Incorporating Business Process Management, Business Ontology and Business Architecture in Medication Management Quality

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Speaker Disclosure

Nothing to Disclose
Acknowledgement

• Workshop & Working Group Participants
• Interview Participants
• Planning & Performance Improvement Team
• PhD Supervisory Committee
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• Dr. Dana Cole
• Professor Mark von Rosing
Agenda

• Introduction
• Literature Review
• Research Methodology
• Results
• Limitations & Research Contribution
Objective 1

• Determine the impact of introducing BPM, BPMO and BA to improve medication management quality in a publicly-funded health care.

• What performance measurements in addition to medication errors are appropriate for monitoring and controlling Medication Management?
• How can BPM be effectively applied to a situation that involves multiple sites and multiple business units responsible for Medication Management functions?
Objective 2

- Explore the perceived challenges and benefits of using BPM, BPMO, and BA in a healthcare organization
- How can a Business Process Management Ontology used in other industries be effectively applied to healthcare services?
- What are the benefits and challenges of using BPM, BA and BPMO to improve Medication Management?
Objective 3

• To create a process reference model for medication management which could potentially be adopted by other healthcare organizations interested in applying BPM to improve medication management processes within their organization.

• What processes should be included in a process reference model for Medication Management applicable to hospitals and long term care facilities?
Host Organization

• Northern Health – one of five geographic health authorities in BC 
  approximate population 300k spread across 600k square kms
  • 18 Acute Care Hospitals (including complex care beds in 10 of the smaller hospitals)
  • 9 Diagnostic & Treatment Centres
  • 13 standalone complex care facilities
  • Community and primary care services in communities across Northern BC

• Limited use of Business Architecture, Business Ontology and BPM at the initiation of the research
Literature Review Topics

• High Quality Medication Management
• Medication Management – Standards, Guidelines & Legislation
• Business Process Management & Enterprise Architecture
• Understanding the System
• Business (BPM) Ontology
• Reference Model
Rationale for the Research

Interest in exploring a comprehensive, effective approach to quality improvement in health care organizations

Why medication management?

Medication errors have been identified as one of the most common reported adverse events in health care settings.

Host Organization had identified medication safety as one of its top 8 strategic areas of focus for quality improvement.
Mixed Methods Research Design

Qualitative Methods
- Design of Business Artefacts
- Interviews
- Case Study
- Qualitative Content Analysis

Quantitative Methods
- Statistical Process Control Charts
- Analytical Hierarchy Process
- Repeated Measures
Workshops

Used to explore the end to end medication management and develop relevant business artefacts

- 3 workshops held between December 2016 and February 2017
- Attendance high of 22 low of 13 (attendees were multi-disciplinary with a specific interest in the quality of medication management within the host organization)
Working Groups

• Monthly working group meetings February 2017 to September 2017
  • Measurement Working Group – identified key performance indicators and key process indicators to be used to monitor and control medication management within the host organization
  • Prioritization Working Group – prioritized identified process improvement initiatives using the Analytical Hierarchy Process
Business Artefacts Developed

- Strategy Map
- Strategy Canvas
- Business Competency Model
- Value Chain
- Strategic Action Plan
- Prioritized List of Improvement Initiatives
- Performance Monitoring Plan
Strategy Map – Medication Management

• 4 Strategic Business Objectives
  • Improve Clinical Outcomes
  • Improve Patient and Family Experience
  • Improve Staff, Physician and Clinical Student Experience
  • Control Per Patient Cost

• 19 Critical Success Factors

• 48 KPIs related to the Critical Success Factors
1.0 Improve Clinical Outcomes

1.1 Ensure medication reconciliation at all transitions in care

1.2 Improve communication of medication care plan and plan of care at all transitions

1.3 Ensure Optimal Medication Prescribed

1.4 Ensure medications are accurately and appropriately dispensed

1.5 Ensure Medications are accurately and appropriately administered
Business Competency Model

• Business Areas
  • Pharmacy (Clinical Pharmacy, Pharmacy Administration & Governance, and Medication Supply Chain)
  • Acute Care
  • Long Term (Complex Care)
  • Home Support
  • Primary Care
  • Specialized Community Services
  • Records Management
  • Population & Public Health (Harm Reduction Program)
Medication Management Value Chain
Prioritization Criteria

• Business Continuity
• Feasibility
• Patient Safety
• Worker Safety
• Process Maturity
• Strategic Alignment
• Financial Impact
Prioritization of Initiatives

• Used Analytical Hierarchy Process to prioritize 17 of the initial 29 initiatives considered

• 12 not prioritized because 8 were complete, 2 were mandatory and 2 were not suitable

• Top Three prioritized initiatives
  1. Medication Reconciliation
  2. Medication Prescribing Compliance with Safe Medication Order Writing
  3. Establish and maintain Antimicrobial Stewardship Interdisciplinary Committee
Strategic Action Plan

• CSF
• KPI
• Key Work Element
• Milestone
• Executive Accountability
• Milestone Accountability
Performance Monitoring Plan

- 91 Total KPIs and PPIs identified
- 48 from Strategy Map
- 61 from Strategic Action Plan (includes 27 from the Strategy Map)
- 18 suitable for Executive reporting
- 66 of the 91 total were currently available for reporting remaining 25 would need to be developed
Semi-structured Interviews

• Workshop Participants
  • 11 of potential 20 (55%)

• Organizational Senior Leaders
  • 21 of potential 73 (29%)

• Themes:
  • Capacity Building
  • Communication
  • Collaboration
  • Competing Priorities
  • Connection to Strategy
  • Culture
Process Reference Model

• 164 Processes
• 25 Process Groups
• 4 Process Areas
Development of Process Reference Model
Limitations

• Timing
• Objectivity
• Transferability
Research Contributions

• Increased organizational knowledge and understanding of the medication management process
• Documentation of a medication management process reference model
• Demonstration of the application of a comprehensive management approach to quality improvement combining BPM, BPMO and BA
Future Research Suggestions

• Test and validate the medication management process reference model in other healthcare organizations

• Complete a longitudinal research study by repeating the interview process with organizational leaders in the host organization over the subsequent years

• Expand the use of the comprehensive approach to other end-to-end healthcare processes