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From Evidence to Action: An APN's Experience in Implementation Research for **Diabetes Care**

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Competencies of **APN in Thailand**

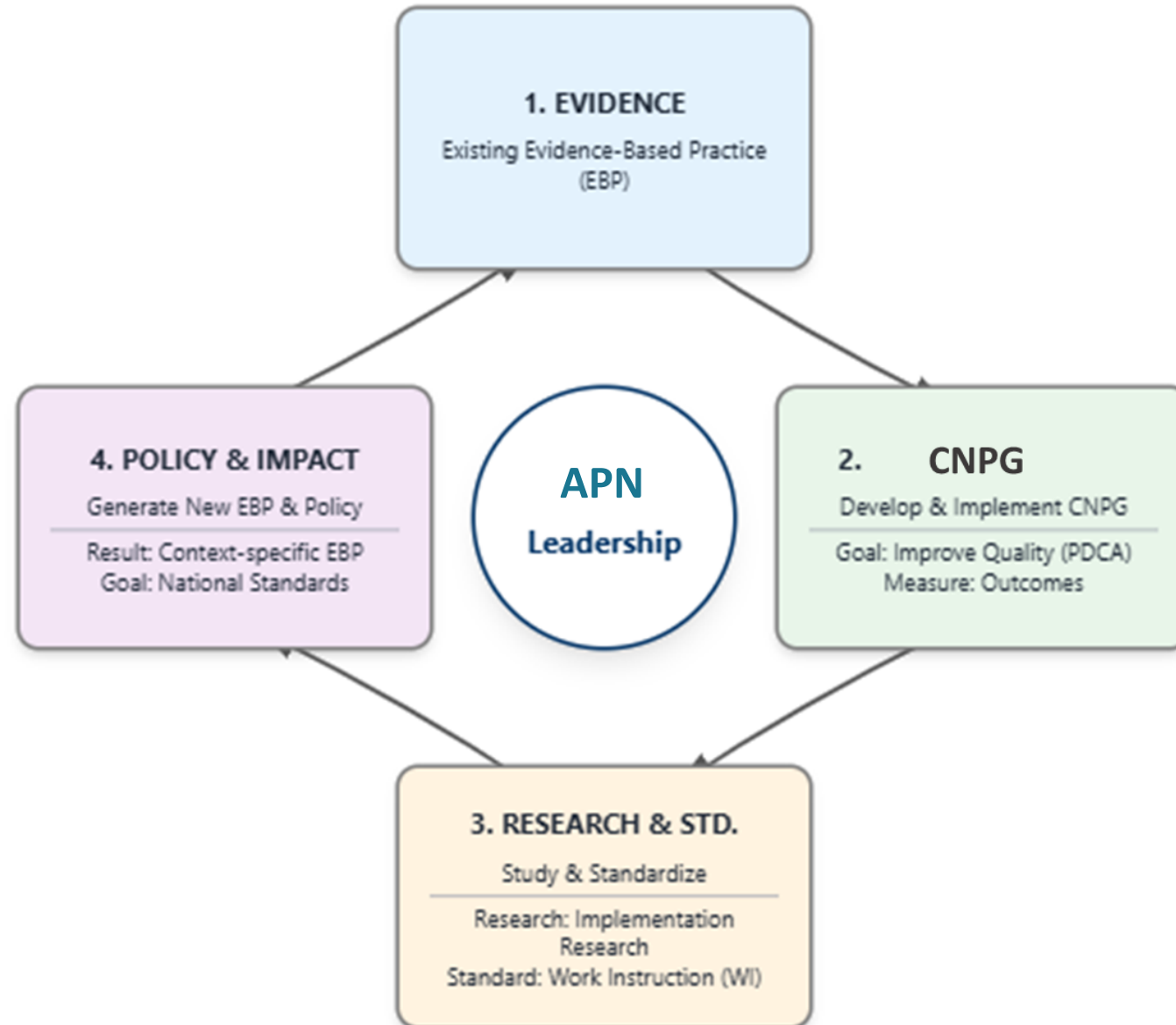


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APN

Advanced Practice Nurse

- Direct care
- Care management
- Collaboration
- Consultation
- Empowerment , teaching, coaching, mentoring
- Outcome management
- Evidence-Based Practice
- Ethical reasoning and ethical decision making



Evidence based practice: EBP



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Evidence-Based Practice (EBP) is the process of systematically reviewing, appraising, and using clinical research findings to support the delivery of clinical care to patients.



Evidence based practice: EBP



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Benefits of EBP in Nursing

- **Improving the quality of nursing practice:** ensuring patients receive the best possible care
- **Evidence-support practice:** guaranteeing that nursing action are support by reliable information.
It represents **"Best Practice"**
- **Bridging research and practice:** close the gap between new research findings and real-world practice
- **Improving patient outcomes and safety:** the most effective interventions and procedures, reducing the risk of adverse events and enhancing patient outcomes & safety.

*"Clinical Nursing Practice Guideline is a systematically developed statements based on **the best available evidence**, designed to assist nurses and other healthcare professionals **in making decisions** about specific patient conditions, diseases, or procedures."*

Benefits of CNPG

- **Establish Standards of Care:** Provide consistent care guidelines across the organization.
- **Reduce Practice Variation:** Ensure all nurses provide care for similar conditions in a consistent manner.
- **Improve Patient Outcomes:** Focus on care proven to be effective
- **Improve cost effectiveness:** Reduces unnecessary resource utilization and improves the value of care

The EBP to CNPG Development Process



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Step of CNPG

- **Identify Clinical Problem / Define CNPG Topic**
- **Search & Synthesize Best Evidence**
- **Appraise Evidence Quality**
- **Develop Recommendations / Guideline**
- **Pilot & Evaluate**
- **Review & Update CNPG Continuously**

Step of CNPG

Identify Clinical Problem / Define CNPG Topic: **Clinical Question**



Practice triggers

- **Based on Statistical Data:** Common problems, high complication rates, high costs, or frequent complaints.
- **From Daily Practice:** a clinical practice problem in need of solution, variations in practice leading to undesirable outcomes.



Knowledge triggers

- **From Organizational Policies/Goals:** E.g., quality improvement projects
- **From New Knowledge & Evidence:** Suggesting a better approach than current practices.

Step of CNPG

● Search & Synthesize the Best Evidence: PICO (T)

PICO format
is used to help
formulate a
well-defined
and searchable
clinical question

Population / Patient: What are the characteristics of patients? (Diabetes patients)

Intervention: What are the intervention or therapies of interest?
(Patient Education, treatment plan, self-care, etc.)

Comparison intervention: Placebo, common practice

Outcome: What are the health outcomes of interest? (glycemic control, A1C, etc).

The EBP to CNPG Development Process



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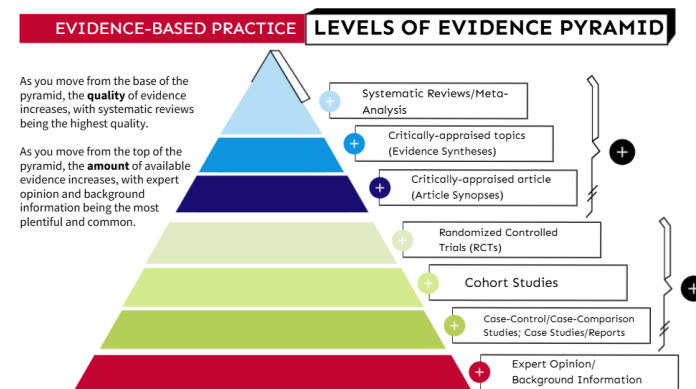
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Step of CNPG

Search & Synthesize Best Evidence (PICO): Electronic database



Appraise Evidence Quality: Level of evidence



Step of CNPG



Appraise Evidence Quality

Research Utilization Criteria

- **Clinical relevance:** The study related to our clinical problem?
- **Scientific merit:** research conducted with strong methodology?
- **Applicability to practice:** can apply the findings in setting?
- **Patient safety:** The benefits outweigh the risks?
- **Cost-effectiveness:** The implementation practical and affordable?

The EBP to CNPG Development Process



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Step of CNPG



Appraise Evidence Quality

Summary Table for Evaluating Research Evidence

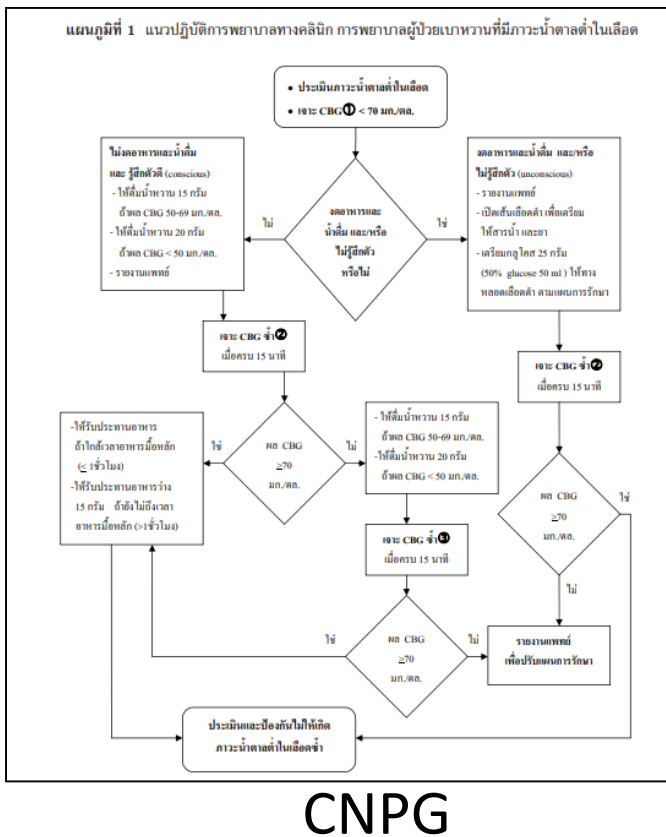
ตารางที่ 1 การวิเคราะห์และสังเคราะห์งานวิจัยที่เกี่ยวข้องกับ

Number Authors /year	Design/ Level of evidence	Research Question	Sample/ Setting	Findings	Implication/ Implementation potential
3.Borhani et al. (2013)	Quasi- experiment Level B	การโทรศัพท์ติดตามมีผล ต่อMetabolic Control ในผู้ป่วยเบาหวานหรือไม่	ผู้ป่วยเบาหวานชนิดที่2 จำนวน40ราย -อายุน้อยกว่า75ปี -มีค่า HbA1c >7% -สามารถเจาะน้ำตาลปลายนิ้วที่บ้านได้ ผู้ป่วยทุกคนได้ความรู้ในการดูแลตนเอง เกี่ยวกับโรคเบาหวาน กลุ่ม1: Usual care กลุ่ม2: Usual care + Telenursing <u>Phone call detail</u> 1เดือนแรกโทรศัพท์ติดตามผู้ป่วย 1-2/อาทิตย์ เดือนที่2-3 โทรศัพท์ติดตามผู้ป่วย 1อาทิตย์ ทั้งหมด 12 อาทิตย์ -การโทรแต่ละครั้งมุ่งถาม self care เรื่อง diet ,insulin, exercise	พบว่าในกลุ่มที่ได้รับการโทรศัพท์ติดตามมีค่า HbA1C และ Postprandial glucose (PPG) ต่ำกว่าในกลุ่ม ควบคุม แต่ค่าFasting blood sugar (FBS)ไม่มีความแตกต่างกัน ทางสถิติ	ใช้โทรศัพท์เป็นเครื่องมือในการติดตามผู้ป่วย สามารถนำงานวิจัยนี้มาใช้ในหน่วยงานได้ในการ ประเมินแต่ละครั้งของการโทรศัพท์ 1เดือนแรกโทรศัพท์ติดตามผู้ป่วย 1-2/อาทิตย์ เดือนที่2-3 โทรศัพท์ติดตามผู้ป่วย 1อาทิตย์ ทั้งหมด 12 อาทิตย์ -การโทรแต่ละครั้งมุ่งถาม self care เรื่อง diet ,insulin, exercise

The EBP to CNPG Development Process

Step of CNPG

Develop Recommendations / Guideline



The EBP to CNPG Development Process



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CNPG quality Appraisal with **AGREEII**

- Develop Recommendations / Guideline
- Pilot & Evaluate
- Review & Update CNPG Continuously

Appraisal of Guideline for REsearch & Evaluation II



Utilizing AGREE II in CNPG Development:

- Use it as a framework/checklist during development to ensure all key aspects are covered.
- Use it to appraise the quality of the completed CNPG by an independent team of appraisers (at least 2-4 individuals).

"Using AGREE II helps me ensure that our developed CNPG meets international quality standards and can be implemented safely and effectively."



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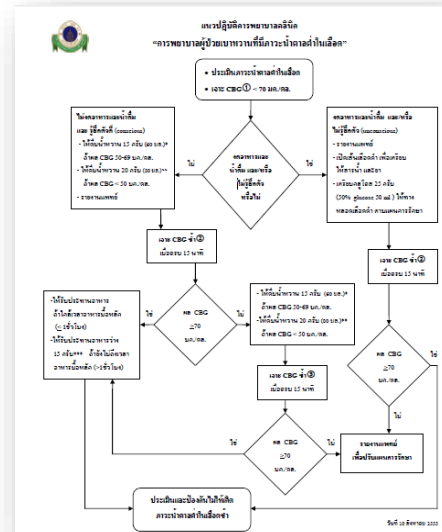
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An APN's Experience in Implementation Research for Diabetes Care

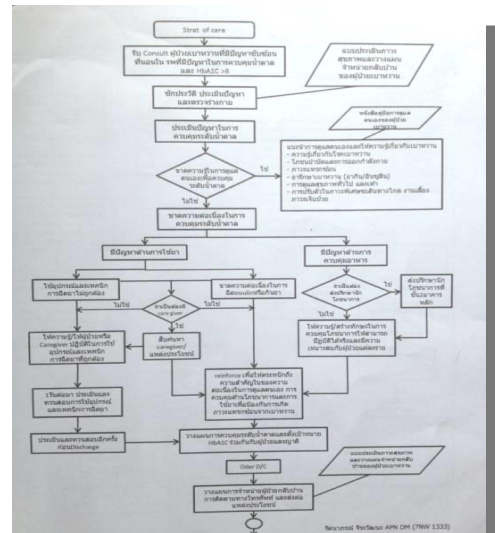


Diabetes Care: Role of APN

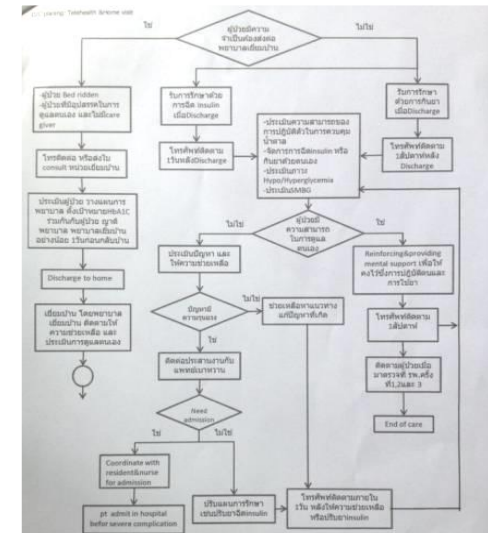
Develop the Clinical Nursing Practice Guidelines (CNP/ Clinical pathway) (EBP/ Innovation/technology /standard of care/quality improvement)



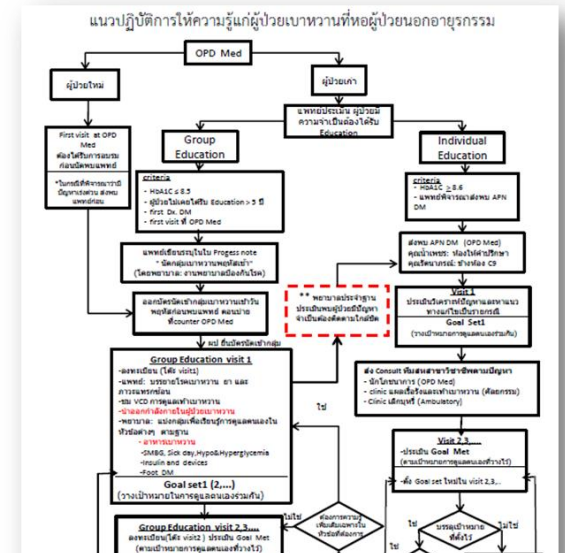
CNP/ Clinical pathway: Hypoglycemia management



Assessment and Management of Hospitalized Diabetes Patients



Diabetes discharge planning: Telehealth & Home visit



CPG: DSMES group education based on Individual needs

All guidelines available for nursing staff to use in daily practice



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CNPG: Hypoglycemia



Implementation Research for Diabetes Care



CNPG: Hypoglycemia

Identify Clinical Problem / Define CNPG Topic

Trigger:

- **New knowledge:** the ADA had released updated guidelines
- Lack of clear protocol in daily practice
- variation in practice among healthcare providers





Implementation Research for Diabetes Care



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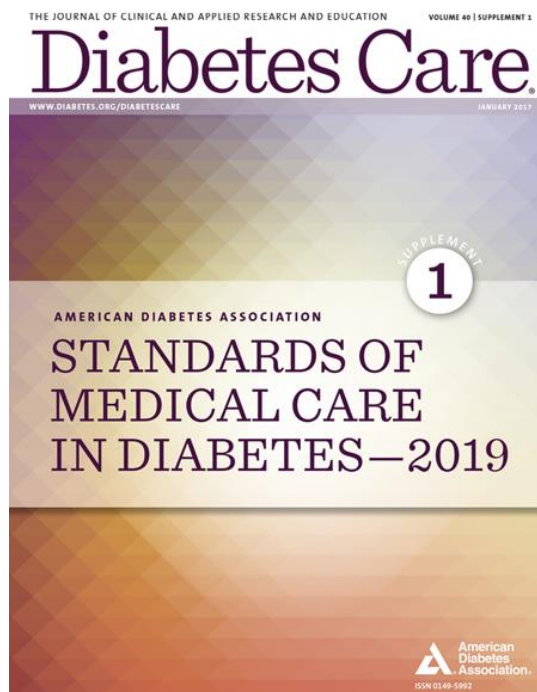
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CNPG: Hypoglycemia



Evidence support: 42 studies (EBP approach)

Diabetes Education Impact on Hypoglycemia Outcomes A Systematic Review of Evidence and Gaps in the Literature

Acta Diabetol. 2015 Jun;52(3):581-9. doi: 10.1007/s00592-014-0694-8. Epub 2014 Dec 21.

Fear of hypoglycemia: relationship to hypoglycemic risk and psychological factors.

Anderbro T¹, Gonder-Frederick L, Bolinder J, Lins PE, Wredling R, Moberg E, Lisspers J, Johansson UB.

Author information

1 Department of Psychology, Stockholm University, 106 91, Stockholm, Sweden, therese.anderbro@psychology.su.se.

Hypoglycaemia in Type 2 diabetes

SA Amiel, T Dixon, * R Mann,† and K Jameson‡

Rev Clin Esp. 2015 Mar;215(2):91-7. doi: 10.1016/j.rce.2014.07.009. Epub 2014 Sep 26.

Quality of life and fear for hypoglycaemia in patients with type 2 diabetes mellitus.

[Article in English, Spanish]

Jódar-Gimeno E¹, Álvarez-Guisasola F², Ávila-Lachica L³, Palomares-Ortega R⁴, Roldán-Suárez C⁵, Lizán-Tudela L⁶.

Int J Nurs Stud. 2012 Jun;49(6):637-44. doi: 10.1016/j.ijnurstu.2011.11.011. Epub 2011 Dec 30.

Effects of motivational interviewing intervention on self-management, psychological and glycemic outcomes in type 2 diabetes: a randomized controlled trial.

Chen SM¹, Creedy D, Lin HS, Wollin J.

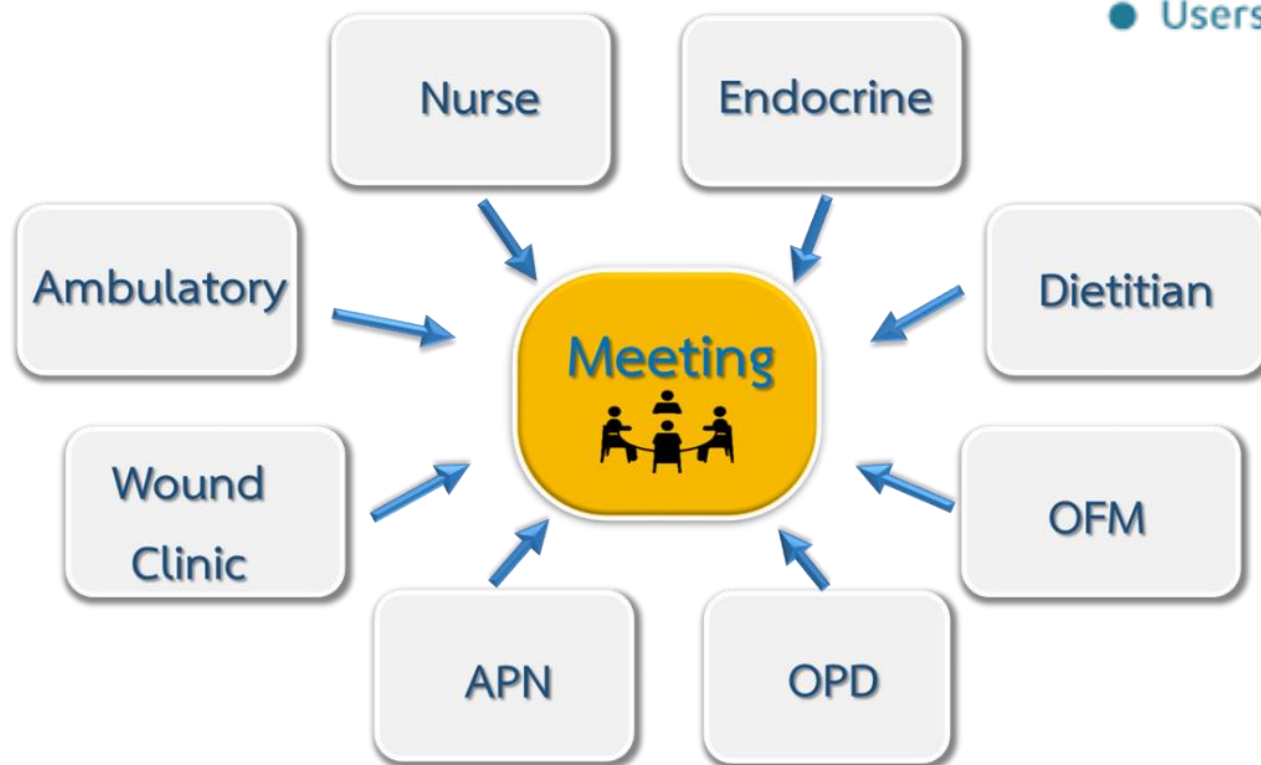


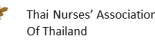
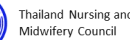
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Stakeholder involvement: **Multidisciplinary team**

Stakeholder involvement

- Members of the development team
- Preferences of the target population
- Users

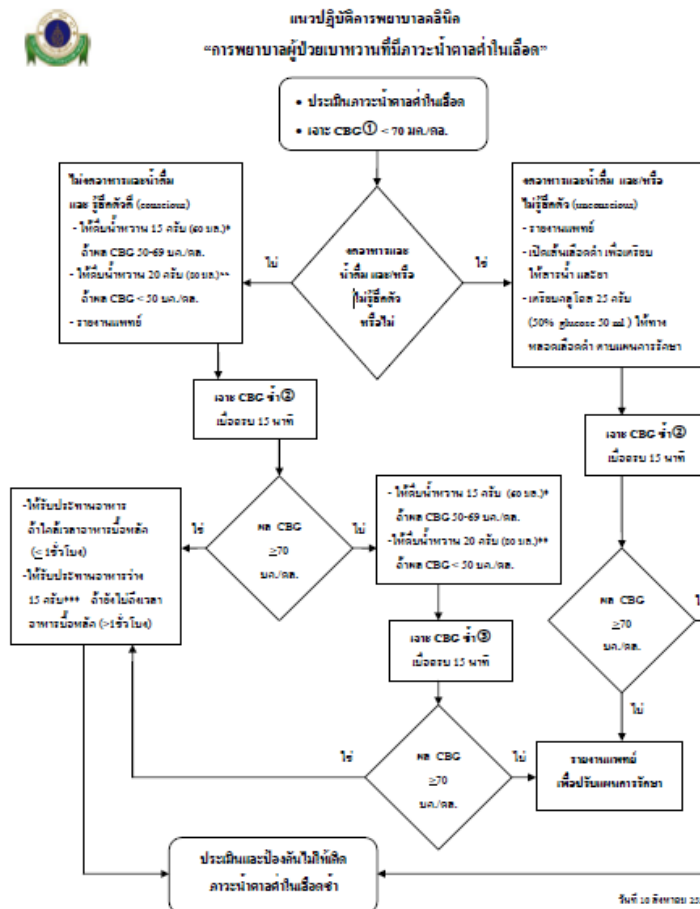




Develop CNPG: Hypoglycemia management

[illegible]

▶ **ภาวะน้ำตาลต่ำในเลือด** 1. CHG น้อยกว่า 70 มก./ดล. หรือ 10 วันมานาน 2553
2. มีอาการแสดงของการขาดน้ำตาล เช่น อ่อนเพลีย มีเหงื่อ ตัวเย็น หัวใจเต้นเร็วอาจเกิดจากภาวะอื่น (ถ้ามีค่ากลูโคส CBG 70 มก./ดล. ขึ้นไป ให้ลองสังเกตอาการ)
▶ **น้ำหวาน** รวบ (1:1) 15 กรัม = 60 มล., 20 กรัม = 80 มล. (น้ำหวานเข้มข้นชนิดชงดื่ม 15 กรัม = 2 ช้อนโต๊ะ = 1/4 แก้ว), น้ำหวานรส Complex CHO 15 กรัม = ชามปั่นกรวย จากงานโภชนาการ





Implementation Research for Diabetes Care

CNPG: Hypoglycemia

Supporting the team: in implementing the CNPG

- Empowerment , teaching, coaching, mentoring
- Consultation
- Ongoing Collaboration



Journal Club



In-service

Team confidence and fostered a culture of evidence-based practice."



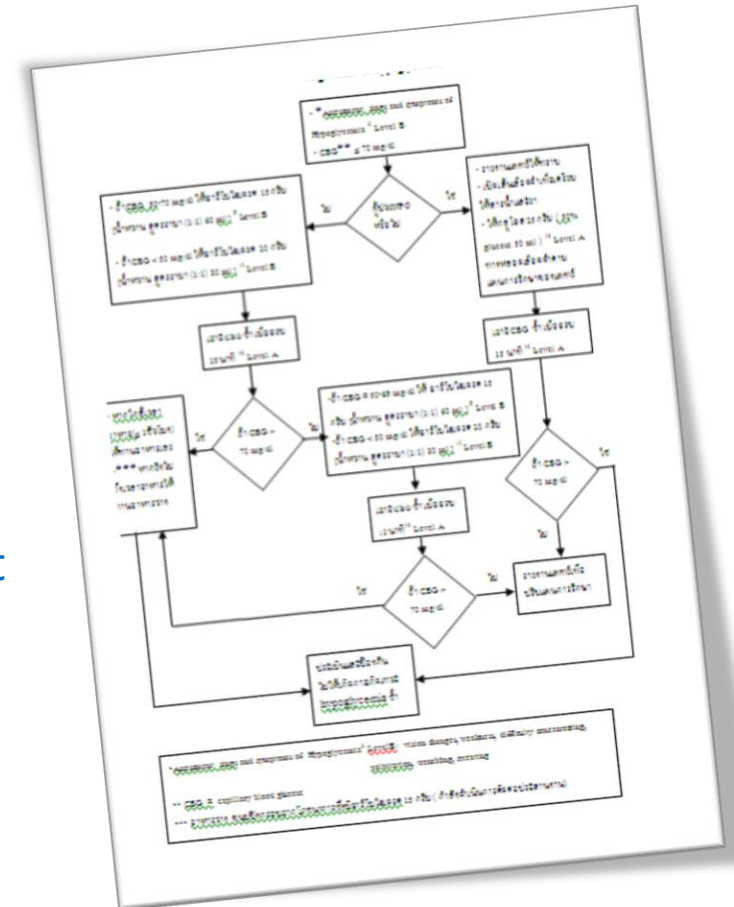
Implementation Research for Diabetes Care



CNPG: Hypoglycemia

Policy Implementation and accessibility

- The CNPG has been established as a **Work Instruction (WI)** of the hospital
- It is **easily accessible** to all staff at any time via the **hospital's intranet** for download.
- All **patients** with hypoglycemia now **receive standardized care**.





Implementation Research for Diabetes Care



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CNPG: Hypoglycemia



R2R: CNPG

Nursing Management of Hypoglycemia in Persons with Diabetes: Clinical Nursing Practice Guideline Utilization*

*Ratanaporn Jerawatana**** RN, M.S. (Physiology)*

*Nuttapimon Bhirommuang**** RN, M.S. (Nutrition)*

*Nametch Saibuathong***** RN, M.Ed. (Educational Measurement and Evaluation), APN: Diabetes*

Abstract: Hypoglycemia is an acute complication of diabetes. Its symptoms vary in each person, and can change over time, resulting in threatening to quality of life in persons with diabetes. Healthcare providers in the hospital manage the hypoglycemic persons in different ways. The aim of this study was to compare the clinical nursing practice guideline (CNPG) for management of hypoglycemia in persons with diabetes in the hospital. The sample consisted of 51 persons with diabetes who had blood sugar less than 70 mg/dl and were admitted to medical units, Ramathibodi Hospital. The CNPG for management of hypoglycemia, which was established by advanced practice nurses with approval of endocrinologists in the diabetes care team, was used. According to the CNPG: a) fast-acting carbohydrate 15 gm was given per oral when blood sugar levels were 50-69 mg/dl; b) fast-acting carbohydrate 20 gm per oral was given when blood

this CNPG for management in hypoglycemic persons can improve blood glucose level and is useful for nursing and health care team.



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OPD: Diabetes Group Education



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OPD: DM Group Education

Problem Analysis

- Only 40–48% of person with diabetes received diabetes education
- The education session were lecture-based
- No follow-up or outcome evaluation
- Only 2 staff members were responsible for group education activities

Practice trigger

Before 2013





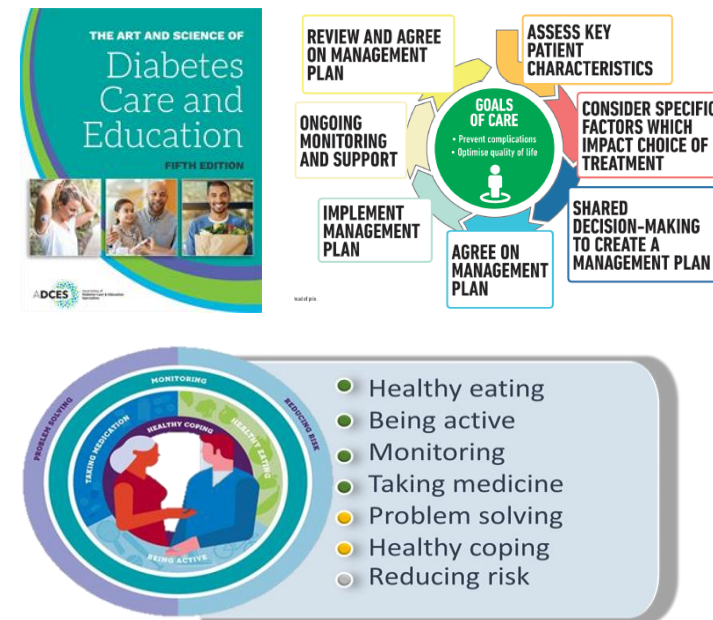
Implementation Research for Diabetes Care



EBP

- **DSMES** program: **D**iabetes **S**elf-**M**anagement **E**ducation and **S**upport
- ADA recommended as **National Standard Guideline**

- **Key:** Person centered care
- **Content:** 7 self-care behaviors
- **Process of care:** DSME components
- **Outcomes management**





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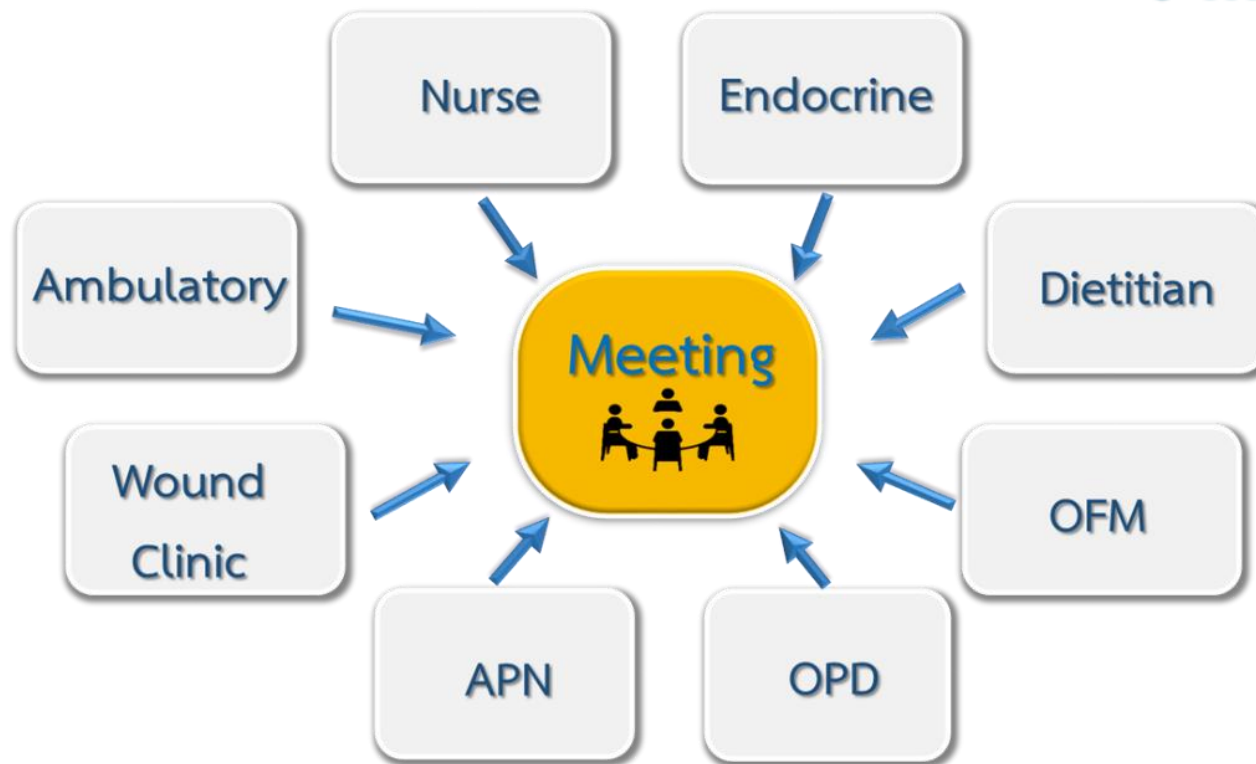
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Stakeholder involvement: **Multidisciplinary team**

Stakeholder involvement

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EBP: Develop the DSMES Education Materials

(For Person with Diabetes and Health care provider)



VDO clip (T2DM/T1DM/GDM)



Booklet: 19 diabetes topics



Skin model: Insulin injection training



RAMA education tools kit



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DM Group Education

focused on information cognitive training
Lecture based Education

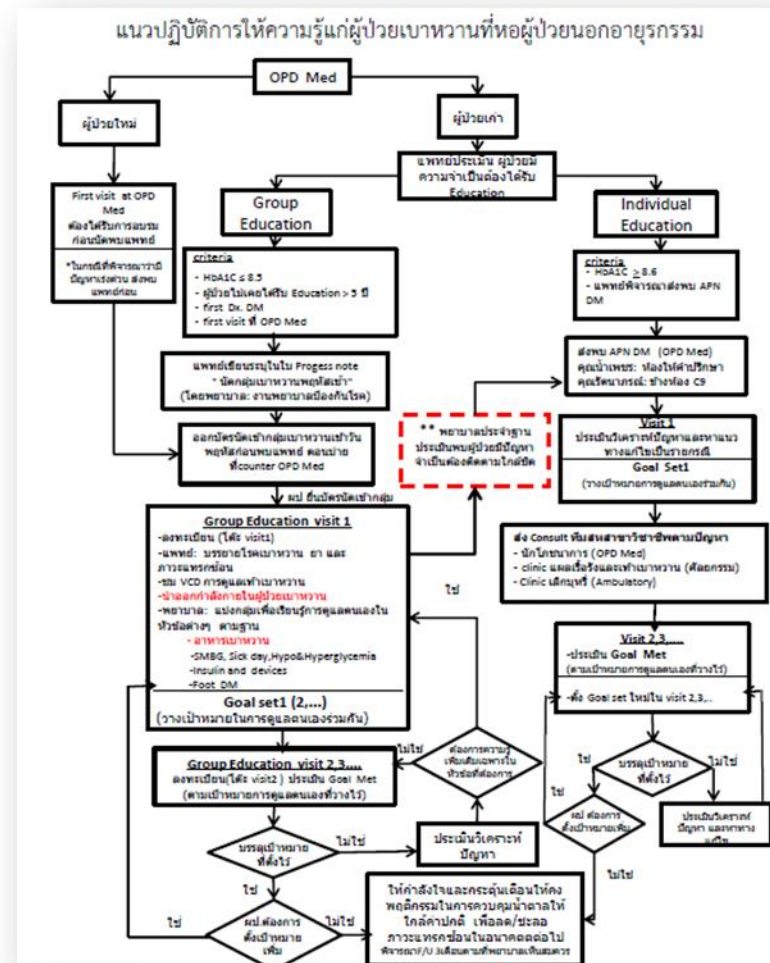
Lead to change

New innovation
of care

by using
• EBP

• Outcome management

- Train the Trainer
- Supporting the team: Teaching, Coaching, Mentoring
- Clinical pathway
- Tools





Implementation Research for Diabetes Care

DM Group Education

focused on information cognitive training
Lecture based Education

change

New innovation
of care



by using
• EBP

• Outcome management

DSMES program:

Education and Skill training in 5 part

Medication , SMBG, Diet, Foot , Dental care
PWD set personal goals and planned behavior changes
for next visit.

Past



ความรู้ทั่วไป



ออกกำลัง



ฐานการใช้ยา



ฐานอาหาร



ฐานการตรวจน้ำตาล



ฐานตรวจเท้า



ฐานตรวจตา



Visit 2: F/U Goal met

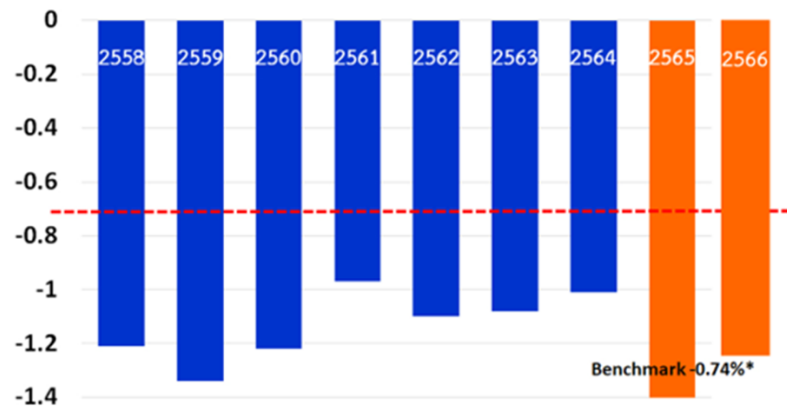


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Outcomes

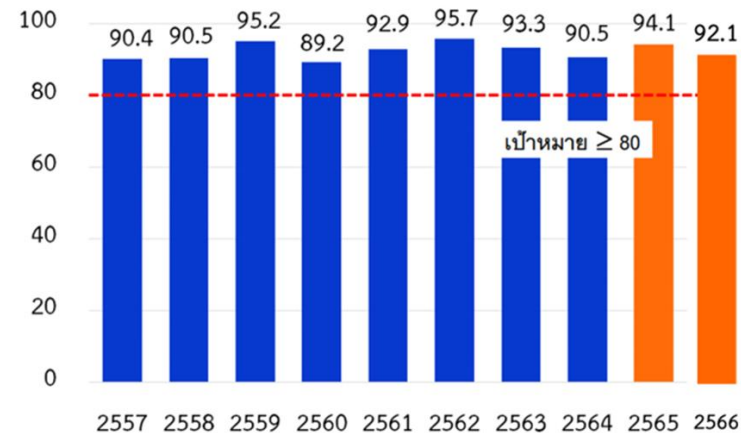
OPD: DM Group Education

A1C reduction



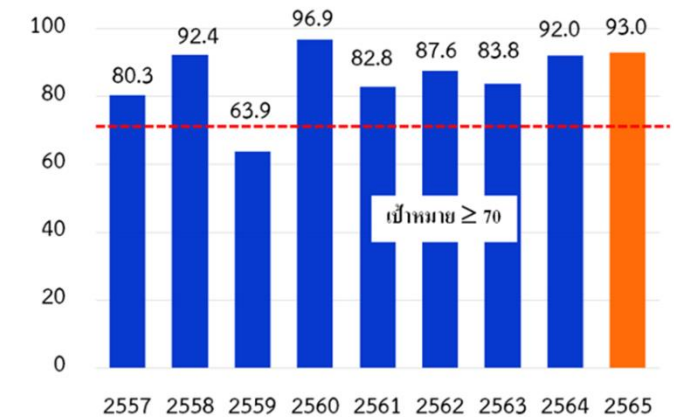
average HbA1c reduction of up to 1.3%,

Behavioral change



over 90% of PWD increased diabetes knowledge and successfully changed their self-care behaviors.

Diabetes knowledge





R2R: DM Group Education

Effectiveness of Diabetes Self – Management Education in Thais with Type 2 Diabetes



Sirimon Reutrakul Pratuangtham

MD, CDE, Associate Professor, Division of Endocrinology, Diabetes and Metabolism University of Illinois at Chicago, USA

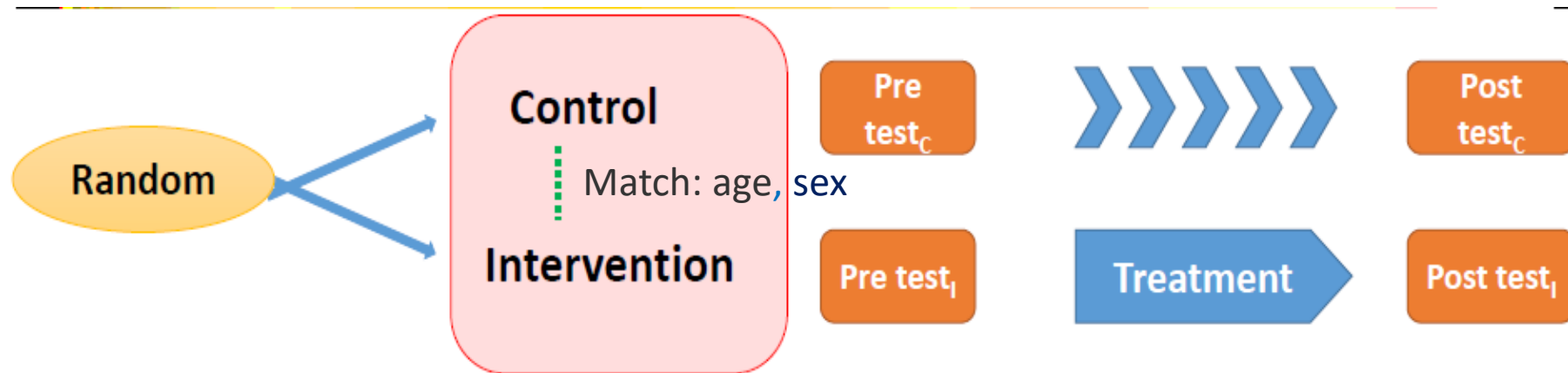
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Effectiveness of Diabetes Self – Management Education in Thais with Type 2 Diabetes



- A retrospective cohort study
- Intervention: Type 2 diabetes (n=488) attending DSMES program by multidisciplinary team
- Control: Type 2 diabetes (n=488) who did not attending DSMES program



R2R: DM Group Education

The DSMES program

Effectiveness of Diabetes Self – Management Education in Thais with Type 2 Diabetes



Sirimon Reutrakul Pratuangtham

MD, CDE, Associate Professor, Division of Endocrinology, Diabetes and Metabolism University of Illinois at Chicago, USA

Ratanaporn Jerawatana

RN, MS, Dip. APAGN, Division of Nursing, Faculty of Medicine, Mahidol University, Thailand



- Improved diabetes **knowledge**, **satisfaction**
- Changed diabetes **self-care behaviors**
- Cost savings: Diabetes **medication utilization**

saving the cost of medication 8.93 THB/person/day
(3,258.69 THB (100 USD)/person/**year**)



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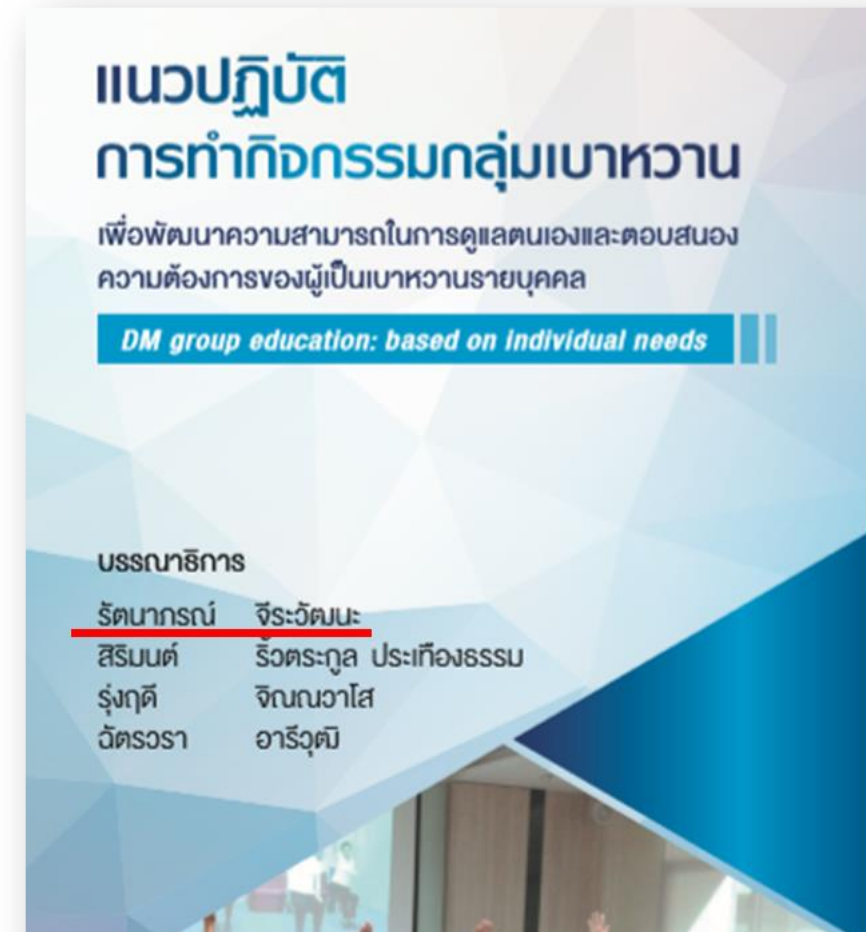
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Translating Knowledge into Practice

- We developed a standardized practice guideline for diabetes group education based on evidence and clinical experience.
- This guideline has been shared with other organizations to promote standardized DSMES education nationwide.

Diabetes Group Education Guideline





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The 2nd International Nursing Research Conference
"Future Nursing Research and Innovation
for Sustainable Global Health"
To Commemorate the 125th Anniversary of the Birth of HRH Princess Sirinaporntra
Jointly Organised by WANS, TNMC & NAT

The Effect of Advanced Practice Nurse-Led Intervention Program on Outcomes in Diabetes Patients with Complex Problems

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Abstract:

The purpose of this one group pre-post quasi experimental study was to examine the effect of advanced practice nurse (APN)- led intervention program on knowledge, self-care behaviour, quality of life, and glycemic control in diabetes patients with complex problems. Orem's Self-Care Theory combined with the motivational interviewing, and evidence-based approach were used as the theoretical framework of this study. A total of 80 diabetic patients with complex problems were recruited from the Endocrinology and Metabolism Clinic, Ramathibodi Hospital, Mahidol University.



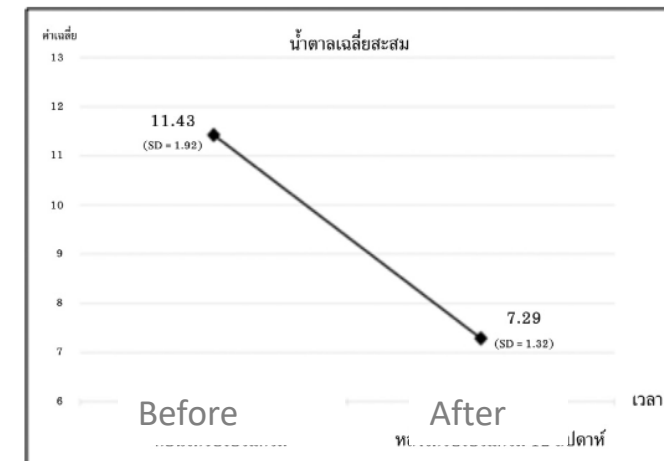
- Diabetes patient with complex problem (in IPD setting)
- Intervention program
 - Orem's Self-Care Theory combined with the motivational interviewing
 - Promoting self-awareness / motivation
 - Planning and goal setting: education and skill training
 - Tele counselling



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	Before โปรแกรม		After โปรแกรม		Paired t test		
	Mean	SD	Mean	SD	t	df	p-value
Self-care activity	46.50	14.40	113.13	3.87	-23.32	29	<.001
Quality of life	49.88	4.69	71.17	3.26	-25.35	29	<.001
น้ำตาลเฉลี่ยสะสมในเลือด	11.43	1.92	7.29	1.32	10.62	29	<.001

- The mean scores of **knowledge**, **self-care activity** and **quality of life** were significantly higher than baseline



- HbA1c decreased** significantly from 11.43% to 7.29%



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APN role: National Policy Involvement



Research



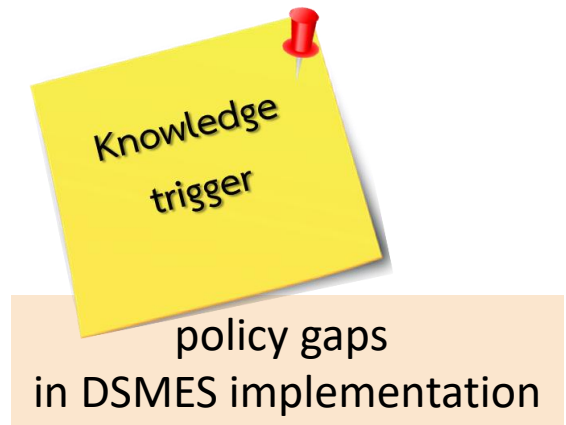
The Effects of Diabetes Self-Management Education and Support Program in Thailand: A Systematic Review and Meta-Analysis

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Oraluck Pattanapratchee PhD⁴, Sirimon Reutrakul MD, CDCES⁵

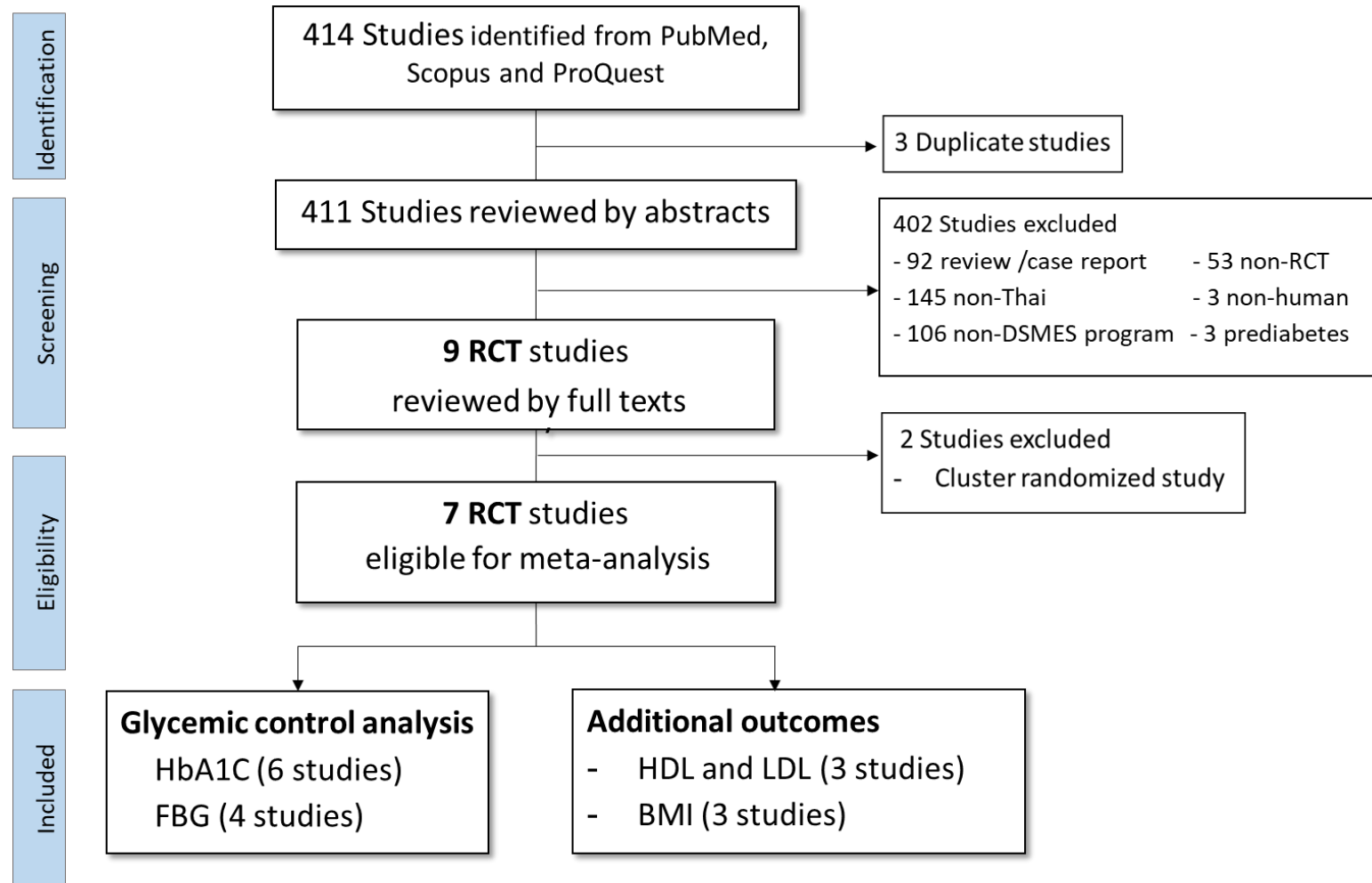


EBP: Improving of Diabetes Care

- ADA recommended that **DSMES** program is a standard of care to promote self-care in all people with diabetes.
- However, such standards are not practiced worldwide. In South East Asia (Singapore, Thailand, Malaysia).
- In Thailand, DSMES programs
 - no accreditation
 - curriculums are not standardized
 - the cost of DSMES delivery is not currently reimbursed



The Effects of Diabetes Self-Management Education and Support Program in Thailand: A Systematic Review and Meta-Analysis



• PRISMA 2020 flow diagram

The Effects of Diabetes Self-Management Education and Support Program in Thailand: A Systematic Review and Meta-Analysis

Research

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Oraluck Pattanaprateep PhD⁴, Sirimon Reutrakul MD, CDCES⁵

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- Meta-analysis results showed that **DSEMS** program in **Thailand** is effective in **significantly improving glycemic control**
- A reduction in HbA1c of 0.66% and FBG by 15.8 mg/dl

The Effects of Diabetes Self-Management Education and Support Program in Thailand: A Systematic Review and Meta-Analysis



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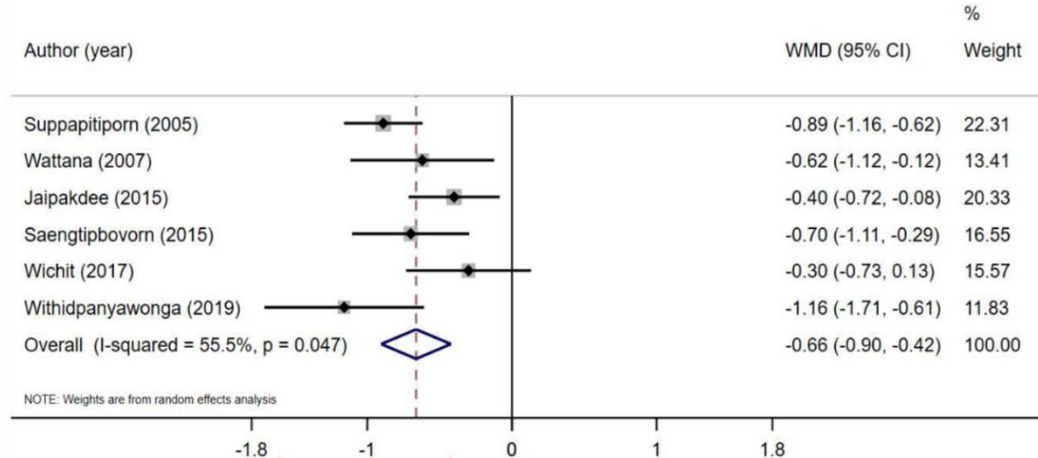


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Meta-analysis results

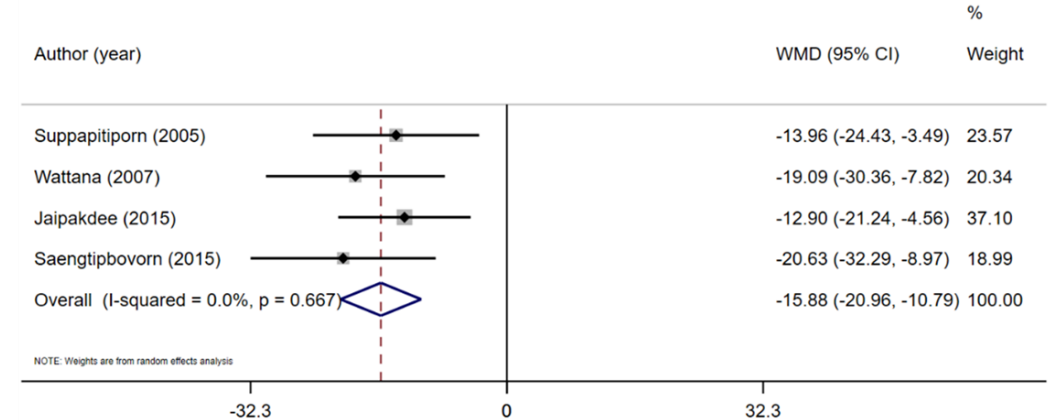
A. HbA1c



hemoglobin A1c, MD -0.66% (95% CI: -0.90, -0.42)

hemoglobin A1c, MD -0.66% (95% CI: -0.90, -0.42)

B. Fasting plasma glucose



FBG levels, MD -15.88 mg/dL (95% CI: -20.95, -10.79),

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A reduction in HbA1c of 0.66% and FBG by 15.8 mg/dl

National Policy Involvement



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National Policy Contribution: Role of APN



standards of DSC DM

- Contributed as a committee member in developing national standards for diabetes care
- Supported the inclusion of DSMES as one of the key domains in Thailand's national diabetes clinic standards
- Promoted standardized DSMES implementation to improve diabetes care nationwide

Using EBP to Improve Quality of Diabetes Care



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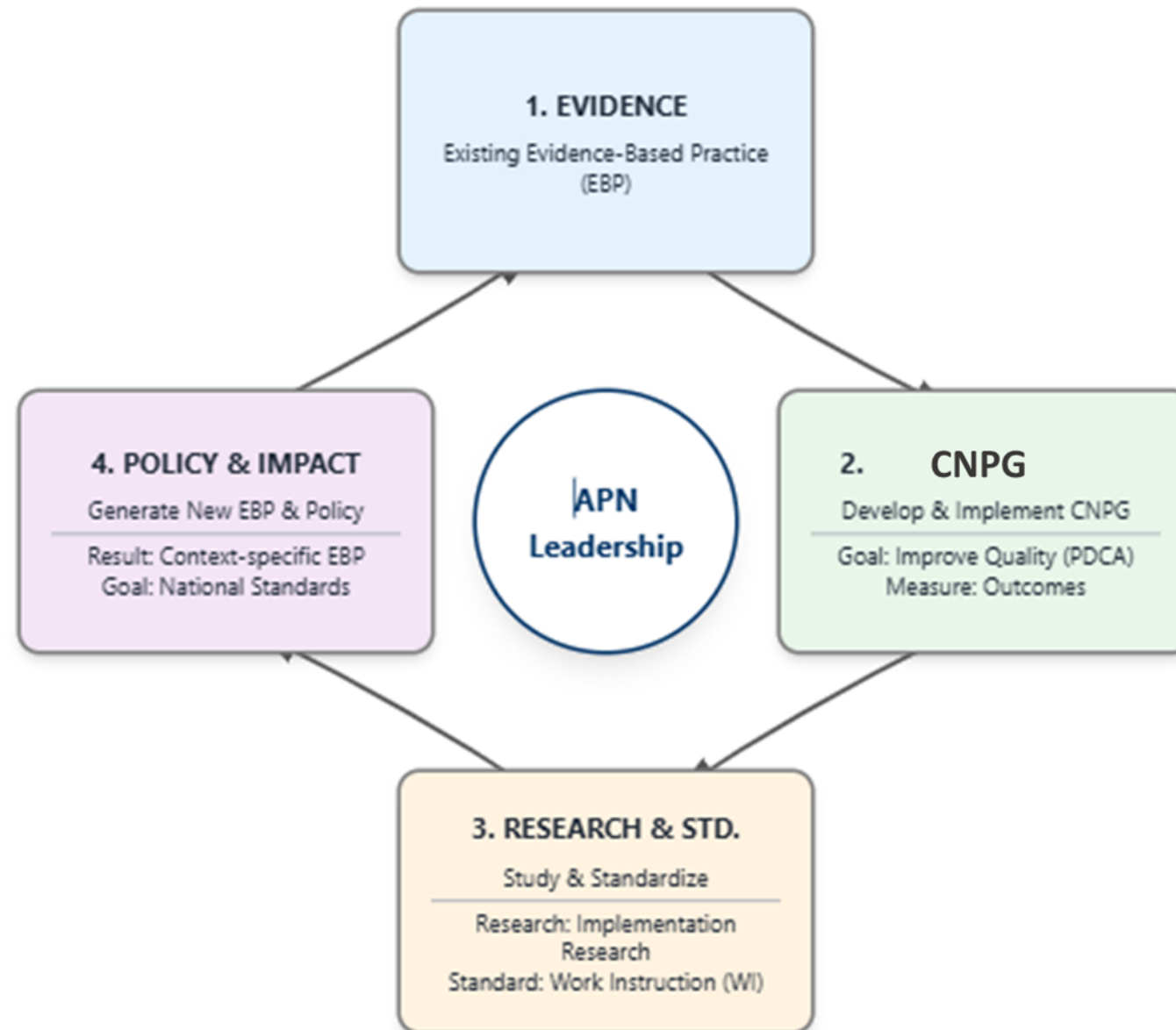


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Thank you

“ Evidence-based nursing isn’t just about working smarter; it’s about caring with the highest responsibility for all our patients.

