“Technology Drill Down”
days
at The Ottawa Hospital:
An end-user Engagement Tool

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Anne Gilchrist, RN, MSc
CNIA Conference
November 23, 2009
Presentation Outline

- Introduction

- What are Technology Drill Down days?

- The Ottawa Hospital’s experience
  - Proposal, planning and getting support
  - Implementation
  - Findings

- Discussion
  - a tool for you to consider as part of your own end user engagement strategy?
  - Question period
The Ottawa Hospital
L’hôpital d’Ottawa

- Tertiary Care Academic Health Science Centre
- Multi-site:
  - Civic Campus, General Campus, Riverside Campus, Cancer Centre, Heart Institute, The Rehabilitation Centre
- Serves Eastern Ontario and Iqaluit, situated in the Champlain LHIN (Local Health Integration Network)

- 4500 nurses
- Nursing Professional Practice Structure
- Senior VP and Chief Nursing Executive: Dr. Ginette Rodger
Nursing Professional Practice
Relational Structure

Corporate Nursing Clinical Practice Committee

Unit Nursing Clinical Practice Committee

Unit Councils or Staff Meetings
Journal Clubs

Reflective Groups

Senior Management/
Program Management/
Services Management/
Professional Leaders/
Medical Advisory Committee

Professional Advisory Committee

Implementing Best Practice
Nurse-Patient Interaction
Health Literacy
Nursing Informatics
Qualitative Nursing Research
Impact of Head Injury

Nursing Professional (NPP)
Practice Committee

Committees

Nursing Recognition
Nursing R&R (Recruitment & Retention)

Nursing Domains Leadership
PP & P (Policies, Procedures & Protocols)

Universities - NPP
Nursing Management
Diverse Nursing Roles

Model of Nursing Care Delivery
Nursing Communication

APN (Advanced Practice Nurse)
Nursing Quality
Nursing Education

ONA-NPP (Ontario Nurses Association - Nursing Professional Practice)
Nursing Knowledge Translation

Fundraising

NPPD Relational Structure July 2007

Work groups (some work groups may have subgroups)
What are Technology Drill Down days?
What are “Technology Drill Down days”? 

- “American Academy of Nursing’s (AAN) Workforce Commission was formed in 2000 to develop strategies for dealing with the nursing shortage with the unique perspective of reducing the demand on nurses’ time.”

- In 2005 the Robert Wood Johnson Foundation (RWJF), awarded a grant to the American Academy of Nursing (Nursing Workforce Commission) for a project called:

  “Technology Targets: A Synthesized Approach for Identifying and Fostering Technological Solutions to Workflow Inefficiencies on Medical Surgical Units.”

- A major component of Technology Targets is a process called **Technology Drill Down (TD²)**.
Technology Drill Down Sites

25 sites, representing over 200 patient care units and 1000 participants
## Site Demographics

<table>
<thead>
<tr>
<th>Size of institution</th>
<th>Geographic Location</th>
<th>Organization Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>8% (&lt; 100 beds)</td>
<td>8% Rural</td>
<td>4% Government</td>
</tr>
<tr>
<td>20% (101-250 beds)</td>
<td>72% Urban</td>
<td>18% Private</td>
</tr>
<tr>
<td>36% (251-500 beds)</td>
<td>20% Suburban</td>
<td>39% Community</td>
</tr>
<tr>
<td>36% (&gt; 500 beds)</td>
<td></td>
<td>39% Academic</td>
</tr>
</tbody>
</table>
Technology Drill Down Days

Healthcare Industry Trends:

- Too many patients
- Increased patient acuity
- Information overload (terabytes)
- Regulatory demands
- 4 generations in the workforce
- Technology explosion
- Complexity Compression
- Nursing Shortage

What nurses experience when expected to assume additional, unplanned responsibilities while simultaneously conducting their multiple responsibilities in a condensed time frame
Predicted Nursing shortage

- There is a predicted gap of 31% between available supply of nurses and demand for nursing services in Canada by 2016 (CNA, 2006)

- Current R & R strategies may not be able to keep up with patient care demands

- Need to improve the practice environment as a key strategy

- Increasing capacity within teams is also necessary:
  - increasing available nurse hours by 30 minutes/patient day is associated with decrease in adverse events (Kovner & Gergen, 1998)
Technology Drill Down Process

1. Identification/validation of major work categories
2. Map out current state
3. Brainstorm future desired state
4. Map out future desired state
5. Identification of technologies to help bridge the gap
Consistent with the philosophy of Lean Organizational Thinking

Toyota continuously encourages employees to identify **value add & non value add**: “A key feature of such lean systems is that they focus on eliminating waste, or *muda*, which is defined as activities that absorb resources but create no...
Non value add vs Value add

Misuse of nursing knowledge and skills

- Nurses in practice environments with a disproportionately higher ratio of low level to high level skill had a **higher rate of burnout and turnover**

<table>
<thead>
<tr>
<th>Low Level</th>
<th>High Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Hunting and gathering for equipment and supplies</td>
<td></td>
</tr>
<tr>
<td>● Documentation of demographics</td>
<td></td>
</tr>
<tr>
<td>● <em>Feeding, toileting, bathing, specimen collection and transfers</em></td>
<td></td>
</tr>
<tr>
<td>● Waiting for data or information to provide care</td>
<td></td>
</tr>
<tr>
<td>● Assessment and planning</td>
<td></td>
</tr>
<tr>
<td>● Intervention requiring RN knowledge &amp; skill</td>
<td></td>
</tr>
<tr>
<td>● Consults with MD and team members</td>
<td></td>
</tr>
<tr>
<td>● Teaching and care management</td>
<td></td>
</tr>
<tr>
<td>● Coordination of Care</td>
<td></td>
</tr>
</tbody>
</table>

*Time and Motion study by Heindrich et al., suggest that 30% of current nursing care time falls into this category (& 20% for documentation)*
Proposal, Planning and Getting Support
Planning Phase

Solicited feedback and input from Clinical Directors

The 2 units selected to participate:

- Medical-Oncology Unit at TOH General Campus
- General Surgery/Urology Unit at TOH Civic Campus
# Participation in Drill Down Day:

<table>
<thead>
<tr>
<th>Medical Oncology Unit</th>
<th>General Surgery/Urology Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In Kind Contributions:</strong></td>
<td><strong>In Kind Contributions:</strong></td>
</tr>
<tr>
<td>- Clinical Manager</td>
<td>- Clinical Manager</td>
</tr>
<tr>
<td>- NPPD (2)</td>
<td>- Nurse Educator</td>
</tr>
<tr>
<td>- IS (2 clinical analysts and 1 Director)</td>
<td>- NPPD (1)</td>
</tr>
<tr>
<td></td>
<td>- IS (2 clinical analysts and 1 Director)</td>
</tr>
<tr>
<td><strong>RNs:</strong> 6 (8 confirmed)</td>
<td><strong>RNs:</strong> 4</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Health Care Professionals</strong></td>
<td><strong>Health Care Professionals</strong></td>
</tr>
<tr>
<td>- PTA</td>
<td>- PT</td>
</tr>
<tr>
<td>- SW</td>
<td>- PCA</td>
</tr>
<tr>
<td>- Dietician</td>
<td></td>
</tr>
<tr>
<td>- Pharmacist</td>
<td></td>
</tr>
<tr>
<td>- OT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total # of Participants:</strong> 17</td>
<td><strong>Total # of Participants:</strong> 12</td>
</tr>
</tbody>
</table>
8 Work Categories (AAN, 2008):

1. Admission Discharge/Transfer
2. Care Coordination
3. Care Delivery
4. Communication
5. Documentation
6. Medication
7. Patient Movement
8. Supplies and Equipment
Implementation of the actual Technology
Drill Down days
Process & Outcomes for the day

Identification/validation of major work categories

Map out current state

Brainstorm future desired state

Map out future desired state

Identification of technologies to help bridge the gap

Identify top 4 issues ‘ripe’ for technological fixes

1 Admission /Discharge/Transfer
2 Care Coordination
3 Care Delivery
4 Communication
5 Documentation
6 Medication
7 Patient Movement
8 Supplies and Equipment
Which Categories to focus on?

- Three subcategories accounted for most of nursing practice time:
  - **Documentation**: 35.3%
  - **Medication Administration**: 17.2%
  - **Care Coordination**: 20.6%
  - **Patient Care Activities**: 19.3%
  - **Patient Assessment and Vital signs**: 7.2%

*source: Time & Motion study: How Do Medical-Surgical Nurses Spend Their Time? (Heindrich et al., 2008)*
# Selected areas of focus:

<table>
<thead>
<tr>
<th>Medical Oncology Unit</th>
<th>Surgical/Urology Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Documentation</td>
<td>● Documentation</td>
</tr>
<tr>
<td>● Medication</td>
<td>● Equipment &amp; Supplies</td>
</tr>
<tr>
<td>● Care delivery</td>
<td>● Communication</td>
</tr>
<tr>
<td>● Communication</td>
<td></td>
</tr>
<tr>
<td>● Care Coordination</td>
<td></td>
</tr>
</tbody>
</table>
## Technology Drill Down Day: Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 – 8:30</td>
<td>Registration and Continental Breakfast</td>
<td></td>
</tr>
<tr>
<td>8:30 – 8:45</td>
<td>Welcome and Background Information</td>
<td>Julie Latreille</td>
</tr>
<tr>
<td>8:45 – 9:00</td>
<td>Identification of Work Categories</td>
<td>Julie</td>
</tr>
<tr>
<td>9:00 – 9:45</td>
<td>Defining Current State in selected Work categories on the unit</td>
<td>Work groups of ~ 5</td>
</tr>
<tr>
<td>9:45 – 10:00</td>
<td>Health Break</td>
<td></td>
</tr>
<tr>
<td>10:00 – 11:15</td>
<td>IS Strategic Plan to Support Quality and Patient Safety at TOH</td>
<td>Dr. Glen Geiger (CCIO)</td>
</tr>
<tr>
<td>11:15 – 12:15</td>
<td>Sharing of current state work categories and identification of areas for future state work</td>
<td>All</td>
</tr>
<tr>
<td>12:15 to 13:00</td>
<td>Lunch (provided)</td>
<td></td>
</tr>
<tr>
<td>13:00 – 14:00</td>
<td>Emerging Technologies</td>
<td>Julie</td>
</tr>
<tr>
<td>14:00 – 15:00</td>
<td>Brainstorming the future state</td>
<td>Groups</td>
</tr>
<tr>
<td>15:00 – 15:15’</td>
<td>Health Break</td>
<td></td>
</tr>
<tr>
<td>15:15 – 15:45</td>
<td>Sharing future state work</td>
<td>All</td>
</tr>
<tr>
<td>15:45 – 16:00</td>
<td>Identifying a List of Technologies &amp; Functional Requirements</td>
<td>All</td>
</tr>
<tr>
<td>16:00 -16:30</td>
<td>Wrap Up</td>
<td>Please complete and return evaluation form!</td>
</tr>
</tbody>
</table>
Medication Process Map

CURRENT STATE

- [EMERG] [planned] Med Hx
  
  Orders on Adm. Med.Recom
  
  order goes to Pharm (tube)
  
  Filings slots
  
  screening order
  
  duplication/sequencing/error
  
  nurse leaves patient care interruption

- DIAMOND
  
  call RN
  
  photocopy
  
  phone call to Nursing
  
  prep/dispensing
  
  labelling/double check

01.04.2009 19:32
Medication Process Map
Summary of Findings

Major Process Issues Identified:

- Inefficient modes of communication
- Inconsistent (and at times complex) manual processes
- Data availability is an issue (either not there or difficult to find)
- Duplication of effort for assessments, medication reconciliation, medication administration and documentation
- Patient chart (difficulty locating and/or fragmented)
- Supply and equipment difficulty in locating or not on unit
The Top 4 types of technology selected:

1. communication devices
2. e-documentation
3. CPOE with e-MAR and BCMA
4. charting and information/clinical decision support devices

Also on the short list were:

- tracking systems for medication and equipment
- transfer of patient data such as IV information and vital signs
Brainstorming the future state

The Functionality requested:

1. Integrated
2. Point of care and/or mobile
3. Smart
4. Wireless
5. Touch screen
6. Voice activated
7. Bar coding scanning
8. RFID tags
Technology Drill Down Days as an end-user Engagement Tool

“We can only succeed in making electronic health records a reality if healthcare providers adopt the technology. Without their acceptance, our efforts are futile.”

Richard Alvarez President and CEO
Canada Health Infoway
An end-user Engagement Tool

Why its important to engage nurses:

- Essentially we have our nurses working in a complex, chaotic and in many times an overwhelming: “web of workflow and communications prone to resources or decision bottlenecks, communication gaps, missed or delayed tasks, and inappropriate use of valuable resources” (California HealthCare Foundation, 2008)

- Because nurses work at the centre of a complex web of care delivery it’s important to involve them in the process of technology selection, process re-design, implementation and evaluation and to make their needs a high priority
Comments from participants:

What was the most important thing you learned today?

- That technology can improve workload stress
- How complex the task is; fact that there are a lot of things that could be done to improve our efficiency with the difference technologies linked together
- This was a great opportunity to learn about future options for improving care
- Exciting new technology is in the future
Comments from participants:

“The team is still buzzing about it and the overall chatter has been very positive and is generating excitement about future initiatives! Many of them still can’t believe that as front line staff that they were truly and honestly asked for their thoughts and feedback at such a level. They were very impressed that there were no restrictions on what they had to offer as comments or offer as dreams. They also enjoyed the fact that their priorities for what they would like to change drove the agenda.” (Mario DaPonte, Clinical Manager, Medical Oncology, TOH General Campus)
Limitations

- Although supported by IS, this was not an IS initiative, (only work from an Independent study for a graduate course in Nursing Informatics)

- Recruitment of participants

- Limited ability for us to follow through on suggestions from the drill down days…. Inability to deliver on the suggested changes

- Resource intensive
Would you consider this tool as part of your own end user engagement strategy?

Could technology decrease the nurse to patient ratio needed for optimal patient outcomes?
  - increasing efficiency of nurses.... eliminating waste.....creating leaner workflow processes
Contact Information

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- Quality Improvement Coordinator: Critical Care/Emerg (The Ottawa Hospital)

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- Learning Resources Consultant, Centre for Nursing Excellence, Nursing Professional Practice (The Ottawa Hospital)
- Faculty Lecturer, Nursing Informatics Course (NSG 4132) (University of Ottawa)
Acknowledgements

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  - Glen Geiger, Marlene Ghattas, Michelle Leafloor, Val Gamache
    - Clinical Analysts
- Participants in the Technology Drill Down Days
- Clinical Managers: Mario Deponte and Marnie Houlanah


