Evidence-Based Practice: Improving Care with Nursing Science

Connecticut Nursing Research Alliance
16th Annual Evidence-Based Practice Conference

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UT HEALTH SCIENCE CENTER
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Key Points

- Model of Knowledge Transformation
- Prepare the Workforce
- The Science of Improvement

Evidence to Guide Quality Improvement

Evidence-Based Clinical Decision Making:

- Choices based on the idea that research-based care improves outcomes.
- What intervention will most likely diminish the health problem?

Array of Clinical Evidence

Multiple Research Reports

Tradition
Experience
Policy
Trial & Error
Patient Preference

THE COCHRANE COLLABORATION®

Systematic Review

AHRQ Agency for Healthcare Research and Quality

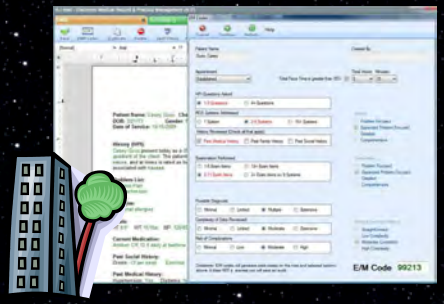
Evidence Synthesis

NQMC

Impact-Quality Indicators

THE JOANNA BRIGGS INSTITUTE

AHRQ Health Care Innovations Exchange



Agency Specific Guideline & Innovations

USPSTF

Preventive Recommendations

NATIONAL GUIDELINE CLEARINGHOUSE
www.guideline.gov

Guidelines from Associations

Quality of Care

DEFINED:

"degree to which health services to individuals and populations increase the likelihood of desired health *outcomes* and are consistent with current professional *knowledge*"

(IOM, 1990)

THE CHALLENGE OF MOVING RESEARCH INTO PRACTICE

$$t = \frac{\text{Signal}}{\text{Noise}} = \frac{\bar{y}_1 - \bar{y}_2}{s_p \sqrt{\frac{1}{n_1} \frac{1}{n_2}}}$$

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Quality of Care

- Quality of care lags behind knowledge
- Evidence-Based Practice is seen as a solution
- How is it a solution?

AHRQ Annual Quality Report

Data from 36 databases

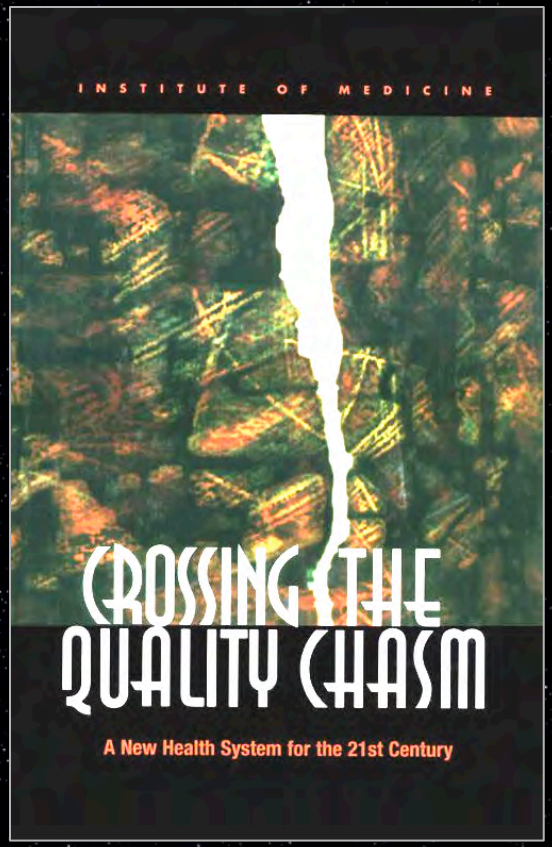
Health care quality in America is suboptimal

Gap between best possible and routine care is substantial

Small gains are being made

Crossing the Quality Chasm:
A New Health System for the 21st Century

(IOM, 2001)



"STEEEP" Redesign:

Safe

Timely

Effective (EBP)

Efficient

Equitable

Patient-Centered

National Academies Press
http://books.nap.edu

Evidence Hurdles

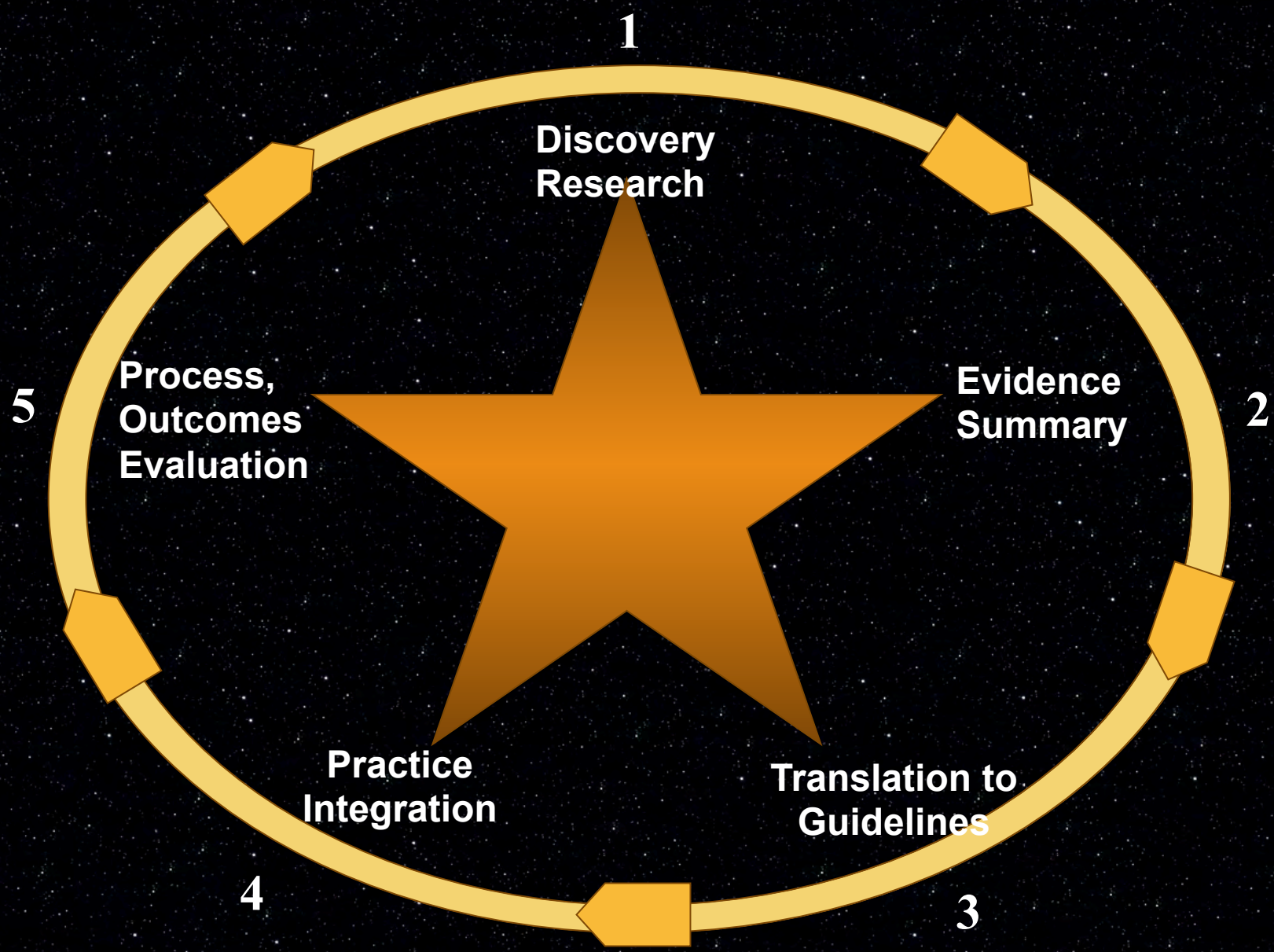
<u>VOLUME</u> of literature:

No unaided human being can read, recall, and act effectively on the volume of clinically relevant scientific literature. (IOM, 2001, 25)

<u>FORM</u> of knowledge:

Not every knowledge source is suitable for informing clinical decisions. (ACE Star Model, 2004)

ACE Star Model of Knowledge Transformation



ACE Star Model of Knowledge Transformation

Knowledge Transformation

--the conversion of research findings from single research studies, through a series of stages, to impact on health outcomes.

Premises of Star Model

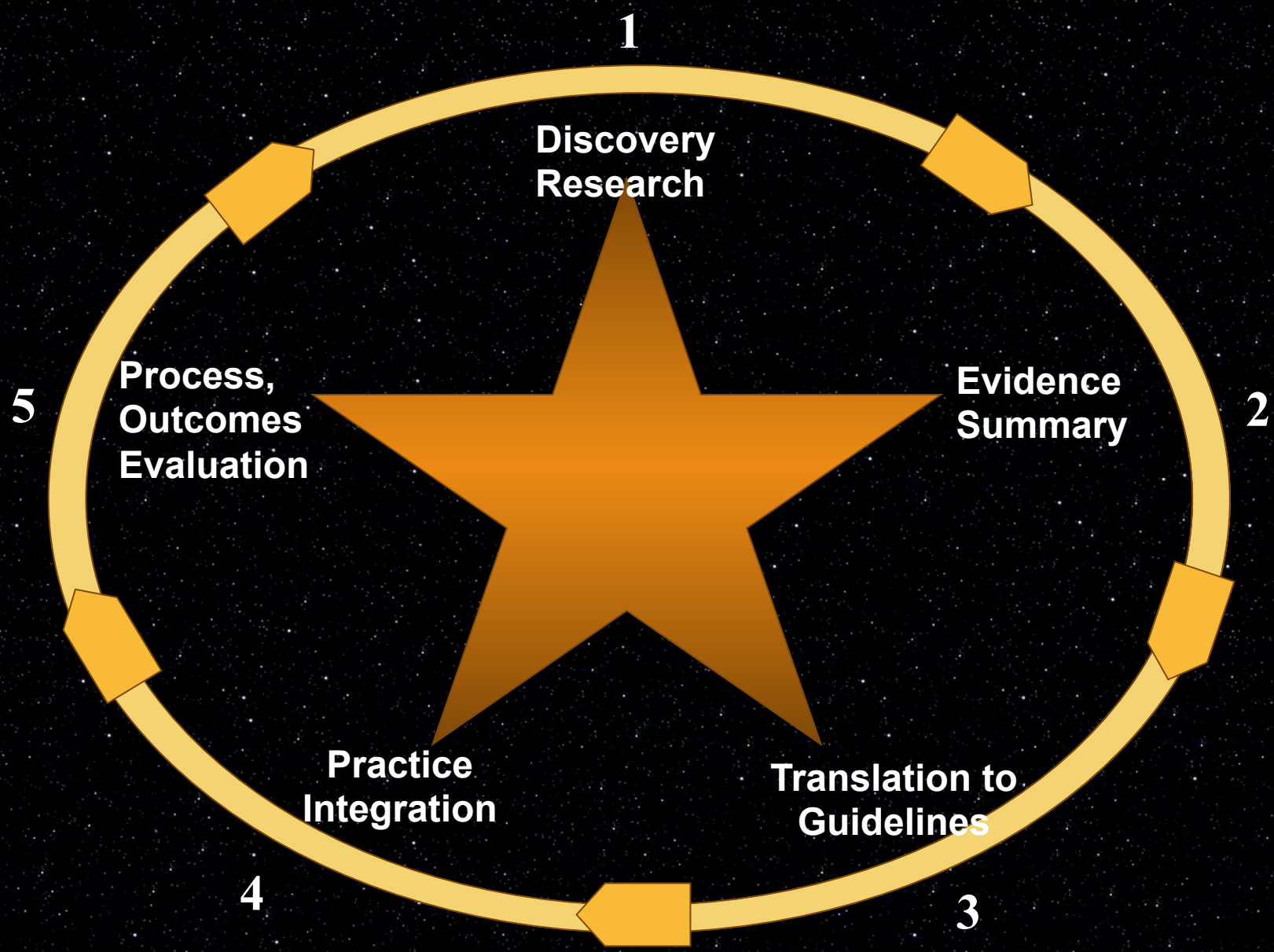
-Knowledge transformation is necessary before research results are useable in quality improvement

-Knowledge derives from a variety of sources

-The most stable and generalizable knowledge is discovered through systematic processes (research)

-The form of knowledge determines its usability in clinical decision making

ACE Star Model of Knowledge Transformation



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Discovery Research

CINAHL

There were 22% fewer falls during the trial in the group exercise group than in the comparison group (IRR = 0.78, 95% CI = 0.62–0.99).

Lord SR. Castell S. Corcoran J. Dayhew J. Matters B. Shan A. Williams P. (2003). The effect of group exercise on physical functioning and falls in frail older people living in retirement villages: a randomized, controlled trial. Journal of the American Geriatrics Society. 51, 12, 1685-92.

Evidence Summary

2

CINAHL

- Literature search on *FALLS PREVENTION*
  - 1,076 citations
- Limit search to "research"
  - 414 citations
- Limit to "systematic reviews"
  - 21 citations
- Focus on "Prevention in Elderly"
  - *1 systematic review*

Interventions for Preventing Falls in Elderly People

Located 62 trials involving 21,668 people

Interventions likely to be beneficial:

- Multi factor health/environmental risk factor screening/ intervention
- Muscle strengthening and balance retraining
- Home hazard assessment and modification
- Withdrawal of psychotropic medication
- Tai Chi group exercise intervention

Gillespie LD. Gillespie WJ. Robertson MC. Lamb SE. Cumming RG. Rowe BH. Interventions for preventing falls in elderly people. *The Cochrane Library (Oxford) 2005.*

Smoking Interventions for Pregnant Women

Located 64 randomized and quasi-randomized trials including over 20,000 women:

There was a significant reduction in smoking in the intervention groups of the 48 trials included; the authors concluded that smoking cessation programs in pregnancy reduce the proportion of women who continue to smoke, and reduce low birthweight and preterm birth.

Lumley, J; Oliver, SS; Chamberlain, C; Oakley, L. (2005). Interventions for promoting smoking cessation during pregnancy. Cochrane Pregnancy and Childbirth Group Cochrane Database of Systematic Reviews.

A-Z Quick Menu

Select Topic

AHRQ Home

Related Topics

Evidence-based Practice

Outcomes & Effectiveness

Technology Assessments

Prevention & Chronic Care

Clinical Practice Guidelines

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Evidence-based Practice

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Evidence-based Practice Program
EPC Program Overview
Participating EPCs
Topic Nomination and Selection
Resource Material

Continuing Education Opportunities for Health Professionals

Effective Health Care Program

EPC Evidence Reports

- Topics In Progress
- Completed Reports:
  Clinical / Health Care Services / Technical
- Topic Index: A-Z
- List of Reports by Number
- Archived Reports
- Related Issues

Advantages of Evidence Synthesis

- ☆ **Reduce information into a manageable form**
- ☆ **Establish generalizability--participants, settings, treatment variations, study designs**
- ☆ **Assess consistencies across studies**
- ☆ **Increase power in cause and effect**
- ☆ **Reduce bias and improves true reflection of reality**
- ☆ **Integrate information for decisions**
- ☆ **Reduce time between research and implementation**
- ☆ **Offer basis for continuous updates**

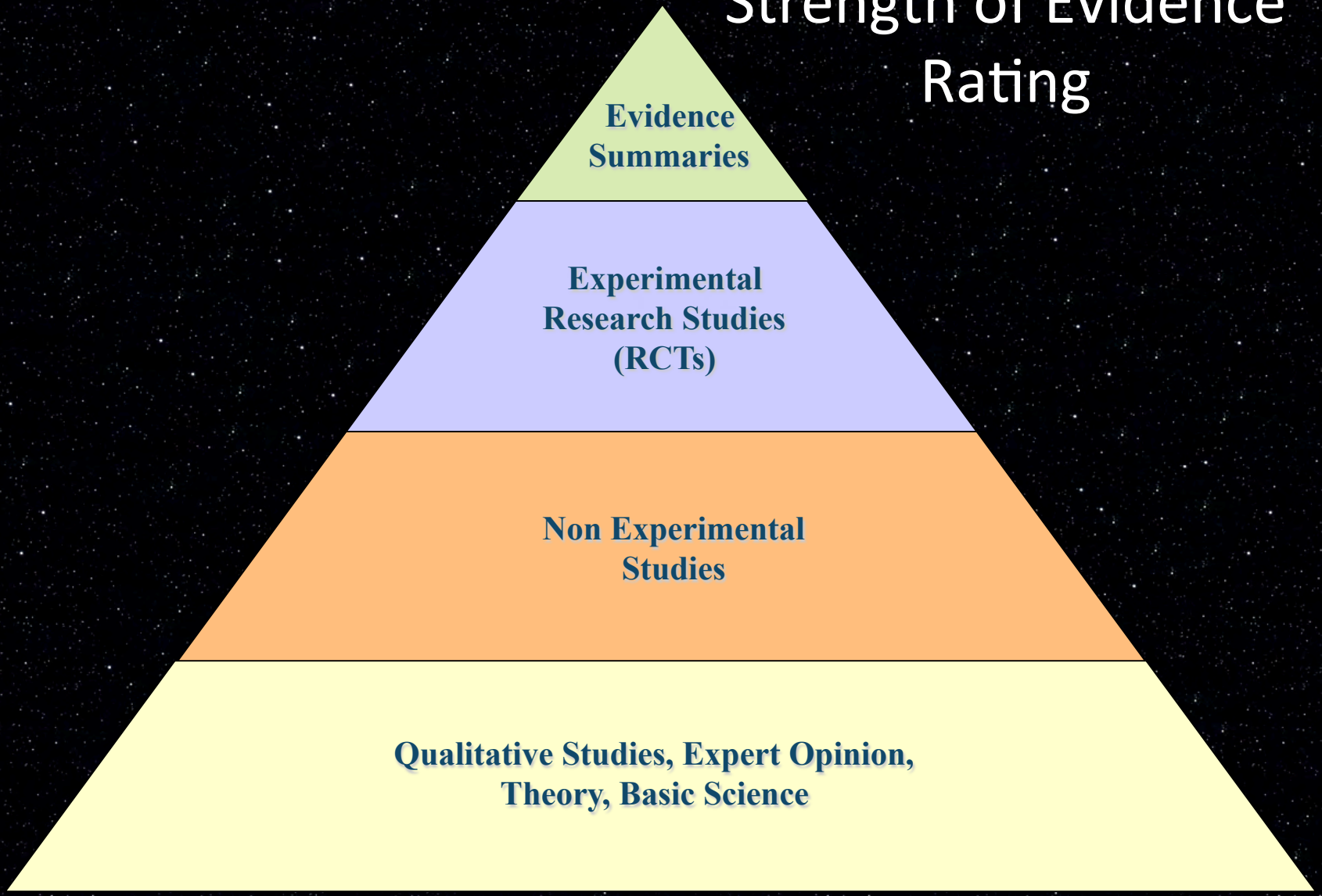
Adapted from Mulrow C. 1994. Rationale for systematic reviews. British Medical Journal, 309, p. 597-599.

Rating Strength of Evidence-NHS

1A	SR with homogeneity of RCTs
1B	Individual RCT with narrow CI
1C	All or none
2A	SR with homogeneity of cohort studies
2B	Individual cohort study
2C	Outcomes research
3A	SR with homogeneity of case-control studies
3B	Individual case-control study
4	Case-series, poor quality cohort & case-control
5	Expert opinion, theory, bench research

NHS. Levels of Evidence. Accessed January 12, 2001. Web Page. Available at: http://cebm.jr2.ox.ac.uk.

Strength of Evidence Rating



Translation to Guidelines

National Guideline Clearinghouse

- Sponsored by AHRQ
- Clinical Practice Guidelines

http://www.guideline.gov

National Collaborating Centre for Nursing and Supportive Care. CPG for the assessment and prevention of falls in older people. London (UK): National Institute for Clinical Excellence. 2004

Multifactorial Interventions

A - All older people with recurrent falls or assessed as being at increased risk of falling should be considered for an individualized multifactorial intervention.

(**Evidence level I**)

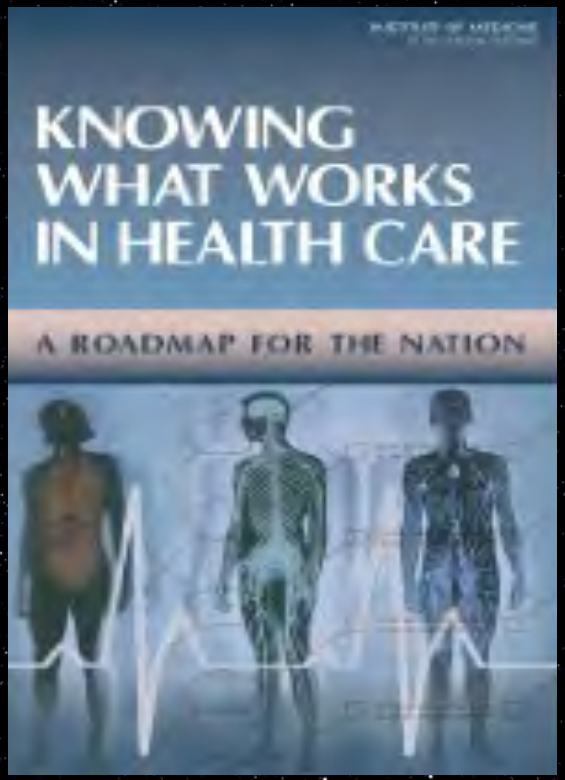
A - In successful multifactorial intervention programs the following specific components are common

(**Evidence level I**):

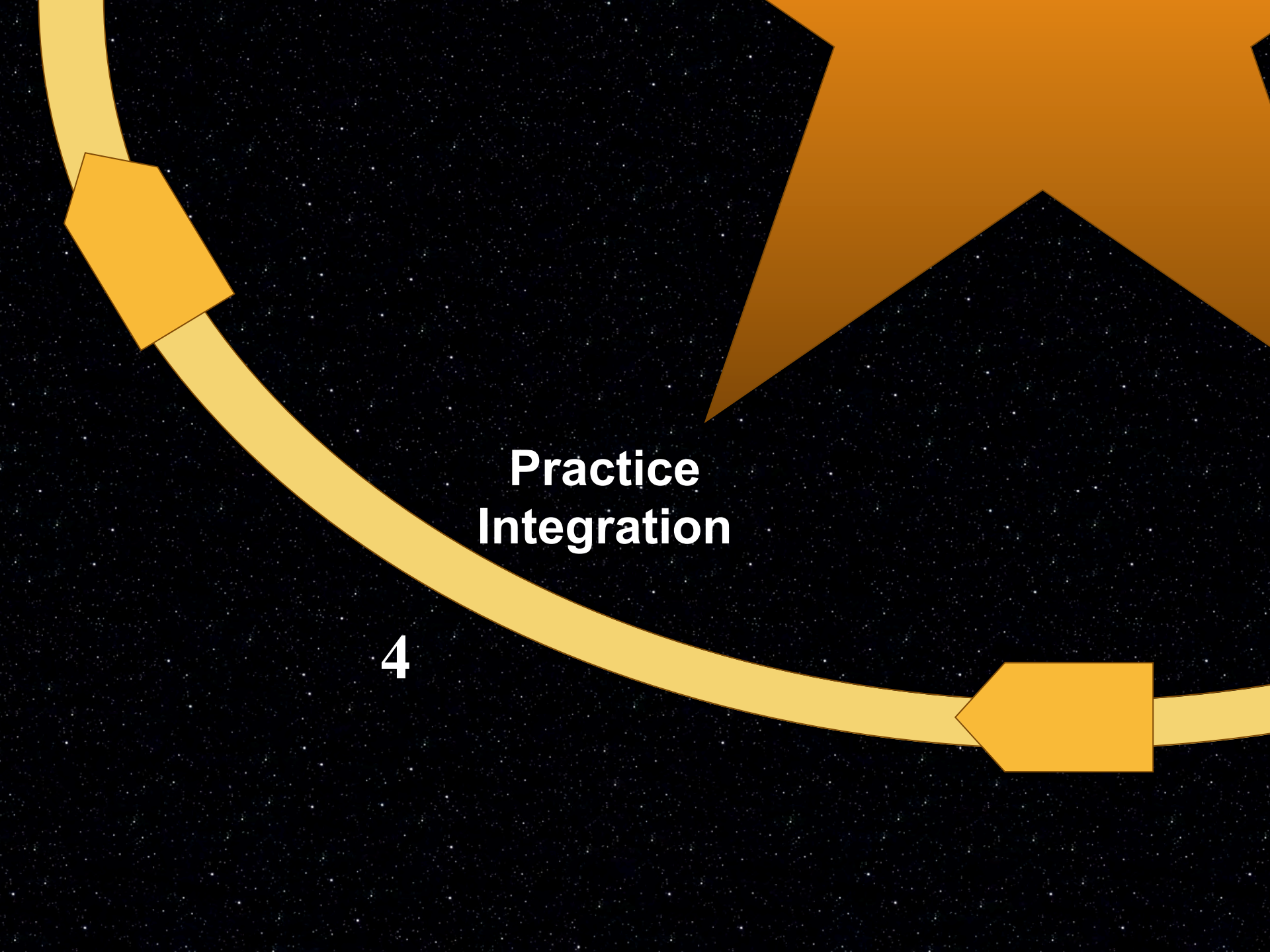
- Strength and balance training
- Home hazard assessment and intervention
- Vision assessment and referral
- Medication review with modification/withdrawal

Knowing What Works in Health Care: A Roadmap for the Nation

(IOM, 2008)



- **Systematic Reviews: Central link between research and clinical decision making**
- **Guidelines: Guide practice**
- **Both must be resource-wise and rigorous**


Practice
Integration
4

AHRQ HEALTH CARE INNOVATIONS EXCHANGE

Agency for Healthcare Research and Quality (AHRQ)

Available:

http://www.ahrq.gov/

http://www.innovations.ahrq.gov/

AHRQ HEALTH CARE INNOVATIONS EXCHANGE

SEARCH: Falls

Fall Prevention Toolkit Facilitates Customized Risk Assessment and Prevention Strategies, Reducing Inpatient Falls

What They Did:

Periodic assessment, specific risk factors, customized interventions
Computerized program produces tailored prevention recommendations
Individualized care plan, educational handout, bedside alert poster

Did It Work?

Significantly reduced falls, particularly in > 65.

Evidence Rating

Strong: Cluster randomized study comparing fall rates.

Patricia Dykes, RN, PhD
RWJ Interprofessional Nursing Quality Research Initiative

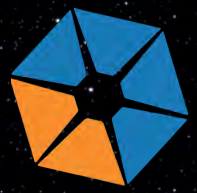
AHRQ HEALTH CARE INNOVATIONS EXCHANGE

(actual titles)

Patient- and Family-Activated Response Team Averts Potential Problems and Generates High Levels of Patient, Family, and Staff Satisfaction

Team-Developed Care Plan and Ongoing Care Management by Social Workers and Nurse Practitioners Result in Better Outcomes and Fewer Emergency Department Visits for Low-Income Seniors

What is the evidence rating?



Improvement Science
research network
...improving patient outcomes

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IMPROVEMENT SCIENCE
RESEARCH NETWORK

Mission

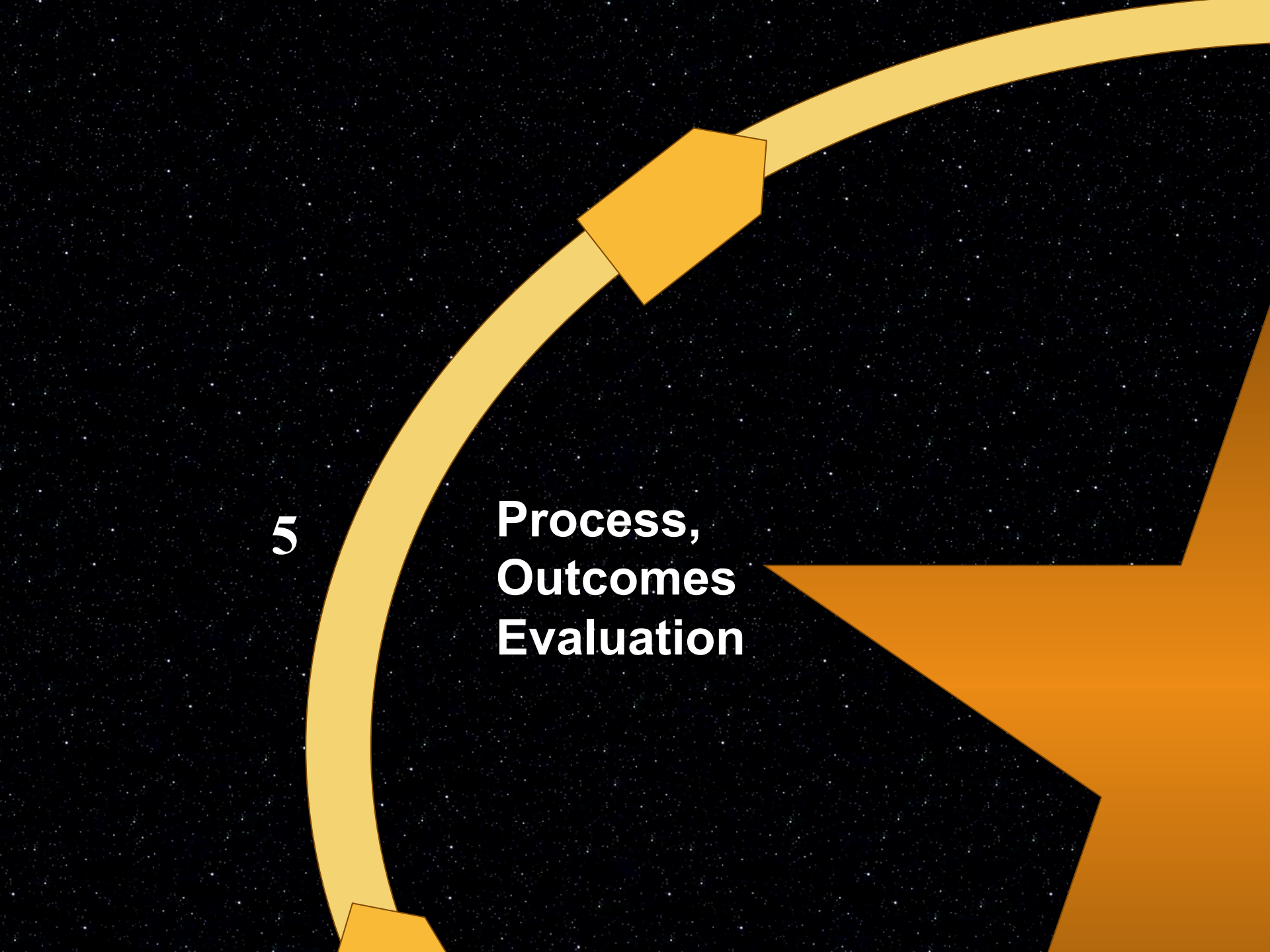
ISRN mission is to

- increase the scientific foundation of healthcare quality improvement, safety, and efficiency
- through transdisciplinary research focused on
- healthcare systems, patient-centeredness, and integration of evidence into practice.

IMPROVEMENT SCIENCE
RESEARCH NETWORK

Improvement Research Priorities

A. Coordination and Transitions of Care
B. High Performing Clinical Systems and Microsystems Approaches to Improvement
C. Evidence-Based Quality Improvement and Best Practice
D. Learning Organizations and Culture of Quality and Safety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Process,
Outcomes
Evaluation

Colorectal Cancer Screening

- Colon cancer screening: % of patients receiving timely colorectal cancer screening

- VHA Performance Measurement System: Technical Manual"

http://www.qualitymeasures.ahrq.gov

Score for Fall Risk Management

- Fall Risk Management: % of Medicare members who discussed falls problems w/ provider
  - 75 years of age or older; or
  - 56 to 74 years of age w/ balance or walking problems or a fall in past 12 months
  - Seen by provider in past year and
  - Discussed falls or balance problems
- Collected using Medicare Health Outcome Survey (HOS)

http://www.qualitymeasures.ahrq.gov

Score for Fall Risk Management

% =

numerator

÷

denominator

# of members who indicated **they discussed falls** or problems with balance or walking with their current provider

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# of members:

- 75 years of age and older as of December 31 of the measurement year who had a visit in the past 12 months

or

- 65 to 74 years of age and older as of December 31 of the measurement year who had a visit in the past 12 months and who indicated they had a fall or problems with balance or walking in the past 12 months

NDNQI
NATIONAL DATABASE OF NURSING QUALITY INDICATORS

National Quality Measures Clearinghouse

THE COCHRANE COLLABORATION®

AHRQ Agency for Healthcare Research and Quality

THE JOANNA BRIGGS INSTITUTE

National Guideline Clearinghouse

USPSTF

AHRQ Health Care Innovations Exchange

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Resources

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