Dangerous Work

Demolition Crew

- Explosives Experts
- Building Architect
- Contractor
- Communication Specialist
- Electrician
- City Planner
Just Another Day at the Office

- Competent team members
- Professional certifications
- Many years of experience
- Many years working as a team
- Team training and regular drills
- Cooperative and communicative
- Clear / shared goals
- Clear roles and effective leadership
- State-of-the-art equipment
Just Another Day at the Office

Second Tallest Building ever imploded
Just Another Day in the Country

YourDailyMedia.com
So what was the difference?

• Same team
• Same technique
• Same material
• Same plans
• Same objectives
• Same equipment...
Demolition is not the only profession where mistakes are made by good people working with other good people with nothing but the best intentions.
Errors in Healthcare

“Poor interprofessional communication and teamwork are now well recognised as significant contributors to adverse events in healthcare”

Errors in Healthcare (and demolition)

Active Failures

• “Sharp end” of practice, by individuals performance a task
• Effect of error felt almost immediately
• Errors due to aberrant mental processes (forgetfulness, negligence)
• E.g. Clipping the wrong artery, injecting the wrong solution, pushing the wrong button

Latent Failures

• Systems-based failures, lying dormant in the system
• Errors in design, organization, training or maintenance
• Triggered by local conditions
• E.g. sleep deprivation, poorly designed tools, inadequate training

Sources:
Barriers to Improving Safety

• Progress in improving patient safety through studying the link between interprofessional communication and medical errors has been slow

• Multiple barriers
  ✓ Interprofessional complexity
  ✓ Professional fragmentation
  ✓ Individualism
  ✓ Hierarchical authority structure
  ✓ Diffuse accountability

Role of IP Complexity

• Literature studying links between IP communication and medical errors tend to be narrow in scope and don’t, “take on the challenge of addressing complexity of health care work”

• Complexity examples:
  ✓ Team fluidity
  ✓ Rotation
  ✓ Multiple forms of communication

Simple... Complicated... and Complex

• Baking a cake – *simple*
  – Follow a recipe

• Sending a rocket to the moon – *complicated*
  – Use formulaic & expert-knowledge approaches
  – Problems mechanistically broken down into component parts

• Raising a child – *complex*
  – Past experience and advice can help, but...
  – There is no formula or recipe to follow

Approaching the Complexities of IP Health Care
Activity Systems

• Based on Cultural-Historical Activity Theory
  – Developed by Engestrom (1987)
  – Built on work by Vygosky and Leontyev

• The activity system, rather than the individual is the basic unit of analysis

• Making complexities of activity systems visible helps organize thinking and is highly relevant for exploring interprofessional communication and collaboration

• Distribution of cognition (beyond the individual)

Activity Systems

Systemic Contradictions

Description:

☑ Activity systems are constantly moving and transforming
☑ Internally contradictory
☑ Contradictions serve as conflict, but also as the impetus for transformation and learning

Example

☑ **Explicit Rule**: Everyone should speak up regarding safety concerns
☑ **Implicit Norm**: Questioning a physician is unwelcome

Activity Systems – An Example

• Internal Medicine Resident on Nephrology Rotation

OBJECTIVES?

Provide quality medical care
Get orders in before leaving for lecture
Demonstrate competence to Faculty
Curricular demands (patients & procedures)

Multiple objectives shape work activities...
• Provide quality care
• Reluctant to admit uncertainty or request staff support
• Cut corners to meet time demands

Activity Systems – An Example

- Internal Medicine Resident on Nephrology Rotation

Varying levels of competence with each tool
- May shape his care activities
- Require support (staff) to enter orders (reluctant; time)
- Do his “best” setting the dialysis parameters

Activity Systems – An Example

- Internal Medicine Resident on Nephrology Rotation

Activity Systems – An Example

- Internal Medicine Resident on Nephrology Rotation

Forming the Knot

Social Worker

Ward Clerk

Nurse

Doctor

Respiratory Therapist

Patient & Family
Knotworking

**Knot**: “Rapidly pulsating, distributed and partially improvised orchestration of collaborative performance between otherwise loosely connected actors and activity systems” Engestrom (2000)

What to do?


SIMULATION
- What resources were needed?
- What elements of communication hindered?

CLINICAL WORK
- How do you access resources in the clinical setting?
- What communication approaches might be helpful?

CLINICAL WORK
- Who was involved?
- Who played a role?

SIMULATION
- What informal rules/norms/customs were followed?
- What formal rules did you follow?

CLINICAL WORK
- What formal/informal rules/norms/customs play an important role on the clinical unit?

SIMULATION
- Who needed to work together to reach the goal?

CLINICAL WORK
- Who needs to work together and coordinate their efforts on your unit to reach similar goals?

CLINICAL WORK
- How are the responsibilities divided up on the clinical unit?

SIMULATION
- How do these relate to the goals on the clinical unit?

CLINICAL WORK
- How did this happen?
Distributed Cognition as a Sociocognitive Theory

- In the healthcare education literature there are a (limited) number of articles that discuss the distribution of knowledge across clinical systems by means of different sociocognitive theories such as
  - Actor-network theory
  - Cultural-historical activity theory
  - Complexity theory

- DCog addresses and integrates many of the tenets of these theories, but focuses on the variety of representations (e.g. clinical images, gazes, gestures, etc.) between social actors (doctors, nurses, patients, etc.) in the physical environment (e.g. technology, material) that contribute to distributed knowledge.

“Each representation alone provides limited meaning, but when woven together may provide “much greater value and richness than [the] individual parts”

Distributed Cognition in Action

- Medical student interviews & examines the patient then speaks with resident.
- Resident meets with patient.
- X-ray is order to rule out condyles medialis fracture. Resulting image is compared to search from Google images.
- Neither see an abnormality.
- Attending sits down facing the student & asks, "What do you think has happened?"
- Med student explains the injury by pointing to her own knee.
- "What’s your diagnosis?"
- Attending turns to face the resident & says, "We need to check the tendon here" to a spot on the x-ray.
- He points to his own knee to demonstrate the ligamentous insertion & simulates a provocation test & says, "If you stretch & abduct it, it causes pain, right?"
- "This could be a tear of the vastus medialis. I would suggest an ultrasound."
- Ultrasounds showed a tear & orthopedics service was consulted.

Distributed Cognition in Action

- Medical student *interviews & examines* the patient then speaks with resident
- Resident *meets* with patient
- **X-ray** is order to rule out *condyles medialis* fracture. Resulting image is compared to search from *Google images*
- Neither see an abnormality
- Attending *sits down facing the student* & asks “*What do you think has happened?*”
- Med student explains the injury by *pointing to her own knee*
- “*What’s your diagnosis?*” No answer
- Attending turns to *face the resident* & says, “*We need to check the tendon here*” *pointing* to a spot on the *x-ray*

- He *points* to his own *knee* to demonstrate the ligamentous insertion & *simulates a provocation test* & says, “*If you stretch & abduct it causes pain, right?*”
- “*This could be a tear of the vastus medialis. I would suggest an ultrasound*”.
- The *ultrasound* showed a tear & orthopedics service was consulted.

Observing with an Eye for Distributed Cognition

1. Team Member Interactions (verbal)
   1. Language (word choice)
   2. Tone + inference

2. Team Member Interactions (non-verbal)
   1. Body position, movements + gestures
   2. Eye contact and facial expression

3. Interactions with Artefacts
   1. Technological
   2. Other
Selected References


QUESTIONS?
Rethinking Two Elements of IPC/IPE

- Stable Professional Roles
- Unifying Objectives