Mesosystems and pathways: Idealized design

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Activity

- Please form a line in rank order of distance travelled to the Forum
Activity

- Please form a line in rank order of distance travelled to the Forum

- Introduce yourself with:
  - Name
  - Place of work
  - Role
  - Expectation of the day

Description

- Organizations are becoming more and more aware of the need to improve, coordinate, and design “mesosystems” of care—that is, two or more microsystems and patient pathways.

- We will explore acquiring the essential skills of assessment, creating community, leveraging relationships across the organization, and developing leadership.
Objectives

• Identify and assess one mesosystem of care
• Practice designing and using the central data room to drive innovation and the monitoring of improvement
• Design an individual action-plan to assess, redesign, and monitor a mesosystem in your organization

Agenda

1:00 Welcome, introductions & overview Margie
1:15 Charlotte story Tom
  - What does Charlotte need? Table buzzing
1:45 Define mesosystems and relationships Margie
  - Improvement within the micro/meso/macro frame
  - Participants identify a mesosystem
2:15 Key tools and processes to support redesign and continuous improvement Margie
2:30 Break
2:45 Oobeya Case Study Tom
3:15 Table teams work through case study using tools All in pairs
4:00 Report outs including how to apply in own setting All
4:20 Summary and lesson learned Tom +
4:30 Adjourn Margie
Healthcare inflation

- 4.3% per year over the last 30 years
- Driven by technology and expectation
- Only 0.4% attributable to ageing
- Need to deliver over 20% more care in 5 years' time
- Need to deliver over 50% more care in 10 years' time

UNSUSTAINABLE

Rises in healthcare spending: where will it end?
Jon Appleby, BMJ 1st November 2012

CHARLOTTE
High-Value Health Care Organizations

The Four Habits of High-Value Health Care Organizations

Recent attention to the question of value in health care — the ratio of outcomes to long-term costs — has focused on problems of definition and measurement: what outcomes and which costs? Less attention has been given to an equally difficult but important issue: how do health care delivery organizations reliably deliver higher value? It would certainly simplify health care reform if we could show the superiority of a dominant delivery model. Is the accountable care organization or the medical home model still the best moves forward?

SPECIFICATION AND PLANNING
- criteria-based decision making operationally and clinically

INFRASTRUCTURE DESIGN
- match populations and pathways, involve staff and patient in outcomes reporting

MEASUREMENT AND OVERSIGHT
- For process control and performance management

SELF-STUDY
- Examine positive and negative deviance in care and outcomes

Systems

- It is the nature of systems that smaller systems are embedded in bigger systems

Systems Inside Systems

Self-care system
Individual care-giver & patient system
Mesosystem
Microsystem
Macrosystem
Market / Geopolitical system
Microsystems

- “Every system is perfectly designed to get the results it gets”

  • Paul Batalden

- Smallest replicable unit in health care.
- Intersections between patients, families, health care professionals, technology, information
- Shared aim with process and business outcomes
Microsystems Are The *Building Blocks* That Come Together To Form Mesosystems & Macro-organizations

The health system can be no better than the small systems ...

Transformation Equation

\[ Q_{HS} = Q_{M1} + Q_{M2} + Q_{M3} + Q_{MN} \]

Note: Quality (Q) of the whole healthcare system (HS) is equal to the quality of care for individual patients within each microsystem (M₁ to Mₙ) that cares for the patient plus the handoffs -- of patients, information, and supporting services -- that occur between microsystems (+, +, +) that are involved in the care of each individual patient
“It is easy to view the entire health care continuum as an elaborate network of microsystems that work together (more or less) to reduce the burden of illness for populations of people.”


When you put on your microsystem glasses …

Complexity of Care Delivery

Within, Between and Across Clinical Microsystems

(Transitions and Handoffs)
The Big Picture: Inverted Pyramid

Evidence Base

Patient & Family Voices

Quality Metrics

IOM - Chasm
NQF - Metrics
IHI – 100K

Local Competition
Pay for Performance
JCAHO, CMS, NCQA

IHI – Whole System Metrics

The Catwalk of Post Anesthesia Care

Operating Room
Receiving Units

Admission Process
Sign-out Process
Recovery Process
Transfer Process

Clinical Outcome Measures

Level of Consciousness
Heart Rate
Blood Pressure
Respiration
O2 Saturation
Temperature
Nausea/Vomiting
Pain
Sensory Motor
Mesosystems

• Connect microsystems
• Surround microsystems
• Help or hinder microsystems in their work

Mesosystems

• Mesosystem members are part of a “community” and have relationships and activities which frequently are not recognized, revealed, studied, discussed or improved … but that might change with value based systems
Mesosystem Community

• The individual microsystems operate in ways that make or break the mesosystem as it attempts to provide high value care to individual patients and to clinical populations
  – Share vision and mission?
  – Good hand offs and transitions?
  – Feed forward and feedback of information?
  – Create a “memory” of patients and families?
  – Regular communications and improvement?
  – Schedule time to discuss and improve care across the mesosystem?
  – Value stream design and patient & family centered co-design

Mesosystems & Transitions

• Patient Pathways
• Phases of care
• Steps of care
• Hand Offs
• Feed Forward & Feedback Information Flow
• Memory
Cooperation, Collaboration

Understanding the system
Everything depends on each other

Addressing technical issues is necessary but not sufficient

“We’ve been doing process improvement for several years, and we think we’re on the right track. But we’ve tried a number of tools for process improvement, and they just don’t address the relationship issues that are holding us back.”

-- CMO, Tenet Healthcare Systems
“People got better at performing their own tasks, but when they had to go beyond and connect with each other in response to an unexpected event or patient need, it didn’t work as well.”

- Rob Reid, Medical Director, Primary Care
Your Checklist

1. Get organized
   1. Identify your population or pathway
   2. Identify the “mesosystem” community
   3. Consider the Big Room/Oobeyea Room
2. With the community, review data, map the patient journey
3. Value Stream Map
4. Identify key process and outcome measures
5. Through the eyes of the patients
6. Identify transitions & handoffs
7. Identify WASTE
8. Assess relationships through Mapping
9. Identify improvements to test, reflect, improve and repeat

“Just The Facts”

• Subpopulation or Pathway Profile
  – Demographics
  – Remember the 5Ps..Focus on deep patient knowledge
  – One page “Just the Facts” about your population
    Purpose
    Patients
    Professionals
    Processes
    Patterns (including relationships & communication)
Process Assessment Tools

- “Just the Facts”
- Mesosystem Assessment Workbook
- Clinical Value Compass
- Create “Esther””George” or “Charlotte”
- Stopwatch & Pedometer
  – Value Stream Mapping Tool/Cycle Time
  – Spaghetti Diagram Tool
- 5 Whys
- Transitions and Handoffs

Mesosystem Workbook

Mesosystem Assessment Workbook
The principal task of the mesosystem is to
“Enable the work of the microsystems for the population(s) of patients involved.”
~ Paul Batalden

Aim:
1. Assess and think about the mesosystem and the microsystems that form the mesosystem to gain insight of the “between” activities and processes where hand offs occur and identify processes and systems to improve the mesosystem to provide a smooth safe patient care journey. (one microsystem at a time)
2. Review what the mesosystem itself is doing to foster/develop the leadership and performance of the microsystem(s) to achieve a safe, effective, and smooth patient care experience.
3. Identify, recognize and enhance mesosystem community and relationships.
What is a Value Stream Map?

A visual tool to show work flow and information flow/data, using:

- process time,
- wait time,
- lead time, and
- first time quality

as system metrics.

Why use a VSM?

To open our eyes to existing problems, issues, and waste
To identify shortfalls and process breakdowns, and to identify opportunities for improvement.

• PURPOSE:
  – Visualize the work
  – Build team consensus & perspective
  – Point to problems
  – Focus direction
Goals of VSM

• Focus on value for the patient/customer
• Simple & clear forms of communication
• Reduce waste
• Instill quality at each step
• Align resources to meet demands
• Improve flow of patients, information, etc.
• Empower staff to make continual improvements
• Caregivers have what they need when they need it
• Increase interdisciplinary understanding of the roles each team member plays

Who’s Involved?

• Need perspectives from people involved in the process from start to end
• Your Lead Improvement Team and any additional resources related to the selected process
**Value Stream Map Process Adapted for Microsystems**

1. Clarify specific aim (from global aim & high-level flowchart)
2. Create Value Stream Map of CURRENT State
   - Include flow of information, documents, supplies, etc
   - Identify customer at each step
   - Include step data as possible
3. Perform observational walk
   - Note customer/supplier & hand offs
   - Measure time of each step and total cycle time of process
4. Design LEAN/improved process – FUTURE State
   - Determine delivery and quality requirements

**Review Value Stream Mapping Worksheet**

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**Quantifying the VSM**

- Each step in the VSM will have specific information noted for it; cycle time, touch time, % value added, etc.
- This allows the team to assess the opportunities with each step:
  - Increase % value added
  - Decrease the difference between the cycle time and touch time
- Defining these measures....
Value Stream Map Data Sheets

<table>
<thead>
<tr>
<th>Name of Step</th>
<th># People</th>
<th>Special Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-T</td>
<td></td>
<td>CYCLE TIME</td>
</tr>
<tr>
<td>V-A</td>
<td></td>
<td>VALUE ADDED</td>
</tr>
<tr>
<td>C-O</td>
<td></td>
<td>CHANGE OVER</td>
</tr>
<tr>
<td>U-T</td>
<td></td>
<td>UP TIME</td>
</tr>
<tr>
<td>FPY</td>
<td></td>
<td>FIRST PASS YIELD</td>
</tr>
<tr>
<td>NOTES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Orange used for Current state, Green for Future

Value Stream Map Data Sheets

Name of Step or Process

- Identify each step in the process you are analyzing
- Be sure to note concurrent processes or steps if they affect the flow of people or activities
  - Process for handling inpatients vs. outpatients
- Don’t overlook key documents or information that’s required for each step
Types Of Waste

- People: results in disrespect, poor satisfaction, turnover
  - Motion: excessive motion, extra steps, unnecessary waiting, walking to another unit or piece of equipment, repeated phone calls
  - Processing: ineffective meetings, sending paperwork not required, signoffs, log sheets, data collection, documenting repeatedly the same info
  - Defects: incorrect meds, reassess, miscommunications, errors, infections
  - Overproduction: preparing too early or too much, too many projects active at one time

- Quality: results in quality and safety concerns
  - Inventory: too many forms or process steps to complete, too many waiting areas for patients, collected data not utilized
  - Transportation/Moving Things: extra steps, signoffs, sending patients to multiple departments, handoffs

- Quantity: results in higher costs
  - Waiting: patients in waiting rooms, transfer delays, not having what you need, on-hold

Value Stream Map Example
Transitions & Hand Offs
(mesosystem)

Most Frequent
Received:
Sent:
Improvement
Opportunities:

Spaghetti Chart
Spaghetti Diagram

- movement path diagram
- a great waste observation tool even for people taking their very first steps
- pick up a pencil
- find a process to observe and you are ready to begin

Spaghetti Diagram

- trace the movement of the person working within the process you are observing, just the way they are moving
- question the need for every strand
- solicit ideas from the people in the area
- do kaizen (improvement) and draw another spaghetti diagram ~ compare
Efficient

Optimization of Roles

Complete the Activity Tool
Create your “Esther” or ”Charlotte” or “George”

Review data and process
Complete “Through the Eyes”

Evidence Based

• What is the evidence?
  What is the best practice?
• ? Benchmarking
Benchmarking

Functional Status and Quality of Life

Clinical Status
Mortality: M = 0.7%
D = 6.5%

Satisfaction against Need

Costs
Charges: M = $13,000
D = $35,000
LOS: M = 9 days
D = 17 days

Bowel Surgery
Value Compass

Bowel Surgery:

Mortality
0% vs 0%

30 Day Re-admit
22% vs 4%

Patient Satisfaction
83% vs 94%

LOS
10.0 vs 6.6
The Clinical Value Compass

- Physical
- Mental
- Social/Role
- Risk Status
- Perceived Well-being

Functional Health Status

Biological Status
- Mortality
- Morbidity

Satisfaction Against Need
- Health Care Delivery
- Perceived Health Benefit

Costs
- Direct Medical
- Indirect Social

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Relational Coordination....

Relationships **shape** the communication through which coordination occurs ...

Jody Hoffer-Gittell, PhD
http://rcrc.brandeis.edu/

For better...

- Shared goals
- Shared knowledge
- Mutual respect

- Frequent communication
- Timely communication
- Problem-solving communication
... Or worse

Functional goals
Specialized knowledge
Lack of respect

Infrequent communication
Delayed communication
“Finger-pointing”

Institute of Medicine report

“The current system shows too little cooperation and teamwork. Instead, each discipline and type of organization tends to defend its authority at the expense of the total system’s function.” (2003)
Physicians and nurses recognize the problem

- “The communication line just wasn’t there. We thought it was, but it wasn’t. We talk to nurses every day but we aren’t really communicating.”

- “Miscommunication between the physician and the nurse is common because so many things are happening so quickly. But because patients are in and out so quickly, it’s even more important to communicate well.”

Why does relational coordination matter?

Relationships of shared goals, shared knowledge and mutual respect help staff focus on the patient and provide an organizational culture that supports process improvement.
Relational coordination: Connecting workers around the patient

When does relational coordination matter most?

◆ **Task interdependence**
  - What you do affects my ability to do my job, and vice versa

◆ **Uncertainty**, unpredictability
  - We can’t know everything we need to know

◆ **Time constraints**
  - We can’t waste time
"You can be the best social worker in the world, but if you can’t work with the other disciplines, then you can’t work here. Some are very good diagnostically. But it’s the communication skills [we are looking for].”

We have a Bone Team which includes the service line director, the case management supervisor, the head of rehab, the VP for nursing, the nurse manager, the clinical specialist, three social workers and three case managers. We generally look at system problems.”
Resolve conflicts proactively

“We have a staff council that’s largely responsible for information sharing among the departments. The staff council deals with medical policy and conflict resolution... It’s an informal body to air differences. It’s more for problem solving. We have monthly meetings that are attended by all medical staff, including physicians, nursing, and social work.”

Make job boundaries flexible

“It’s a question of what you’d rather defend. That you did nothing, or that you tried to help, even if you may have gone beyond your licensing. I tell my nurses I’d rather defend them doing too much than not enough.”
”Information systems are important for coordination, I think, but right now they are more a hope than a reality. Our chief information officer is building a clinical and administrative information system allowing patients to receive care anywhere across the continuum... But for automation to work, it’s important to get a format that’s understood across all specialists.”

Measuring, mapping and improving relational coordination
Mapping relational coordination

Measuring relational coordination

<table>
<thead>
<tr>
<th><strong>RC dimensions</strong></th>
<th><strong>Survey questions</strong></th>
</tr>
</thead>
</table>
| 1. Frequent communication | How frequently do people in each of these groups communicate with you about [focal work process]?
| 2. Timely communication | How timely is their communication with you about [focal work process]?
| 3. Accurate communication | How accurate is their communication with you about [focal work process]?
| 4. Problem solving communication | When there is a problem in [focal work process], do people in these groups blame others or try to solve the problem?
| 5. Shared goals | How much do people in these groups share your goals for [focal work process]?
| 6. Shared knowledge | How much do people in these groups know about the work you do with [focal work process]?
| 7. Mutual respect | How much do people in these groups respect the work you do with [focal work process]?
Summary

- High value organizations
  - Specification and Planning
  - Infrastructure Design
  - Measurement & Oversight
  - Self Study
- It’s about the Patient
  - And microsystems, mesosystems & macrosystems
- Relational Coordination
  - Shared Goals
  - Shared Knowledge
  - Mutual Respect
A complex system problem
2003 Toyota Corolla

How do others design complex systems?

Toyota Oobeya (Big Room)
First find a room

A place to meet
The Big Room in Action

Physiotherapist gives an account of the test of change to get a patient home on the day they were discharged by the GSM consultant Senior registrar.

Improvement in health care is 20% technical and 80% human’

Marjorie Godfrey
The Dartmouth Institute
Here is Edward Bear, coming downstairs now, bump, bump, bump, on the back of his head, behind Christopher Robin. It is, as far as he knows, the only way of coming downstairs, but sometimes he feels that there really is another way, if only he could stop bumping a moment and think of it.

PDSA tests of moving from ‘post take’ to ‘on take’

Let me introduce ‘George’

- 82 years old
- Lives independently and wants to continue doing so
- Widowed 5 years ago
- Has mild dementia
- Daughter lives locally
- Losing weight + poor mobility
Learning Your Way To Greatness

- No team can design a perfect system in advance, planning for every contingency and nuance.
- However, ..., people can discover great systems and keep discovering how to make them better.
- Idiosyncratic confluences and coincidences of people, processes, products, places and circumstances could create a hazardous situation where none had been known to exist.

Dr. Steve Spear, The High Velocity Edge

Implementation dates:

- April 2012
  - Consultant geriatricians ‘on take’ 7 days per week
- May 2012
  - Frailty Unit process initially virtually
  - Frailty Unit opens mid-May
Outcome measure: 34% increase in discharge within 1 day

Outcome measure: Bed occupancy reduced by over 60 beds
Was reduction in bed usage due to reduced admissions? No

Balance measure:
No increase in readmissions
Balance measure: Decreased mortality

Discharge to Assess

The future hospital will support a system of ‘discharge to assess’ in physiotherapy and occupational therapy.

Section 5.20 Future Hospital Report, Royal College of Physicians (September 2013)
Implementation dates:

- April 2012
  - Consultant geriatricians ‘on take’ 7 days per week
- May 2012
  - Frailty Unit process initially virtually
  - Frailty Unit opens mid-May
- September 2013
  - Testing of ‘discharge to assess’ from base wards
- October 2013
  - Implementation of ‘discharge to assess’ begins

Weekly discharge count

[Chart showing weekly discharge count with data points and lines indicating trends]
Time waiting per pt

Coffee Break
15 minutes
Thank you