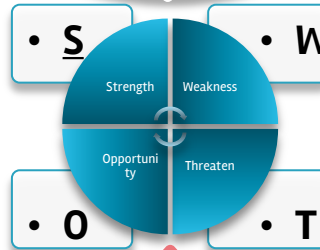
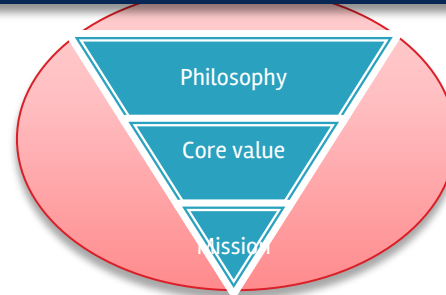


護理人員仍感
到不熟悉

Stakeholder analysis

Environmental scanning

Socio-cultural context



Review

Helps

Strategic plan

Hindrances

Mission

Vision

Forecast

Goals

Objectives

Strategic activities

A1a A2a A3a A4a Activities

Performance

M1a1 M1a2 M#b1 M#b2 Measures

Operational
Action plan (Who, what,
When, How

O1a1-1 O1a#-# O1b#-# Outcomes

你單位的問題

形成知識轉譯的目的與目標

1.	2.	3.	4.

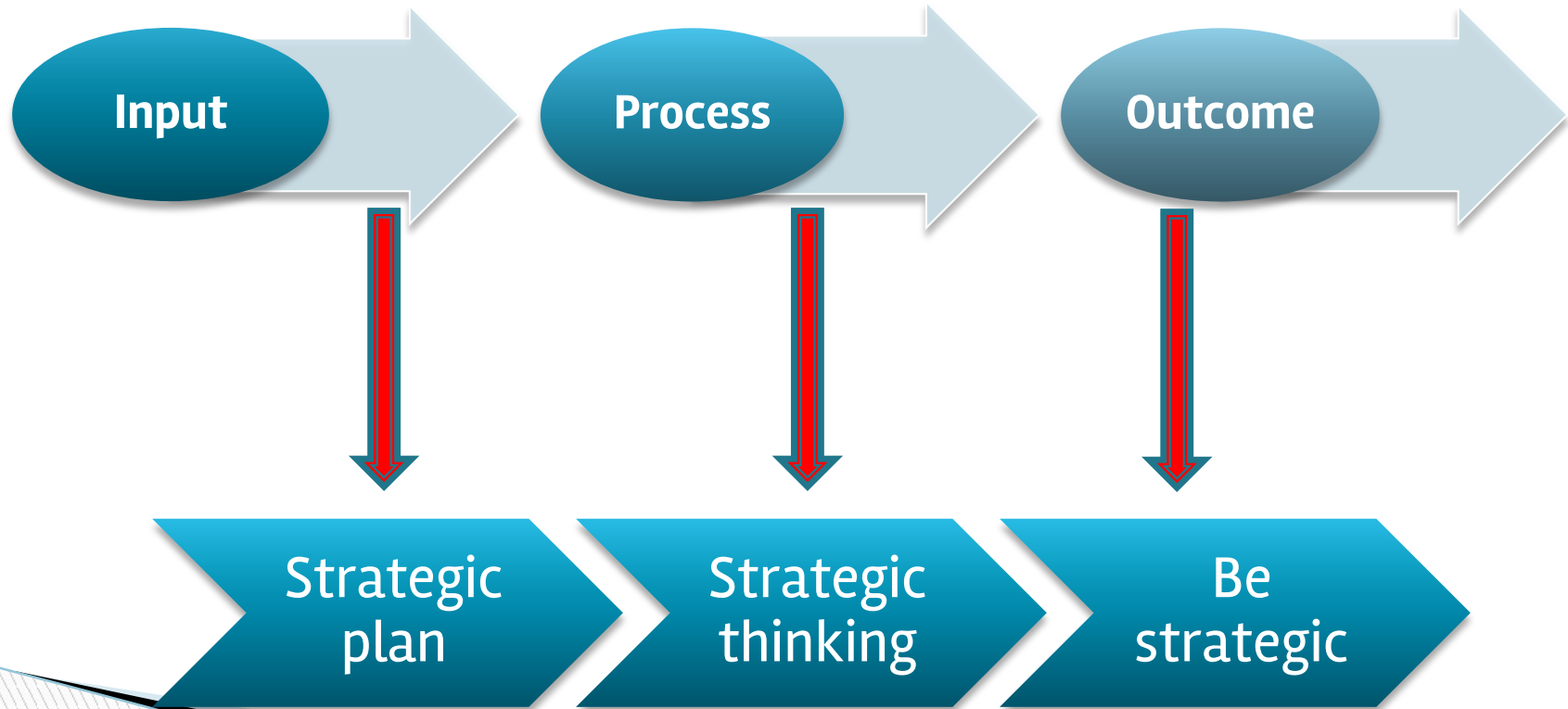
你的計劃將涵蓋那些範疇(人、場地、...)

1.	2.	3.	4.

推動時可能面對的障礙與困難

1.	2.	3.	4.

The process of thinking strategically



策略性思考 vs. 策略性行動

- ▶ Strategic thinking is a way of being.
 - Innovation
 - Transformation
 - Sharing is caring
- ▶ Strategic planning is a way of doing.
 - Practical
 - Concrete
 - Who, where, how and what









The evidences of knowledge translation

Title	
Berube , et al., (2015). Development of theory-based knowledge translation interventions to facilitate the implementation of evidence-based guidelines on the early management of adults with traumatic spinal cord injury J Eval Clin Pract, 21(6), 1157–68.	Protocol
Hemmelgarn, et al., (2012). Knowledge translation for nephrologists: strategies for improving the identification of patients with proteinuria. J Nephrol, 25(6), 933–43.	Protocol
Ho, et al., (2012). A collaborative quality improvement model and electronic community of practice to support sepsis management in emergency departments: investigating care harmonization for provincial knowledge translation. JMIR Res Protoc, 1(2), e6.	Protocol
Kavanagh, et al., (2008). Examining Appreciative Inquiry as a knowledge translation intervention in pain management. Can J Nurs Res, 40(2), 40–56.	Action plan
Powell, et al., (2013). A study protocol for applying the co-creating knowledge translation framework to a population health study. Implement Sci, 8, 98.	Protocol
Rosenthal et al., (2015). A cluster-randomized controlled knowledge translation feasibility study in Alberta community pharmacies using the PARIHS framework: study protocol. Pilot Feasibility Stud, 1(2),	Protocol
Liciskai, et al., (2012). Using a knowledge translation framework to implement asthma clinical practice guidelines in primary care. Int J Qual Health Care, 24(5), 538–46.	completed

a guideline-based interdisciplinary asthma management program.

International Journal for Quality in Health Care 2012; Volume 24, Number 5; pp. 538–546
Advance Access Publication: 14 August 2012

10.1093/ije/dys043

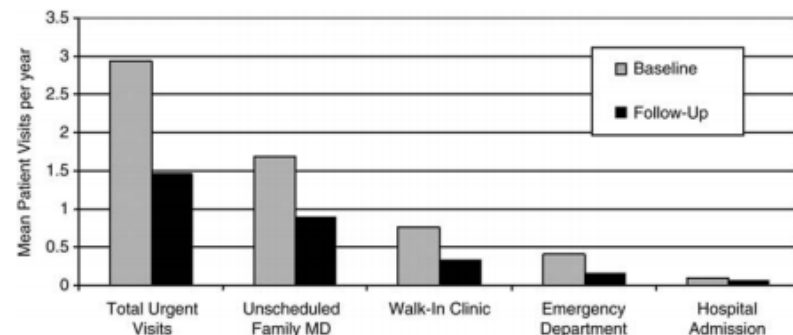
Using a knowledge translation framework to implement asthma clinical practice guidelines in primary care

CHRISTOPHER LICSKAI¹, TODD SANDS², MICHAEL ONG¹, LISA PAOLATTO³ AND IVAN NICOLETTI³

¹University of Western Ontario, London, ON, Canada N6A4V2, ²University of Windsor, Windsor, ON, Canada, and ³Asthma Research Group, Windsor, ON, Canada

Address reprint requests to Christopher Liciskai, University of Western Ontario, 268 Grosvenor St., London, ON, Canada N6A4V2. Fax: +1-519-646-6064; E-mail: clicskai@uwo.ca

Accepted for publication 7 July 2012



\$290/pt v.s. 2550/pt

Table 1 Multi-level community knowledge translation actions

Level of intervention	Knowledge translation (KT) actions
Project planning Community-based quality improvement project approach	Established a multidisciplinary community advisory group Collaboratively created a community plan the Essex County Community Asthma Care Strategy Identified key barriers to the implementation of asthma guidelines Identified key guideline interventions for implementation within the project Collaboratively developed infrastructure tools and a healthcare model to address the identified barriers Pilot testing of project tools and program operations with tool refinement
Health system level <i>Barrier:</i> Primary care without a common organizational structure, standardized KT tools and sufficient human resources <i>Solution:</i> infrastructure innovation focused on asthma KT, professional training and developing standardized tools	Organizational Asthma Research Group (Windsor Essex County Inc.) is registered as a community non-profit corporation to lead the initiative Community organizations (6) sign an operating agreement A project coordinator is hired. Healthcare professionals from a variety of backgrounds are trained as asthma educators Electronic An electronic infrastructure is created collaboratively with the University of Windsor including: (i) a web-based communication and scheduling tool to support project administration, (ii) an educator software program for patient assessment, education and decision support and (iii) an automated recall appointment reminder system
Practice level <i>Barrier:</i> no common model for implementing guidelines, quality improvement, sharing human resources and sharing knowledge tools <i>Solution:</i> creating an asthma management program and asthma care days	Accepted the Global Initiative for Asthma and Canadian Asthma Consensus guidelines as the guiding document for best practices Guideline objectives (6) were incorporated into the care model The asthma educator is placed centrally in an inter-disciplinary care model as a guideline content expert. Care is integrated into the primary care practice with all elements delivered on-site where the patient normally receives care The educator uses the software program created for the project to standardize the intervention, track performance indicators and for action plan decision support Self-management education is a key element of the care model Automated recall notices for follow-up appointments
Individual patient level <i>Barrier:</i> practitioner resources limit access <i>Solution:</i> inter-disciplinary care based on six guideline recommendations	Regular physician review of controller medication and asthma control Self-management education including a written action plan Objective measurement of lung function with spirometry Education on environmental control Education on role of medications Review and instruction on inhaler device technique

Table 2 Selected domains of intervention and recommendations

Domains of intervention	Recommendations	Selection criteria based on the GRADE system			
Spinal stabilization during emergency transport and early in-hospital immobilization after SCI (Care providers involved: Physicians, Nurses, BA, RT)	1- Immobilize the spine of all patients of the injury to definitive care 2- In case of confirmed SCI, no treatment 3- Employ an adequate number of diagnostic studies and reports 4- Log-roll patients with patient turning, or preparing for transport 5- Provide airway and ventilate the clinical course 6- Prevent and treat hypotension 7- Monitor and regulate temperature 8- Recognize and treat neuropathology 9- Perform baseline neurologic examination to document its presence 10- If neurological deficits are present and the completeness of SCI (Physicians and Nurses) 11- Perform serial examination to improve				
Resuscitation (Physicians, Nurses and RT)	12- Perform closed or open reduction of cervical facet dislocation 13- Consider early surgical spine decompression 14- Maintain mean arterial pressure balance of infusion and maintain bradycardia and hypotension 15- Minimize the pain of allodynia handling				
Diagnostic assessments for definitive care and surgical decision-making Clinical neurological assessment of SCI (Physicians and Nurses)	16- Assess patient pain, provide adequate analgesia short-acting sedation to allow 17- Assess areas frequently at risk 18- Place patients on pressure-reducing cushions 19- Provide meticulous skin care every 2 hours while maintain patient clean and dry and status on admission and requirements and splints.				
Surgical procedures (Physicians, Spine surgeons, Nurses)	20- Apply mechanical compression devices early after injury. 21- Begin low molecular weight heparin or unfractionated heparin plus intermittent pneumatic compression in all patients once primary hemostasis is evident. 22- Monitor patients closely for respiratory failure in the first days after SCI. 23- Obtain baseline respiratory parameters (vital capacity, FEV1) and arterial blood gases when patients are first evaluated and at intervals until stable. Consider mechanical ventilation for patients with tetraplegia. Admit patients with complete tetraplegia and injury level at C5 or rostral to intensive care unit. 24- Treat retained secretions due to expiratory muscle weakness with manually-assisted coughing ("quad coughing"), pulmonary hygiene, mechanical insufflation-exsufflation, or similar expiratory aids in addition to suctioning 25- Evaluate swallowing function prior to oral feeding in any acute patient with cervical SCI, halo-fixation, cervical spine surgery, prolonged intubation, tracheostomy, or concomitant traumatic brain injury				
Anesthetic concerns in acute SCI (Physicians and Nurses)	26- Within the first 72 hours, use clinical neurological assessment, as described by the International Standards for Neurological Classification of SCI, to determine the preliminary prognosis for neurological recovery				
Pain and anxiety Analgesia and sedation (Physicians, Nurses, PT, OT, Psychologists)	27- Prescribe interventions that will assist the recovery of persons with SCI, including preventive measures against possible secondary complications. Educate patients and families about the rehabilitation process and encourage their participation in discharge-planning discussions 28- Use non-pharmacological and pharmacological interventions for orthostatic hypotension, as needed. 29- Foster effective coping strategies, health-promotion behaviours, and independence through a variety of ongoing interventions				
Secondary prevention Patient handling and skin protection (Nurses, OT, Physicians)					
Prevention and treatment Venous thromboembolism (Physicians and Nurses) Respiratory management (Physicians, RT, Nurses, BA, SPL)					
Prognosis for neurological recovery (Physicians, PT, Nurses)					
Rehabilitation intervention (Nurses, PT, OT, Physicians, BA)					
Psychosocial and family issues (Nurses, PT, OT)					

BA: Beneficiary attendance, RT: Respiratory therapists, PT: Physiotherapists, OT: Occupational therapists, SPL: Speech language pathologist



Development of theory-based knowledge translation interventions to facilitate the implementation of evidence-based guidelines on the early management of adults with traumatic spinal cord injury

Mélanie Bérubé APN MScN CNCC (c),^{1,2} Martin Albert MD FRCP (c),^{3,12} Jean-Marc Chauny MD MSc FRCP (c),^{4,12} Damien Contandriopoulos PhD,¹³ Anne DuSablón BScN,⁵ Sébastien Lacroix MD FRCP (c),^{12,14} Annick Gagné BScN,⁶ Élise Laflamme MSc,⁷ Nathalie Boutin BSc,⁸ Stéphane Delisle PhD,⁹ Anne-Marie Pauzé MSc¹⁰ and Jean-Marc MacThiong MD PhD FRCS (c)^{11,12}

¹Advanced Practice Nurse, Orthopaedics and Trauma, Hôpital du Sacré-Cœur de Montréal, Montreal, Quebec, Canada

²PhD Student, McGill University, Montreal, Quebec, Canada

³Intensivist, Internist, ⁴Emergency Physician, ⁵Clinical Nurse – Spine Unit, ⁶SCI Case Manager, ⁷Occupational Therapist – Trauma, ⁸Physiotherapist,

⁹Respiratory Therapist, ¹⁰Speech-Language Pathologist, ¹¹Orthopaedic Surgeon, Hôpital du Sacré-Cœur de Montréal, Montreal, Quebec, Canada

¹²Clinical Professor, Université de Montréal, Montreal, Quebec, Canada

¹³Researcher – Knowledge Translation and Professor, Faculty of Nursing, Université de Montréal, Montreal, Quebec, Canada

¹⁴Emergency Physician, Hôpital Dieu de St-Jérôme, Montreal, Quebec, Canada

Did you identify or that are preventing you to apply recommendations related to the prevention of

after the surgery

every 8 hours

the patient in chair

tions to overcome the identified barriers?

e. However, those research
e application of recommendations

related to spine immobilization?

is related to the cardiopulmonary

inspiratory force) in patients with

Table 1. Elements of the PARIHS Framework and the i-PARIHS Framework

Successful implementation in the original PARIHS framework	Successful implementation in the revised i-PARIHS framework
$SI = f(E,C,F)$	$SI = Fac^n(I + R + C)$
SI = successful implementation	SI = successful implementation
f = function (of)	Achievement of agreed implementation/project goals
E = evidence	The uptake and embedding of the innovation in practice
C = context	Individuals, teams, and stakeholders are engaged, motivated, and “own” the innovation
F = facilitation	Variation related to context is minimized across implementation settings
	Fac^n = Facilitation
	I = innovation
	R = recipients (individual and collective)
	C = context (inner and outer)

Note. i-PARIHS framework = Promoting Action on Research Implementation in Health Services integrated framework; PARIHS framework = Promoting Action on Research Implementation in Health Services framework.

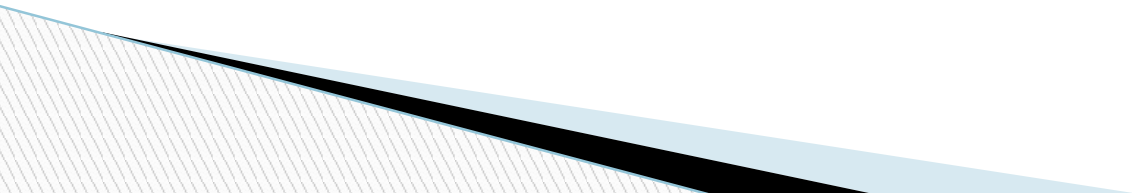
Facilitator focus and activity

What the facilitator looks at

What the facilitator does



Figure 1. The Promoting Action on Research Implementation in Health Services integrated framework (i-PARIHS framework): facilitation as the active ingredient (reprinted with permission from Harvey & Kitson, 2015).



Effectiveness of Specific Implementation Strategies

- ▶ Audit and Feedback
- ▶ Tailored Interventions
- ▶ Organizational Structures
- ▶ Interactive Strategies

Comprehensive review your institute

The purposes of KT			
1.	2.	3.	4.
Strategies			
1.	2.	3.	4.
Outcomes evaluation			
1.	2.	3.	4.

Knowledge to be translated	Possible Barriers	KT strategies and procedure	Possible Outcomes	Data Collection Tools

Fabie Duhamel & France Dupuis (2015). IFNA workshop

Stakeholder Analysis

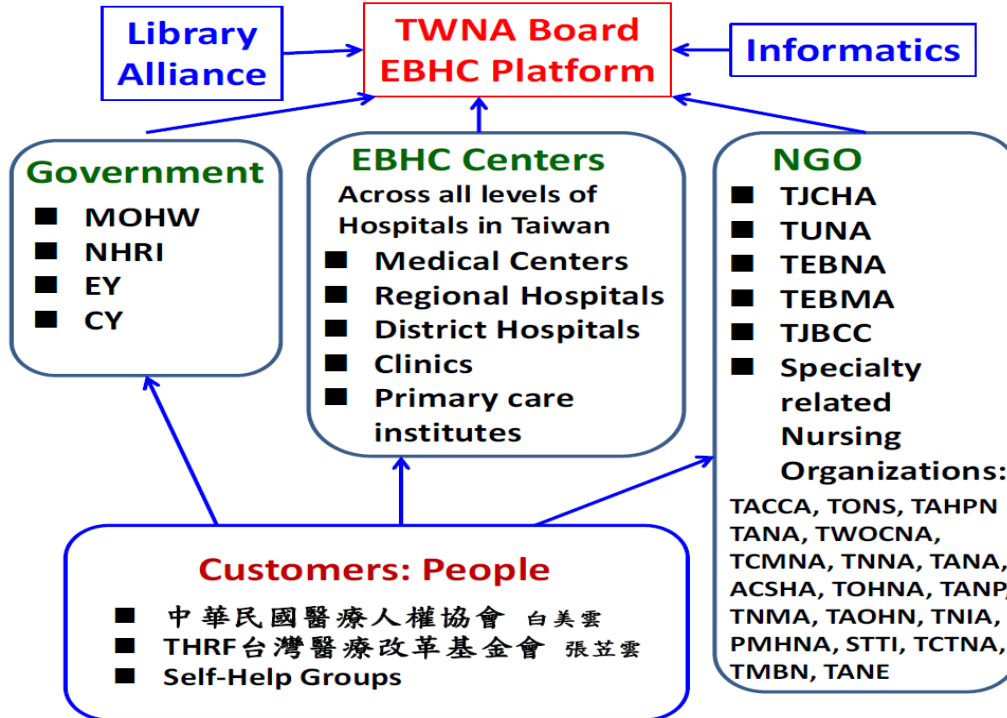
Stakeholder analysis

EBHC platform: Evidence-based care for people's health

Supervised Advisory Group

ICN

Closing the gap: from evidence to practice



SWOT Analysis



KRA 1: The agreement and support from TWNA

Objective1:

The approval of EBHC platform project from TWNA

Key activities:

Lobby standing directors and directors of TWNA Board

Actions:

1. Getting support from the president of TWNA
2. Agreement upon the Center of Excellence Committee
3. One-to-one discussion with each standing directors and directors of TWNA Board
4. Brief report of EBHC platform project in TWNA meeting
5. File a proposal and EBHC platform issues in Center of Excellence Committee

KRA 1: The agreement and support from TWNA

Person responsible : Chiang*, Chou

Complete by: 2015.6.30

Indicators of progress:

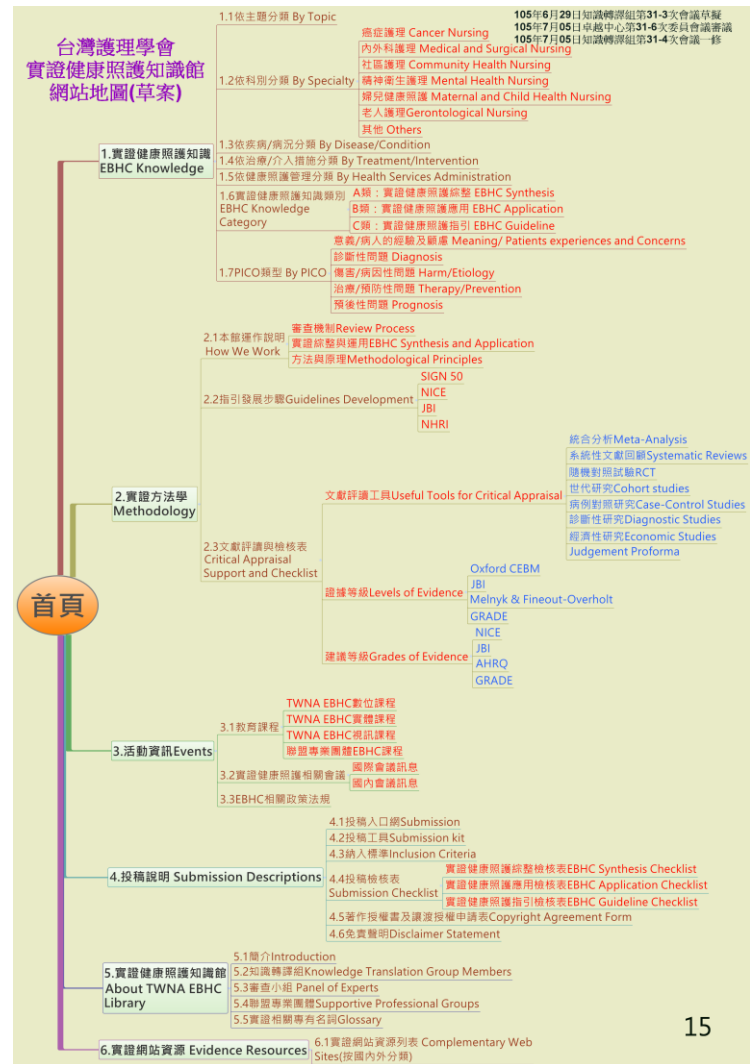
approval from the Center of Excellence committee

Outcomes : 2015, April 11 TWNA Board meeting approved

KRA 1: The agreement and support from TWNA

Progress:

1. President Wang support Chinese-version EBN platform under the center of excellent (2015, April 25)
2. The committee members agree setup the EBN platform in the Center of Excellence Committee (2015, April 25)
3. One-to-one discussion with each standing directors and directors of TWNA Board (2015, April 25)
4. Brief report of EBHC platform project for the center of excellent
5. File a proposal and EBHC platform issues in Center of Excellence Committee



Resources of KT

- ▶ <http://ktdrr.org/ktlibrary/descriptors.html>
- ▶ http://www.who.int/ageing/projects/knowledge_translation/en/
- ▶ <https://medium.com/knowledgenudge/what-we-mean-when-we-say-knowledge-translation-1f81d57d5143>
- ▶ <http://www.cihr-irsc.gc.ca/e/45321.html>
- ▶ <https://knowledgetranslation.net/>



Implementation Science



Implementation Science aims to publish research relevant to the scientific study of methods to promote the uptake of research findings into routine healthcare in clinical, organizational or policy contexts.

