UNIVERSITY of MARYLAND

# Nurses, Healthcare Processes, Partnerships and Patient Outcomes

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# Key Points

1. Multiple design and methods are needed to link nursing processes to patient outcomes.
2. Partnerships with patients and stakeholders are required to conduct pragmatic studies.
3. Interprofessional teams are needed to advance the use of evidence in practice.

# A Phased Cluster Randomized Trial to Improve Heart Failure Care: Lessons From a Rural Hospital Quality Collaborative


Newhouse, R.P., Dennison-Himmelfarb, C., Morlock, L., Frick, K., Pronovost, P., Liang, Y. (2013). A Cluster Randomized Trial of Rural Hospitals Testing a Quality Collaborative to Improve Heart Failure Care: Organizational Context Matters. *Medical Care*, 51(5):396-403, May 2013. doi: 10.1097/MLR.0b013e318286e32e

Newhouse, R., Dennison, C., Liang, Y. (2011). Psychometric Testing of the Smoking Cessation Counseling (SCC) Scale. *Journal of Nursing Scholarship*, 43(4), 405-11 doi 10.1111/j.1547-5069.2011.01420.x.

Newhouse, R.P., Dennison, C, Liang, Y., Morlock, L., Frick, K., Pronovost, P. (2011). Smoking Cessation Counseling by Registered Nurses: Description and Predictors in Rural Hospitals. *American Nurse Today Online*, 6(6). Available at: http://www.americannursetoday.com/Article.aspx?id=7902&fid=7870


Interdisciplinary Nursing Quality Research Initiative


Funded by Robert Wood Johnson Foundation

# Study Team

- Robin Newhouse, PhD, RN
- Laura Morlock, PhD
- Cheryl Dennison, PhD, RN
- Kevin Frick, PhD
- Peter Pronovost, MD, PhD
- Yulan Liang, PhD
- RAs: Janine Michaelson, RN, BSN & Julie Twigg RN, BSN

# Aims of Study

- To conduct a phased randomized controlled trial to evaluate the effect of a rural hospital collaborative on HF patient care at 6 and 12 months.
- To identify hospital and nursing characteristics that are associated with improvements in HF patient care at 6 and 12 months.
- To evaluate the cost effectiveness of a collaborative approach to improve HF patient care for rural hospitals.

# Intervention

- Two-day onsite HF Collaborative
- Access to experts
- Share practice relevant strategies
- Benchmark
  - **HF tool kit**
  - **Monthly conference calls**

# Heart Failure Toolkit

- Fact sheet and relevant scientific articles.
- Nurse education modules.
- HF admission order set.
- HF discharge checklist.
- Standardized patient education booklet (moderate-low literacy available).
- HF patient education video.
- Smoking cessation counseling.


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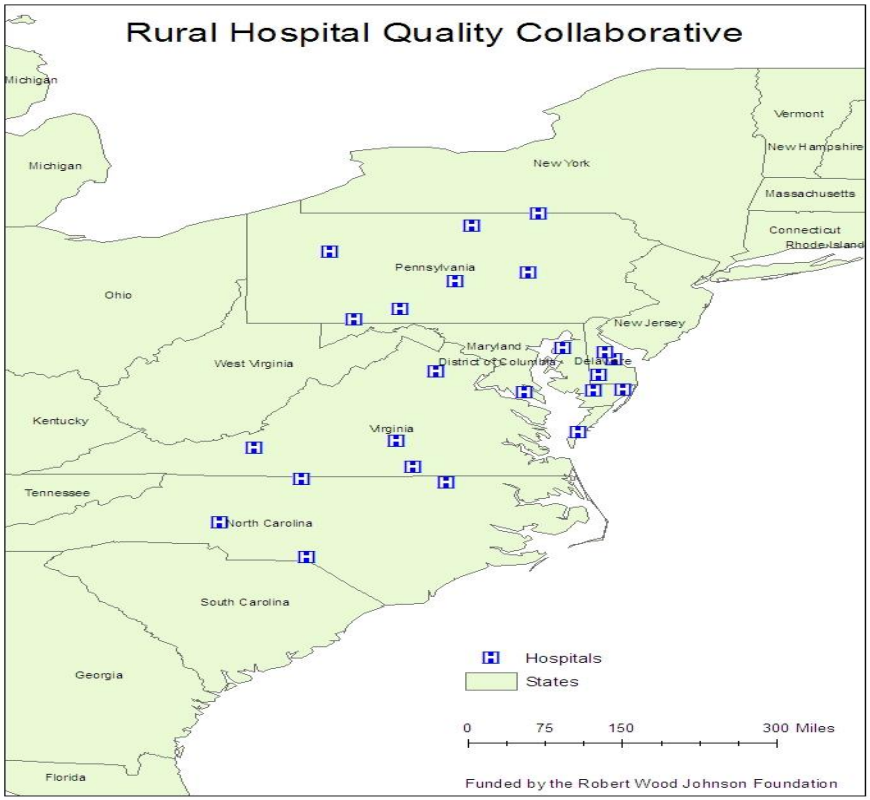
Rural Hospital Quality Collaborative
Michigan
Michigan
New York
Vermont
New Hampshire
Massachusetts
Connecticut
Rhode Island
Pennsylvania
Ohio
New Jersey
Maryland
District of Columbia
Delaware
West Virginia
Kentucky
Virginia
Tennessee
North Carolina
South Carolina
Georgia
Florida
Hospitals
States
0
75
150
300 Miles
Funded by the Robert Wood Johnson Foundation

# In person quality collaboratives were held at University of Maryland Baltimore

# Approach: Discussion Groups and Consensus

- Assigned to table for small group discussion
- Small group:
- Selected a leader, recorder and presenter
- Discussed questions for 45 minutes
- Presenter lead discussion of topic for large group
- Large group came to consensus on response
- Topic  Day 1: Heart Failure  Day 2: Research

# Group Discussion Question Examples

- In what ways did Collaborative activities improve heart failure care in your organization?
- How did patient's benefit from Collaborative activities in your organization?
- Was there any data that affects heart failure care that was not collected and should have been?

<u>Data collection</u>

Narratives from recorder

Research Assistant notes

Consensus

# Practice Results

- Enhanced networking and increased evidence-based tool use for site coordinators
- Site coordinator's connected through common problems
- Increased nurse HF education and tool use
- Hospitals initiated a multidisciplinary team

# Research Results

- Heart failure patients are a priority
- Evidence-based interventions needed
- Collaborative approach
- Use synchronous web-based interactions instead of phone calls

# The Patient Centered Outcomes Research Institute

Robin Newhouse is Chair of the Methodology Committee of the Patient Centered Outcomes Research Institute (PCORI).The views expressed in this presentation are those of the authors and not necessarily those of PCORI.

Patient-Centered Outcomes Research Institute

# Key Features of PCORI Research

**Our work answers patient's questions.**

***"Given my personal characteristics, conditions and preferences…***

**…what should I expect will happen to me?"**

**…what are my options and what are the potential benefits and harms of those options?"**

**.. what can I do to improve the outcomes that are most important to me?"**

**…how can clinicians and the care delivery systems they work in help me make the best decisions about my health and healthcare?"**

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# Research Must Adhere to PCORI's Methodology Standards

47 Standards

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11 Broad Categories

- Formulating Research Questions
- Patient-Centeredness
- Data Integrity and Rigorous Analyses
- Preventing/Handling Missing Data
- Heterogeneity of Treatment Effects
- Data Networks
- Data Registries
- Adaptive and Bayesian Trial Designs
- Causal Inference
- Studies of Diagnostic Tests
- Systematic Reviews

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IMPROVING
HEART FAILURE
OUTCOMES

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# Improving Heart Failure Outcomes

Commissioned by ANCC

# Study Team

- Robin Newhouse, PhD, RN
- Cheryl Dennison, PhD, RN
- Meg Johantgen, PhD, RN
- Sue Thomas, PhD, RN
- Yulan Liang, PhD
- Laura Morlock, PhD
- Kevin Frick, PhD

IMPROVING
HEART FAILURE
OUTCOMES

# Aims

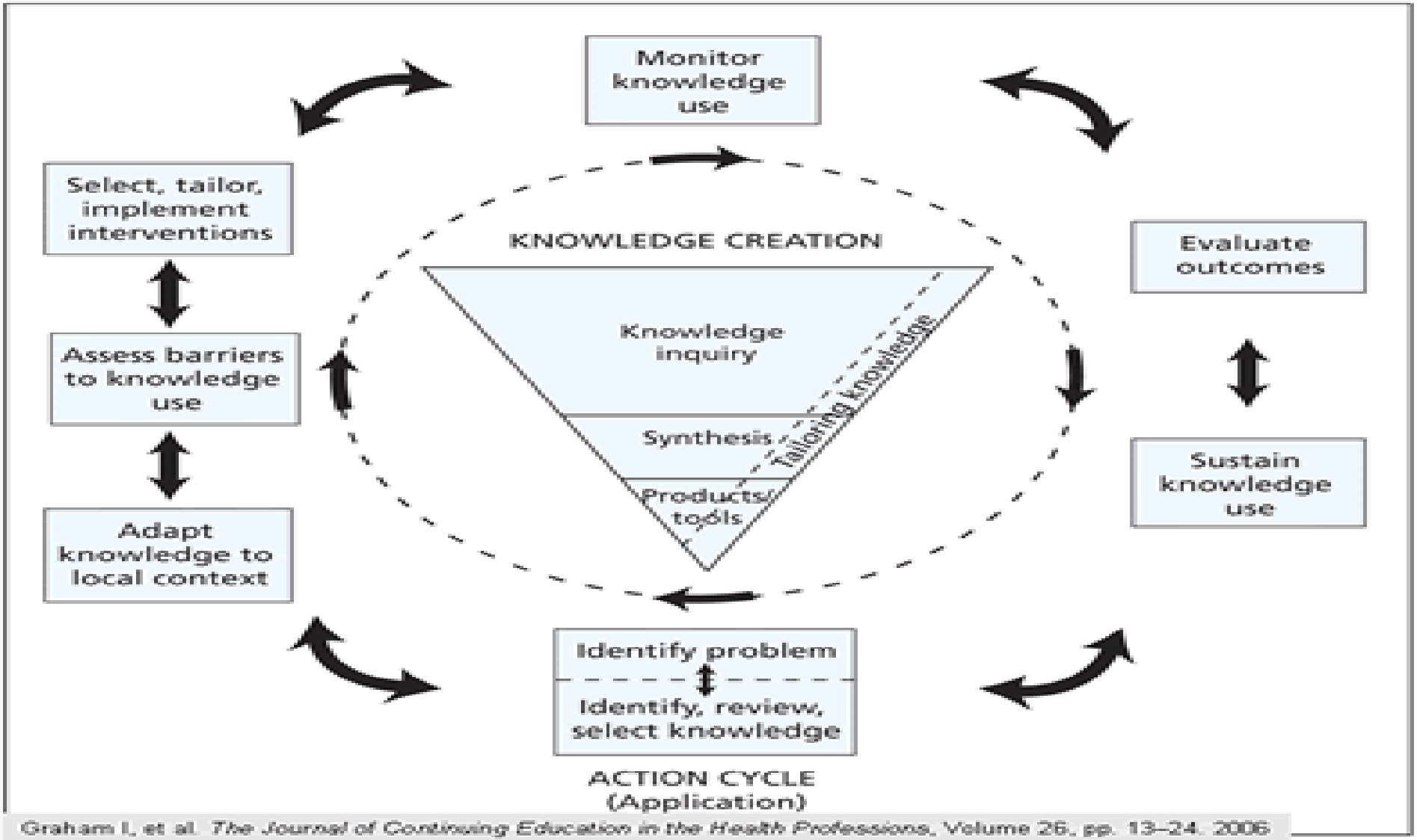
1) Conduct a quasi-experimental study to evaluate the effect of standardized education on heart failure patient care (knowledge, self care and readmissions);
2) Identify hospital and nursing characteristics that are associated with improvements in HF patient care; and
3) Evaluate the cost effectiveness of nursing interventions to improve HF patient care

IMPROVING
HEART FAILURE
OUTCOMES

# Intervention

- Standardized patient education
- Follow up 48 hours post discharge
- Appointment with provider prior to discharge

IMPROVING
HEART FAILURE
OUTCOMES




Straus, S.E., Tetroe, J. & Grahm, I.D. (2009). Knowledge to action: What it is and what it isn't. In *Knowledge Translation in Health Care: Moving from Evidence to Practice.* Hoboken, N.J.: Wiley-Blackwell, pp. 3-9.

Johantgen, M., Newhouse, R. P. (2013). Participating in a Multi-Hospital Study to Promote Adoption of Heart Failure Guidelines: Lessons Learned for Nurse Leaders. *Journal of Nursing Administration*, 43(12), 660-666.

# IHO - Rural

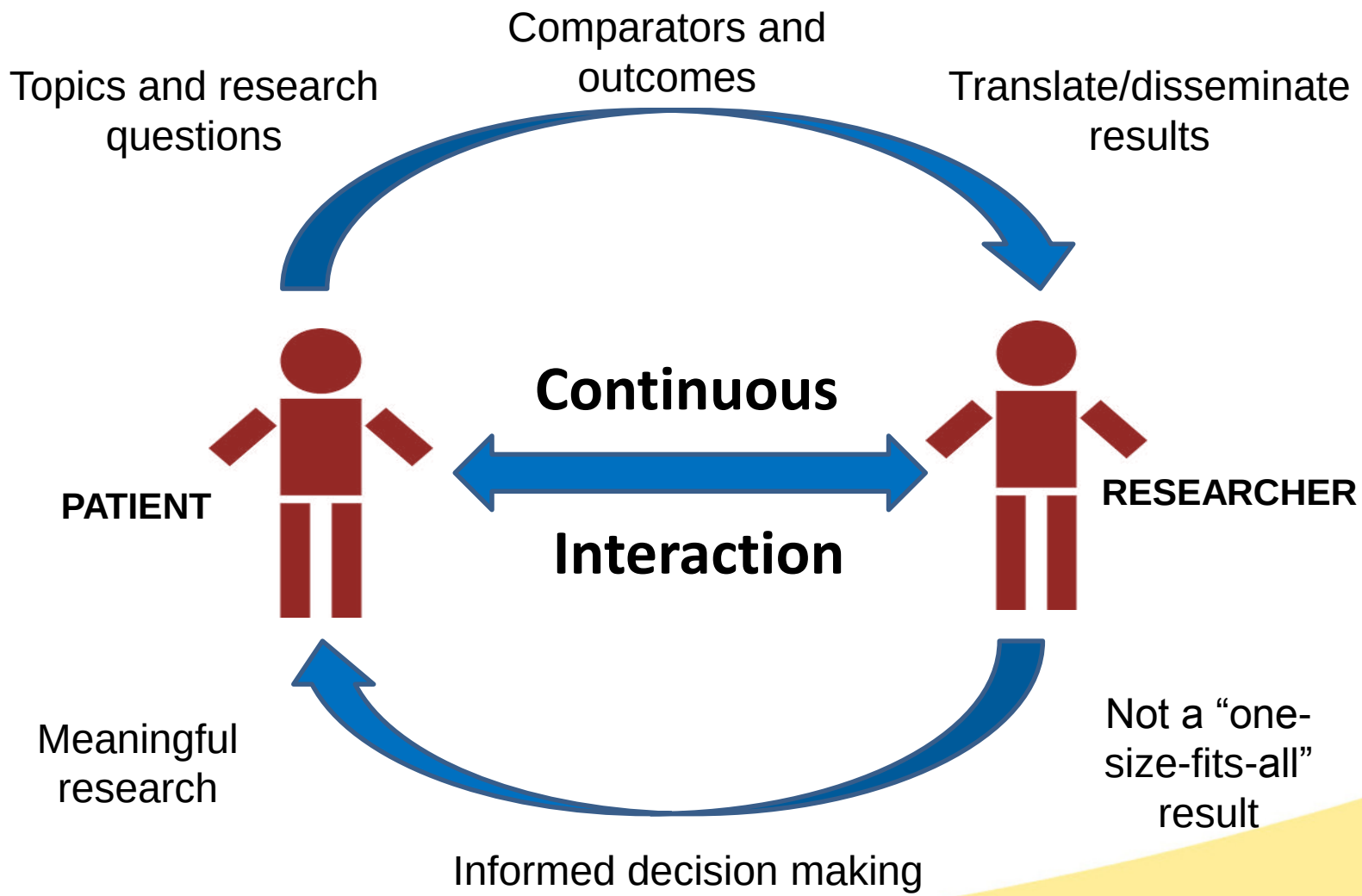
- 2 hospitals
- HF patients (N=40, 20 each hospital)
- Nurses who care for HF patients on study units

This study is funded by AHRQ as a subproject (Newhouse, PI) in ***PATient-centered Involvement in Evaluating the effectiveNess of TreatmentS (PATIENTS) Program***.

( PATIENTS PI, Mullins, 1R24 HS22135-01)

IMPROVING
HEART FAILURE
OUTCOMES

# PCOR is a Win for Everyone



PATIENTS engaged in research

# Expanding PCOR through Advancements in Implementation & Dissemination Science

- Develop infrastructure for dissemination and implementation of research products and findings to patients, patient advocates, clinicians, and healthcare systems
- Build sustainable digital infrastructure for data mining, data set integration, and virtual collaborations for training and research
- Provide mentorship for faculty research development
- Offer tools and methods for implementation and dissemination

*PATient-centered Involvement in Evaluating the effectiveNess of TreatmentS (PATIENTS) Program*. AHRQ (PI, Mullins).
(1R24 HS22135-01)

PATIENTS engaged in research

# Implementation Science: Best Practices

- Mixed methods
- Engagement of target audience and stakeholders
- Conceptual models and implementation frameworks (RE-AIM)
- Tailoring interventions to context
- Fidelity
- Measurement (context and outcomes)
- Evidence-based interventions

**Required to build the science:**

1) Core set of implementation concepts and metrics
2) Standards for implementation methods
3) Reporting standards for implementation studies

Newhouse, R.P., Bobay, K, Dykes, P.C., Stevens, K.R., Titler, M. (2013). Methodology Issues in Implementation Science. *Medical Care*, 51,S32-S40. doi: 101097/MLR.0b013e31827feeca

# International Collaborations

An FR, Xiang YT, Yu L, Ding YM, Ungvari GS, Chan SW, Yu DS, Lai KY, Qi YK, Zeng JY, Wu PP, Hou ZJ, Correll CU, **Newhouse R**, Chiu HF. (2014). Prevalence of nurses' smoking habits in psychiatric and general hospitals in china. *Arch Psychiatr Nurs*, 28(2), 119-22. doi: 10.1016/j.apnu.2013.11.008.

Qi, Y., Xiang, Y., An, E., Wang, J., Zeng, J, Ungvari, G.S., **Newhouse, R.,** Yu, D., Lai, K., Ding, Y., Yu, L., Zhang, X., Chiu, H. (2013). Nurses' work-related stress in China: a comparison between psychiatric and general hospitals. *Perspectives in Psychiatric Care*, doi: 10.1111/ppc.12020.

Zeng, J.Y., An, F.R., Xiang, Y.T., Qi, Y.K., Ungvari, G.S., **Newhouse, R.**, Yu, D.S., Lai, K.Y., Yu, L.Y., Ding, Y.M., Tang, W.K., Wu, P.P., Hou, Z.J., Chiu, H.F. (2013). Frequency and risk factors of workplace violence on psychiatric nurses and its impact on their quality of life in China. *Psychiatry Research*, 210(2), 510-514. doi:10.1016/j.psychres.2013.06.013.

# Introduction

- Workplace violence is common in clinical settings and may lead to deleterious effects; psychiatric nurses face a high risk of violence because they have the most face-to-face time with psychiatric patients (Inoue et al., 2006)

- Work-related stress (WRS) is defined as a harmful emotional and somatic response when the person's skills and resources cannot satisfy the requirement of the task (Leka, 2012), and may lead to considerable negative effects for both individuals and society

- In China, nurses are not highly respected, which also contributes to high risk of workplace violence and high level of WRS (Lambert et al., 2007)

- In the past, nurses' potential in promoting smoking cessation has been largely underutilized. One of the important reasons was the common use of smoking in nurses (O'Donovan, 2009). There have been very few studies examined nurses' smoking patterns in China

# Study objectives

- Objective-1: To determine the frequency of violence against psychiatric nurses in two major psychiatric hospitals in China
- Objective-2: To compare the level of WRS between nurses working in two major psychiatric hospitals and a major general hospital
- Objective-3: To determine the prevalence of lifetime and current smoking and the correlates of current smoking in nurses working in psychiatric and general hospitals

# Methods (1)

- Study settings and participants

  - This cross-sectional, anonymous survey was conducted in two major psychiatric hospitals and the medical department of a major general hospital in China

  - Eligible participants included all frontline certified psychiatric nurses providing direct patient care in out-patient or in-patient departments

  - 392 frontline psychiatric nurses and 408 medical nurses participated in this survey

# Methods (2)

- Data collection

  - A self-reported questionnaire was designed for this study to collect information on demographic characteristics, work experiences, experience and type of workplace violence in the past six months

  - WRS was measured by the 35-item Nurse Stress Inventory (NSI). Lifetime smoking was defined as smoking at least 1 cigarette daily for at least one month at some time in the past (Ma et al., 2009). Current smoking referred to smoking at least 1 cigarette daily during the past month

# Result (1)

Workplace violence against Chinese psychiatric nurses

- Of the psychiatric nurses, 319 (82.4%) nurses reported exposure to at least one type of violent acts in the past 6 months and almost two thirds felt threatened in more than 20% of their working hours in the past week

- The prevalence of sexual assault, physical and verbal harassment was 18.6%, 61.5% and 78.6%

- Compared with female nurses, male nurses were more likely to have experienced sexual assault and non-sexual physical violence

# Result (2)

WRS in Chinese psychiatric and medical nurses

- Compared to the nurses working in the general hospital, those working in the psychiatric setting had a higher level of stress in the domains of working environment and resources and patient care, but lower workload and time (all p values <0.001)

- Multivariate analyses revealed that college or higher level of education, exposure to violence in the past six months, longer working experience and working in psychiatric hospitals were independently associated with high work-related stress

# Result (3)

Smoking in Chinese psychiatric and medical nurses

- In the whole sample, the lifetime smoking prevalence was 7.6% (females=2.1% vs. males=48.9%, $p<0.0001$; psychiatric nurses=14.5% vs. non-psychiatric nurses=1.2%, $p<0.0001$)

- The prevalence of current smoking was 7.1% (females=2.1% vs. males=44.7%, $p<0.0001$; psychiatric nurses=13.4% vs. non-psychiatric nurses=1.2%, $p<0.0001$)

- In multiple logistic regression analysis, age 30 years or older, male gender, having children, being a psychiatric nurse and alcohol consumption positively and significantly associated with current smoking, while being a nursing officer negatively associated with smoking ($r2=0.513$, $p<0.0001$)

# Committed to advance research to improve health care……

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