Innovation and Intrapreneurship: Essential Skills for Pharmacy

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Conflicts of Interest

- I have nothing to disclose or any conflicts of interest in respect to this presentation
Learning Objectives

- Define the terms innovation and intrapreneurship.

- Describe opportunities for pharmacists to develop innovation and intrapreneurship skills.

- Discuss applications of innovation and intrapreneurship skills for health care.
Think, pair, share

1. Think...
   a. How do you define innovation?
   b. Why innovation is important in your practice?
   c. Would you call your residency program innovative?
   d. Would you call your department innovative?

2. Pair and share with someone else

3. Report out to the large group
‘Genius is 1% inspiration, and 99% perspiration’

- Thomas Edison
Self-theory Questions

- Intelligence cannot be changed
  - A. Yes
  - B. No

- The kind of person you are doesn’t change much
  - A. Yes
  - B. No

- Innovators are born with certain level of curiosity and creativity
  - A. Yes
  - B. No

Common paradigms

- People are born creative
  
  ~80% of creativity can be learned and acquired

- Creativity is a trait
  
  Set of behaviors

- Good ideas come from a flash of insight
  
  Only after cognitive effort and then incubation

- I only have to be creative occasionally
  
  Innovators practice their skills everyday

- Innovators are Steve Jobs, Mark Zuckerberg, Thomas Edison...
  
  Most innovations come from teams. Doesn’t have to be tech.

Sawyer K. Zig Zag: the surprising path to greater creativity. 2013
What is innovation?

- **Problem Solving**
  - Simple, right/wrong
  - Complex, no right answer

- **Creative Thinking**: novel, appropriate ideas

- **Innovation**: creation, implementation of idea which makes an impactful difference in the world
  - Incremental
  - Disruptive
Innovation

- Definition: the act or process of introducing new ideas, devices, or methods

- “Without change there is no innovation, creativity, or incentive for improvement. Those who initiate change will have a better opportunity to manage the change that is inevitable.”
  - William Pollard

www.brainyquote.com; www.Merriam-webster.com
Innovators DNA

- Interviewed innovative entrepreneurs
  - Understand how they developed their successful ideas
  - Contrast them to other executives
- In the most innovative companies, senior executives do the creating themselves – it is not delegated
- CEOs of most innovative companies spend 50% more time on specific activities than do others
- Innovation can be taught and developed – it is not inherent

Innovators DNA

❖ Associating
  • Ability to connect unrelated issues from central fields
  • Connections are easier to make the more diverse our knowledge and experience is
  • The more ones tried to learn new and diverse information, the easier associating becomes

❖ Questioning
  • Frequently ask questions to challenge status quo
  • Questions to ask are: why, why not, and what if?
  • Thinking about different alternatives leads to discoveries

Innovators DNA

❖ Observing
  • Preferred to do this to understand your customer needs
  • Make sure to also observe current operational practices
  • Minor details might be the most important

❖ Experimenting
  • Need to create interactive experiences and prototypes
  • This process allows for a better understanding of the product’s strengths and weaknesses

❖ Networking
  • Consciously meet new people have new experiences

Innovators DNA

- Five common behaviors (‘discovery skills’) in the most innovative entrepreneurs
  - Associating
  - Observing
  - Questioning
  - Experimenting
  - Networking

- These skills can be learned through practice

- Requires creative intelligence

### Discovery Skills Examples

<table>
<thead>
<tr>
<th><strong>Innovation</strong>..</th>
<th><strong>Some strategies</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Read a book, join a list serve</td>
</tr>
<tr>
<td>Experience</td>
<td>Join or create a team, project</td>
</tr>
<tr>
<td>Questioning</td>
<td>Spend 15 min a day asking “what if” and “why” questions</td>
</tr>
<tr>
<td>Associating</td>
<td>Get outside of pharmacy. Go to other fields seminars, literatures, field trips..</td>
</tr>
<tr>
<td>Experimenting</td>
<td>Try something new, reflect on what happens</td>
</tr>
<tr>
<td>Networking</td>
<td>Hold idea meetings with creative people</td>
</tr>
<tr>
<td>Observing</td>
<td>Observe a problem you are trying to solve</td>
</tr>
<tr>
<td>Creation</td>
<td>Make something, have someone critique, make it again</td>
</tr>
</tbody>
</table>
Kaizen Process

1. Define problem
2. Document current situation
3. Visualize ideal situation
4. Define measurement targets
5. Brainstorm solutions to the problem
6. Develop mini-experiments and solutions
7. Implement, measure, and analyze results
8. Gather insights
9. Create action plan, communication plan, and sustaining plan
Creative Confidence

- Creativity is the most sought after trait in leaders today
- Due to education and social norms, many of us have lost our creativity
- Fears that hold back our creativity
  - Fear of messy unknown
  - Fear of being judged
  - Fear of the first step
  - Fear of losing control
- Following certain steps can unlock creativity and will help you develop other facets of your life

Now that we understand innovation

- How do we get started?

- Where do we apply these skills?
  - Our residency program?
  - Our pharmacy department?

- Who should lead innovation within the department and profession?

- But what about the all of the risk?
## Applying Innovation

<table>
<thead>
<tr>
<th><strong>Entrepreneur</strong></th>
<th><strong>Intrapreneur</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Works for self</td>
<td>Works for an organization</td>
</tr>
<tr>
<td>Success defaults to the</td>
<td>Success defaults to the</td>
</tr>
<tr>
<td>individual</td>
<td>organization</td>
</tr>
<tr>
<td>Failure – individual held</td>
<td>Failure – organization held</td>
</tr>
<tr>
<td>accountable for losses</td>
<td>accountable for losses</td>
</tr>
</tbody>
</table>


Intrapreneurship

- Entrepreneur:
  - “a person who organizes and manages any enterprise, especially a business, usually with considerable initiative and risk”

- Acting like an entrepreneur within a larger company
  - “intra” – internal
  - “preneurship” – willing to try new things

www.Investopedia.com; www.dictionary.com
Intrapreneurship – Characteristics

- Self-motivated & proactive
- Ability to ”think outside the box”
- Risk-taking
- Leadership
- Takes initiative, even within the boundaries of a company
Why does pharmacy need innovation and intrapreneurship?

Emerging Technologies

Spending on Meds Hit Record High Last Year

Continuing healthcare quality crisis

Changing roles for pharmacy
Innovation Thoughts

- Each of us have the capacity to be creative and innovative
- Even if your departmental and residency culture is outside of your ability to change:
  - We need to expose our residents to this process
  - Each of us can make recommendations on how to improve activities within the workplace and residency
  - Be willing to lead the implementation
Starting Innovation and Intrapreneurship

- Find areas needing improvement
  - Continual complaints or need of service recovery
  - Frequent discussion topics
- Understand from other industries strategies for success
- Creatively think of ways to make it better
  - Do this away from work and busy activities
  - Allow for free association and don’t stop after a few good ideas
- Test your ideas and refine as needed
- Don’t be afraid of failure or conformity of ideas to tradition
- Continue to refine and share widely
Guidelines for Brainstorming

- Decide upon a goal (e.g. most motivating idea)
- Don’t criticize – yourself or others
- Go for quantity
- Headline your idea
- Build on the ideas of others
- Have only one conversation at a time
- Stay focused on the topic
- Encourage wild ideas
- Write down EVERY idea
- Be visual

IDEO - A design and consulting firm
Innovation opportunities within pharmacy

- Medications, devices, and information systems
  - New drugs or delivery (traditional pharmaceutical sciences)
  - Computer programs and other information system improvements

- Practice models
  - New ways to utilize pharmacists
  - Innovative business models to justify activities

- Pharmacy residency
  - Unique ways to justify new positions
  - Developing novel methods to train

- Creating standards of care
  - Working within the state / nationally to take new activities and disseminate them to other settings (implementation sciences)
Intrapreneurship within Health-System Pharmacy

- Creation of a business plan for new pharmacy services
  - Allows for leveraging new resources
  - Requires accountability and return on investment
- Identification of better ways to operationalize services
  - Utilizes creativity to identify novel methods
  - Requires to organize people and processes for impact
- Seeking improved ways to manage departmental finances
  - Creating an agile department that can take advantage of new opportunities and pivot as necessary
- Depending on what is the solution, always consider intellectual property opportunities and publication
Strategies to Overcome Current Problems

- Embrace the opportunity mindset
- Become an assumption assaults
- Think ahead of the curve
- Cultivate the culture
- Fortify the idea factory

- “Innovation is everybody’s business”

Robert B. Tucker - AACP 2016
Innovative Activities to Highlight

- Flipped residency research process
- Leadership certificate
- Educating hospital administration on value of residents
- New model for travel reimbursement
Idea highlights

- These suggestions did not originate from the residency research team
  - Were from various people within the department, including residents
- Culture of being willing to listen to new ideas was part of the residency (and department) DNA
  - Led to people willing to provide ways to improve
- Residency leadership is always willing to pilot these new ideas
  - No one should feel the weight of failure
Flipped Residency Research Process

- Managed by the residency research committee
  - Ashley Pappas
  - Nicki Pinelli
  - Kathryn Morbitzer
Project on residency research

- Examine impact of pharmacy residency research training on residents’ actual versus perceived ability to solve practice-related problems in their professional careers

- Assess research process efficiency of the residency research training mechanism

## Survey Results

### Table 3. Self-Reported Research Productivity

<table>
<thead>
<tr>
<th>Productivity Measure</th>
<th>All Participants (n = 27)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Productivity During Residency</strong></td>
<td></td>
</tr>
<tr>
<td>Status of PGY1 Research Project</td>
<td></td>
</tr>
<tr>
<td>Never Submitted</td>
<td>15 (55.6)</td>
</tr>
<tr>
<td>Not Accepted for Publication</td>
<td>6 (22.2)</td>
</tr>
<tr>
<td>Published</td>
<td>3 (11.1)</td>
</tr>
<tr>
<td><strong>Productivity After Residency</strong></td>
<td></td>
</tr>
<tr>
<td>Current Involvement in Research</td>
<td>23 (85.2)</td>
</tr>
<tr>
<td>Clinical Research</td>
<td>20 (74)</td>
</tr>
<tr>
<td>Precepting Learner Projects</td>
<td>15 (55.6)</td>
</tr>
<tr>
<td>Medication Use Evaluation</td>
<td>12 (44.4)</td>
</tr>
<tr>
<td>Participants with Publications</td>
<td>13 (48.2)</td>
</tr>
<tr>
<td>Participants with &gt; 1 Publications</td>
<td>6 (22.2)</td>
</tr>
</tbody>
</table>

Survey Results

- Objective assessment of research process efficiency at UNCH from 2007 – 2013 (39 total projects)
  - Median time to IRB approval was 119 ± 36.5 days from start of residency program (n = 35)
  - Of those projects presented at SERC (n = 38), 8 included results and conclusions at time of SERC abstract submission
  - Of the 3 residents who published their research project, median time to acceptance from SERC presentation was 808 ± 221.5 days

Current PGY-1 Resident Research Process

- To better expose PGY-1 residents to foundational research components, PGY-1 residents participate in a flipped research process
  - Started with 2013 – 2014 PGY-1 resident class
PGY-1 Flipped Residency Research Process

1. Data Collection, Entry, & Management
2. Data Analysis
3. Presentation and Publication
4. Generate Idea
5. Perform Background Literature Search
6. Construct Specific Aims & Hypotheses
7. Develop Feasible Protocol
8. Obtain IRB Approval
PGY-1 Flipped Residency Research Process

Phase 1: Exposure
- Select IRB approved project
- Data Collection
- Data Analyses
- Present poster

July of PGY-1

Phase 2: Synthesis
- Create and submit project proposal for incoming PGY-1 residents
- Develop manuscript for Phase 1 project

January of PGY-1

Phase 3: Layered Learning
- Contribute as project mentor

July of PGY-2
Success of Flipped Research Process

- Improved on research process efficiency
  - IRB approval
  - Poster presentation with results at UHC
- Increase in manuscript productivity
- Due to the success of the program, the Resident Research Oversight Committee will expand the flipped process to interested PGY-2 programs starting in the 2016 – 2017 residency year
UNC’s Pharmacy Resident Leadership Certificate

- Developed and managed by UNC residents
- Led by Kayley Lyons, PharmD, MS, BCPS
  - UNC Health System Pharmacy Administration Resident: 2012 – 2014
21st Century Skills

Global Achievement Gap¹
- Critical Thinking and Problem Solving
- Collaboration across networks and leading by influence
- Agility and Adaptability
- Initiative and Entrepreneurialism
- Effective oral and written communication

Creating Innovators²
- Perseverance
- Willingness to experiment
- Take calculated risks
- Tolerate failure
- Design Thinking

Skills for Health Care Leaders

- Systematic review by Stoller et al.
- Methods - 16 reports on physician leadership
- Results – 6 domains

- Technical knowledge and skills
- Knowledge of healthcare
- Problem solving prowess
- Emotional Intelligence
- Communication
- Commitment to lifelong learning

Stoller JK et al. Acad Med 2013(88)12-15
Core Competencies

Leading Yourself
- Self Awareness
- Adaptability
- Accountability

Leading Others
- Communication
- Relationship Building

Leading the Profession
- Creative Thinking
- Service
Learning Objectives

1. Define the eight facets of *principle centered leadership*
2. Demonstrate growth in one of the four aspects of *Emotional Intelligence*
3. Identify *personal strengths* and strategies to leverage individual strengths in future pursuits
4. Understand how to build *collaborative relationships* with colleagues, mentors, and mentees
5. Adapt *communication* style to influence audiences and reach desired outcomes
6. Develop strategies to hold oneself and each other *accountable* in group settings
7. Appreciate the personal and communal benefits of *altruism*
8. Describe *innovation* constraints at the individual, group, organization, and market level and identify strategies to overcome these innovation constraints

[http://tinyurl.com/little-l-leaders](http://tinyurl.com/little-l-leaders)
Required topic series

**Leading Yourself**
- Self Awareness
- Self-Management
- Self-assessment
- Principle-centered leadership

**Leading Others**
- Social Awareness
- Relationship Management
- Mentorship
- Crucial conversations

**Leading the Profession**
- Innovation
- Altruism
- Leading change
Flexible components

- Mentorship program
- Optional leadership topics
- Leading a topic
- Leadership in Motion Project
- Peer tri-pods
- Interview a leader
- Chief resident
- Professional involvement
- Extra service
Results: 1\textsuperscript{st} year focus group

Assessment (17)
- Expectations (8)
- Support by residency leadership (6)
- Topic series oversight (5)
- Time (1)

(votes)
- Reflection and self-awareness (10)
- Resident bonding (10)
- Improved competencies (9)
- Applied knowledge (8)
- Growth in perspective (3)
# Results: 1st year Program Evaluation

<table>
<thead>
<tr>
<th>Statement</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>The time I spent on this program was worthwhile</td>
<td>4.41</td>
</tr>
<tr>
<td>I would encourage future residents to participate in this program</td>
<td>4.76</td>
</tr>
<tr>
<td>I found this program to be professionally rewarding</td>
<td>4.53</td>
</tr>
<tr>
<td>I have a different view of &quot;leadership&quot; compared to before participating in this class</td>
<td>4.18</td>
</tr>
<tr>
<td>I will apply the information obtained from this program in some aspect of my career and/or life</td>
<td>4.65</td>
</tr>
<tr>
<td>I am interested in continuing my leadership development</td>
<td>4.71</td>
</tr>
<tr>
<td>I would have been able to commit more time and effort to this program</td>
<td>2.94</td>
</tr>
<tr>
<td>The time and effort commitment was too much for this program</td>
<td>2.41</td>
</tr>
</tbody>
</table>
RPD Perspectives

- Balancing support vs ‘experience’
  - Offer a teaching certificate: should participation be mutually exclusive?
  - If resident idea, how will it become sustainable?
  - All residents have lots of ideas and time at the beginning – what will happen in a few months?
  - Do our residents have capacity?

- Supported it and very glad we did
  - Extremely popular with residents
  - Helped infuse innovative culture
Strategizing on Resident Growth

- RPDs and Departmental Leadership team
  - All understand the value that residents bring to our department
  - Approval of resources have been led by director, managers, residency leadership team, and RPDs
Residency expansion strategies

General

- Utilize every opportunity to involve residents in meetings with various administrators, physicians, and nurses
- Develop departmental support for residency program (not just a program led by a few)
  - Residents staff and are involved in all areas of the department
- Create annually a resident’s activities list (contributions to the department) and share it broadly
Residency expansion strategies

- **PGY1**
  - Take full advantage of residency pass through dollars and consistently share with hospital executives
  - Dollars are then applied to PGY2 programs
- **Critical Care** – received an ASHP Foundation Residency expansion award
  - Projects focused on the benefit of a second resident and led to a second position
Residency expansion strategies

- **Oncology**
  - Grew from 1 to 4 residents
  - Justification based upon a clinical service availability 7 days a week to BMT service patients

- **Cardiology** – expansion into ambulatory care allowed for justification of second position
  - Ambulatory care pharmacist can see more patients
  - Utilization of layered learning practice model (LLPM) in ambulatory care setting
Residency expansion strategies

- Health System Medication Management
  - Capitalize on UNC health system integration
  - Combines medication safety, drug information, HSPA, and informatics at health system level

- Pharmacotherapy
  - Moved to a two-year program due to CMS pass through dollars

- Program flexibility
  - Will make sure to fill full complement each year (positions are needed)
Travel dollars

- One issue with a large and growing program
  - Need more of everything (rotations, research projects, and travel dollars)

- Travel dollars:
  - 33 residents and $1500: ~$50,000 per year
  - Been difficult to justify and balance for the department

- Increasing salary of each resident and this will be used for covering all travel (and provides flexibility with reimbursement)
Conclusions

- Innovation and intrapreneurship are skills that are as important today in health care than ever before.
- Each of us can be creative and innovative in mindset and actions.
- Innovation is a skill we need to utilize in our residency programs and departments (be an example first) and train our residents in it.
- We need to share as there is so much we can learn from each other.
  - No one has the corner on innovation and innovative ideas.
Recommended Readings

- Ten Types of Innovation – Larry Keely
- 101 Design Methods – Vijay Kumar
- Group Genius / Zig Zag – Keith Sawyer
- Innovators Prescription – Clayton Christensen
- Business Model Generation / Value Proposition Design – Osterwalder
- Creative Confidence – Kelley and Kelley
- Innovation and Entrepreneurship – Peter Drucker
- Diffusion of Innovations – Everett Rogers
- The Tipping Point / Outliers – Malcolm Gladwell
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