Health Care Innovation Symposium VI:
Best Practices Supporting Interdisciplinary Innovation at Academic Health Centers
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Previous Healthcare Innovation Symposia

What’s broken and How to Fix it?

1. US Healthcare: What’s Broken & How to Fix It
2. Health Policy & the Future Physician
3. New Models of Health Delivery & Payment
4. Social Determinants of Health & Disease
5. New Paradigms of Health Services Research
Two key questions:

1. How do we create environments that support interdisciplinarity, innovation and creativity?

2. How to we manage change within our organizations once innovations are deemed “worthy” of use?
Innovation

• “Creativity with a purpose” (Ness, 2012)
• Implies USE of something new or in a new way
The World Bank on
Steps toward Promoting Innovation

through policy functions and policy implementation

1. Support Innovators;
2. Improve regulatory frameworks for Innovation;
3. Strengthen the research & development base;
4. Strengthen Innovation through education and training;
5. Policy evaluation;
6. Adapting policy to local contexts;
7. Promoting competitive and innovative industries;
8. Building innovative sites (e.g. Science Parks); and
9. Stimulating pro-poor innovations (key to their mission).
Diverging: Shifting the Frame for Problem Solving

• Develop an awareness of the current frame;
• Consider the consequences of the current frame;
• Devise an alternate frame; and
• Consider the consequences of the alternate frame (both positive and negative).

• EXAMPLE: MOOCs
• EXAMPLE: Retail Clinics
High Output Teams
(Kelley & Littman, 2001)

• Total dedication to and belief in achieving the goal;
• Slightly ridiculous timelines;
• Nonhierarchical structure;
• Many individual strengths, which make them well-rounded;
• Respect for each other; and
• A belief that they can obtain whatever is needed to succeed but they are ultimately responsible for getting the job done.
Environmental Creativity:
Amabile & Kramer (2011)

**Incubators**
- Allow a “network of possible wanderings” for exploration and problem solving;
- Freedom of choice in approach;
- Supervisory encouragement;
- Transparent and consistent goals;
- Time, but constraint appears to heighten creativity; and
- Mutually supportive teams.
Progress Principle
Amabile & Kramer 2011

• Managing the progress is critical to the advancement of work.

• Focus on the process, not the people

• Making progress is, itself, a stimulus

• Failure to progress demoralizes
Beware the Devil’s Advocate! (Kelley & Littman, 2005)

- Biggest innovation killer of the day.
- Stops creative thinking by imposing the worst possible outcomes of a new idea.
- Kills the culture of innovation, which is critical to success today.
Thoughts on Innovators
(Kelley & Littman, 2005)

• Proactive & Energetic.
• Pair ideas with action: “People creating value through the implementation of new ideas.”
• Learning roles (anthropologist, experimenter, cross-pollinator).
• Organizing roles (hurdler, collaborator, director).
• Building roles (experience architect, set designer, caregiver, story teller).
15 Innovations in Higher Education
(Mintz, 2013)

1. E-Advising
2. Evidence-based Pedagogy
3. The decline of the lone-eagle teaching approach
4. Optimized class time
5. Easier educational transitions
6. Fewer large lecture sections
7. New frontiers for e-learning
8. Personalized adaptive learning
15 Innovations in Higher Education

(Mintz, 2013) Continued…

9. Increased competency-based and prior learning credits
10. Data-driven instruction
11. Aggressive pursuit of new revenue
12. On-line and low-residency degrees at flagships
13. More certificates and badges
14. Free and open textbooks
15. Public-Private partnerships
Thought on innovation attributed to Henry Ford:

• “If I was asked by customers what they wanted they would have said a faster horse.”
Interdisciplinarity

• Common: Involving two or more academic, scientific or artistic disciplines, generally viewed to be distinct.

• Klein (2010): New knowledge taxonomies that blend established domains of specialized inquiry.

• Interdisciplinary is characterized by integrating, interacting, linking, focusing and blending.
Why Interdisciplinarity?
Gilliss, C. (2010b)

- Real world problems tend to not be discipline-specific.
- Each discipline frames problems in discipline-specific ways, which can limit the possibilities for understanding solutions.
- Through interdisciplinary collaboration, we learn.
- Interdisciplinarity keeps us honest.
- Coalitions are built through collaboration and coalitions help us get things done.
The Grand Challenges
Gilliss, C. (2010a)

• Difficult problems that stretch the limits of cognitive or cooperative skills;

• Solutions require input from a broad array of disciplines;

• Solutions hold the power to fundamentally alter current practice through broad application and meaningful impact; and

• Solutions generally produce a high return on investment.

• Example: Gates’ Foundation Grand Challenges in Global Health (vaccines, nutrition, drug resistance)
1. The Disciplined Mind — established in a specific scholarly discipline.

2. The Synthesizing Mind — organizes information from disparate sources into useful forms for others.

3. The Creating Mind — breaks new ground, arrives at unexpected answers.

4. The Respectful Mind — welcomes difference among individuals and groups and seeks to work effectively with them.

5. The Ethical Mind — reflects on the nature of one’s work and how the work can serve a greater good.
Team Development Falters when…

(Lencioni, 2002)

- Mistrust
- Fear of Conflict
- Lack of Commitment
- Avoidance of Accountability
- Inattention to Results
Top 10 Mistakes in Organizational Change
(Dearing, 2008)

1. Assume evidence matters in the decision-making of potential adapters.
2. Substitute our perceptions for those of potential adapters.
3. Use intervention creators as intervention communicators.
4. Introduce interventions before they are ready.
5. Assume that information will influence decision-making.
7. Allow the first to adopt to self-select into dissemination efforts.
8. Fail to distinguish among change agents, authority figures, opinion leaders and innovation champions.
Top 10 Mistakes in Organizational Change
(Dearing, 2008) Con’t...

9. Select demonstration sites on criteria of motivation and capacity.

10. Advocate single interventions as the solutions to a problem.

SUMMARY: Dissemination of Innovation is a complex political activity.
Disseminating Innovations Health Care  
(Berwick, 2003)

• Three clusters of influence on uptake:
  – Perception of the innovation (benefit, consistency with values, complexity, triability and usability)
  – The characteristics of those who may adopt the change (innovators, early adopters, early majority, late majority, traditionalists)
  – Contextual and Managerial factors within the organization (the importance of access across groups and the impact of isolation; decision-making style match and the impact of limited styles or overuse)
Recommendations for Acceleration of Change
(Berwick, 2003)

1. Find sound innovations
2. Find and support “innovators”
3. Invest in “early adopters”
4. Make early adopters activity observable
5. Trust and enable re-invention
6. Create slack for change
7. Lead by example
Foster, convene and lead innovation to transform the delivery of health care. Goal is to radically transform the value of healthcare by building an enduring platform to accelerate innovation at UCLA that improves quality, engages patients and reduces the net cost of care.

Proposes an innovation life cycle that begins with a problem and moves through evaluation and dissemination.
Kettering Innovation Center (Flint, MI)

With a focus on imagining science, clinical trials and translational research, the center acknowledges a broad scope with the ultimate goal being impact on economic redevelopment in Michigan.

Recent projects include testing clinical guidelines for maintaining normothermia in the peri-op area and “RN resistance” to the use of active warming devices; testing the effect of noise-reducing interventions on patient satisfaction with care.
Creating new models of health care delivery that improve patient safety, quality and efficiency. Consultation and education services included.

Use of Lean Sigma (hybrid) to reduce blood waste; improve patient flow; triage more efficiently; and manage medication processing.
Lean Six Sigma

• Focused on reducing 7 categories of waste, as waste accounts for up to 40% of any process:
  – Defects
  – Over processing
  – Motion
  – Over production
  – Waiting
  – Inventory
  – transportation
Ariadne Labs
(at Brigham and Women’s Hospital and the Harvard S/PH, directed by Atul Gawande, MD)

• Developing scalable solutions that drive better care in the most critical moments of life.
• Currently 3 foci: childbirth, surgery & EOL
• Methodologically distinct: Use of Checklists
• Evaluation for knowledge development
Duke Institute for Health Innovation (DIHI)

• To promote transformative innovation in health and healthcare through high-impact research, leadership development and workforce training and cultivation of a community of entrepreneurship.
The “Iron Triangle” of access, quality and affordability remain enduring challenges in health & healthcare globally

Access to many healthcare services is limited:
- Many lack access to basic services
- Poor access leads to higher mortality from treatable diseases
- Economic growth stunted, with limited size of addressable healthcare markets

Quality of services is variable:
- Basic standards of medical care a challenge in many developing countries
- Increasing cost not leading to higher quality in developed countries

Affordability of care remains a major challenge:
- Growth in spending on healthcare outstrips GDP growth
- Burden unsustainable if not checked
- Continued growth in these markets will be challenging for healthcare firms
Innovation presents a promising avenue to meet these collective challenges

• Status quo or incremental changes will not be adequate to meet growing challenges, locally or globally

• **Transformative innovation** is needed to drive fundamental changes
  – New models of care
  – Disruptive technologies
  – Novel training and workforce development programs

• Organizations that embrace and support innovation will be best positioned to lead
What DIHI offers

• A home for Duke Medicine and University faculty, staff, trainees, and students to advance innovations in health and healthcare delivery

• A platform to develop multidisciplinary programs

• Access to core resources not available elsewhere

• An opportunity for joint faculty hires

• A living laboratory that provides a coordinated avenue to interact with our own health system

• A place for development of educational programs around innovation, management, and leadership

A sustained commitment to health innovation across Duke
DIHI domains of innovation

**DIHI**
Duke Institute for Health Innovation

- **Implementation and Health Delivery Science**
  - Catalyze multidisciplinary teamwork; Duke Medicine & University; National & Int’l leaders
  - Structured interface to DUHS
  - A living laboratory to incubate, refine, validate and scale new ideas

- **Health Technology Innovation**
  - Incubator for health technology innovation
  - Develop enabling infrastructure and policies
  - Interdisciplinary collaboration

- **Health Leadership & Workforce Development**
  - Goal to train current and future leaders across health care in
    - Leadership
    - Management
    - Innovation
    - Quantitative health sciences

- **Applied Health Policy**
  - Analysis of policy from national and global perspectives
  - Application of policy into health care reform efforts
Implementation & Health Delivery Science: Vision

• Catalyze multidisciplinary teamwork across Duke University and Duke Medicine and foster collaborations with national and international thought leaders to focus on improving health and healthcare through high impact research and innovation in healthcare delivery.

• Provide a structured and coordinated platform to interface with DUHS and enable a living laboratory to incubate, refine, validate and scale new ideas and concepts.

• Examples: USAID funded SEAD.
Health Technology Innovation: Vision

• Incubator for health technology innovation within Duke University.
  – The center will develop enabling infrastructure and interdisciplinary collaboration to promote more rapid impact of the world class research being performed across Duke.

• Catalyst for technology innovation
  – By mapping out barriers and gaps to innovation, identifying content expertise in intellectual property and providing seed funding for development of ideas and concepts.

• Example: Bio-I
Health Leadership Development: Vision

• There is a growing demand for trained leaders with real-world experience and innovative approaches to healthcare leadership

• Goal to train current and future leaders across health care in four themes
  – Leadership
  – Management
  – Innovation
  – Quantitative health sciences
Applied Health Policy: Vision

• Analysis of policy from national and global perspectives
  – Evidence-based research to drive more effective health policy solutions

• Application of policy into health care reform efforts
  – Practical actions required to promote and sustain innovation
Best Practices – for Teams

• Identify real problems to which teams can become committed and that organizations will resource. Pick winners, where possible.
• Language matters. It conveys values and hints at the outcome goal.
• Ensure divergent thinking by composing teams with new members (including young students).
• Suspend disbelief; listen.
• Draw parallels from other industries, where possible.
Best Practices – for Organizations

• Align the mission/responsibilities and interests to ensure success.
• Balance the “risk portfolio” in an effort to better manage the environment for innovation where you want to encourage it.
• Create a space for Innovation within an organization.
• Plan that the innovators will hand off to the change managers after success has been demonstrated.
• Play to the early adapters and do not expect the “traditionalists” to change.
• Feature success prominently.
AHC-Relevant Questions

• Where and how do we employ our graduates to advance innovation?
• How do we value team science or interdisciplinary successes in the APT Process?
• How do we build teams for innovation when we “do not know what we don’t know?” (aka finding partners)
• How do we best align our governance structures within the AHC, despite our disparate missions?