The Challenge of T2 Translation

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Objectives

- Discuss Implementation Science as a framework for rapid translation of delirium research discovery into effective delirium care delivery by describing

  - The Complex Adaptive System Theory
  - The Reflective Adaptive Process
Translational Cycle: From Discovery To Delivery

**Time:** 17 yrs
**Cost:** > $1 billion
**Generalizability:** < 1%
**Success:** <14%

**Epidemiology** → **Promising Intervention** → **Clinical trial testing** → **Approved Intervention** → **Guideline Development** → **Post-Marketing testing** → **Clinical Observation** → **Basic science Lab** → **System and Provider Implementation**

Westfall et al, JAMA 2007; Boustani et al, JCIA 2010
Shortening the Translational Cycle

• Use the tools of Implementation Science
  ➢ Complex Adaptive System theory
  ➢ The Reflective Adaptive Process (RAP)
• Create local social research implementation networks
• Standardized data collection to serve
  ➢ The clinic mission first
  ➢ The research mission second
• Use information technology to support
  ➢ Clinical decisions & needs
  ➢ Research decisions & needs
• Innovate in limited resource environment

Callahan et al Aging & Mental Health 2010;
Boustani et al, JCIA 2010;
Boustani et al, Aging & Mental Health 2010
Complex Adaptive Health Care System

• An open, dynamic, flexible, adaptive, and complex network

• **Complex** due to
  – Numerous interconnected, semi-autonomous, competing, and collaborating members

• **Adaptive** due to
  – Its capability of learning from its prior experience
  – Its flexibility to change its members connecting patterns to fit better with its surrounding environment
Complex Adaptive Health Care System

- **Emergent behaviors**
  - NOT predetermined ones

- **Self-organized controls**
  - NOT central controls
Selecting a change in a complex adaptive health care delivery system

A. Selecting an overall content that is based on a systematic evidence review of past research or guidelines.

B. Develop a Reflective Adaptive Process implementation team to
   - Localize the content
   - Localize and or invent the delivery process
   - Monitor the delivery process
   - Monitor the system’s members interactions
   - Detect emergent behaviors
   - Evaluate the impact of the selected change
   - Provide immediate performance feedback
Reflective Adaptive Process

- Build a local “think tank: the RAP Team” responsible of introducing an acceptable, locally matched, flexible and effective change in its CAS.

- External or internal facilitators who encourage the RAP Team to select, adopt or create local processes to
  - solve the CAS problem
  - enhance the CAS performance
  - guide the CAS respond to its surrounding environment

- RAP is the second generation of CQI
The Reflective Adaptive Process of Implementation Science

- Supportive leadership
- Vision, mission, target expenditure, and shared values (Standardized Minimum Care)
- Diverse improvement teams
- Time and space for learning and reflection ($$$)
- Tension and discomfort are essential
- Timely Feedback
Shortening the Translational Cycle for Delirium Discovery

• Create a local brain discovery implementation network
  • Build a local coalition of brain research centers, a local brain disease advocacy group, local brain clinical services (Psychiatry, Neurology, Geriatrics, neuropsychology), local hospitalists and critical care providers, local surgical services, and business developers.
  • Provide a bimonthly meeting for group based problem solving.
  • Provide online shared resources.
  • Provide ongoing network management support
Shortening the Translational Cycle for Delirium Discovery

• Create a brain care service line across the hospital and ambulatory services
  • A division within the neuroscience service line or a clinical coalition between geriatrics, psychiatry, and neurology.
  • Standardized data collection with emphasize on capturing delirium cases
    • Take advantage of your ICD-9 or ICD-10 coding.
    • Take advantage of your eMR.
    • Educate your clinical providers on the appropriate coding for delirium.
    • Consider using standardized delirium assessment that is clinically feasible (RASS, CAM-ICU, CAM).
  • The data collection need to serve the clinical operation, quality, and safety mission first then research second.
Shortening the Translational Cycle for Delirium Discovery

- Use information technology to support
  - Data collection directly from clinical services
  - Data collection directly from patient portal
  - Work with Chief Medical Informatics Officer on developing delirium specific decision support tools
    - Use interruptive alert
    - Partner with local pharmacy services to deliver human based decision support
  - Get familiar with your local clinical data warehouse & Business developer to support your research need.
Shortening the Translational Cycle for Delirium Discovery

• Innovate in limited resource environment
  - Include future payment of your solution in your development equation.
  - Think about the value of your solution within a population health management payment model
    - Per Member Per month payment (PMPM)
    - Bundle Payment
    - No fee for services
  - Imaging that 70% of future health services will be provided in the community outside the current acute, ambulatory, and long-term care settings.
  - Think about drug repurposing (ideally generic)
Indiana University Examples

• Implementing the RASS and CAM-ICU.
• Implementing the ABCDE bundle
• Implementing the Critical Care Recovery Clinic.
Questions?

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