Teaching in the OR: A Qualitative Study and the Development of a Teaching Workshop

Edward Matsumoto MD, MEd, FRCSC
Associate Professor
Department of Surgery, Division of Urology
Faculty of Health Sciences
McMaster University, Hamilton, Ontario

McMaster University HEALTH SCIENCES

St. Joseph's Healthcare Hamilton

Institute of Urology

Objectives

- Review literature on teaching in the operating room environment
- Review basic concepts in qualitative research
- Review the findings from our focus group study
- Overview of the Surgical Educator's Teaching Programme Workshop

Acknowledgements

MacSERG

- McMaster Surgical Education Research Group
- Supported by McMaster Surgical Associates

Background

- We identified “Teaching in the OR” as a focus
- Our plan was to design an interventional study
- **RCT** looking at a **teaching programme intervention** and **measure “improvement”** in teaching performance

Quantitative Approach

- We were approaching our research in a quantitative manner
- This is what we knew how to do?
- But we realized
  - What was our intervention going to be?
  - What were we going to measure?
  - **What was the current status of teaching in the OR?**

Teaching in the OR Literature

What we found:

Very little published on teaching in the OR

Making the most of learning in the operating theatre: student strategies and curricular initiatives

- **Lyons** (Med Educ 2003 37 680-8)
  - Medical students who found the OR of value to learning were successful at:
- (1) Managing the demands of the working environment and the emotional impact of surgery as work
- (2) Managing the educational tasks, determining the learning objectives and relevance
- (3) Managing learning and the social relations of work in the operating theatre

Predictors of Surgery Resident Satisfaction With Teaching by Attendings National Survey

- **Ko et al. (Ann of Surg 2005 V 241 373-380)**
- **Resident Satisfaction With Teaching**
  1. Being the operating surgeon in major surgeries
  2. Attendings citing the medical literature to support decisions regarding patient care
  3. Teaching directed at the chief resident
  4. Continuity of care for patient operated on by the resident
  5. Important postoperative patient management decision made by the attending and resident

Identification of teaching excellence in operating room and clinic settings

- Cox and Swanson (AJS 2002 V183 251-255)
- Describes upcoming surgical procedure
- Discusses expected patient outcomes
- Clarifies resident roles
- Demonstrates technical skills
- Permits resident participation
- Demonstrates awareness and sensitivity
- Answers questions clearly
- Stimulates residents to think
- Provides direct and ongoing feedback
- Maintains climate of mutual respect

An Exploration of Teaching Styles in the Operating Room

E Matsumoto, D Dath, D Szalay
J Harlock, M Vennettilli,
R Gowing, J Hoogenes
MacSERG

McMaster Surgical Education Research Group

Hypotheses

- Residents and surgeons have some similar and some different emphases on teaching behaviours in the OR
- Junior and senior residents value different teaching behaviours
- Surgeons use different teaching behaviours with junior and senior residents

Qualitative Research

- Method of inquiry traditionally used in social sciences, market research
- Captures behaviour and social interactions in their “naturally occuring, uncontrolled form”
- Until recently not used much / held in high regard in medicine (especially surgery)
- An alternative and / or complementary approach to the more familiar quantitative methodologies

Qualitative vs Quantitative

Quantitative

- What, where, when
- Numbers based
- Reductionist
- Statistics
- Mechanistic
- Control is important
- Rigid methodology
- Focus on reliability, precision
- Hypothesis Testing

Qualitative

- How and Why
- Language
- Expansive
- Narrative
- Interpretive, holistic
- Context is important
- Adaptive
- Focus on content validity, credibility
- Hypothesis Generating

Qualitative Research

- Techniques are very diverse
  - Data Collection
    - Observation (participant vs non-participant), Field Notes, Reflexive Journals, Structured interview, Unstructured interview, Analysis of documents and materials
  - Data Analysis
    - Coding, Recursive Abstraction, Mechanical (Software)
  - Validation
    - Member check, interviewer corroboration, peer debriefing, auditability, confirmability, balance, negative case analysis
  - Presentation
    - Narrative, Hypothesis presentation

Rigour in Qualitative Research

- 4 “Essential” Aspects of Qualitative Analysis
  - Participant selection is well reasoned, and their inclusion relevant to the research question
  - Data collection methods must be appropriate for the research objectives and setting
  - Data collection process must be comprehensive enough to support rich and robust description of observed events
  - Data must be appropriately analyzed and findings corroborated by using multiple sources of information
    - >1 investigator
    - Member checking
    - Comparison with existing social theories

Methodology

- Focus Groups
  - 3 – 6 participants
  - 1 hour
  - Facilitated
  - Audiorecorded and field notes taken
  - Use residents and surgeons from all surgical disciplines (40 staff, 40 residents)
  - Sought staff from all 4 McMaster sites

- Sample Size
  - Expect data saturation by 6th – 7th group
  - Therefore, used 10 resident groups, 10 surgeon groups
- 40 resident participants, 40 staff participants
- Residents and staff surgeons from McMaster
- REB approval obtained
- Consent from all participants

(Staff) Facilitator Questions

1. How do you teach residents at different levels of training?
2. How do you provide feedback in the OR?
3. What are your best and worst teaching experiences in the OR?
4. How do you involve residents in the OR?
5. How do you improve resident motivation?
6. Describe effective and ineffective teaching strategies in the OR.
7. What is the ideal educational environment?
8. Summarize your operative teaching philosophy.

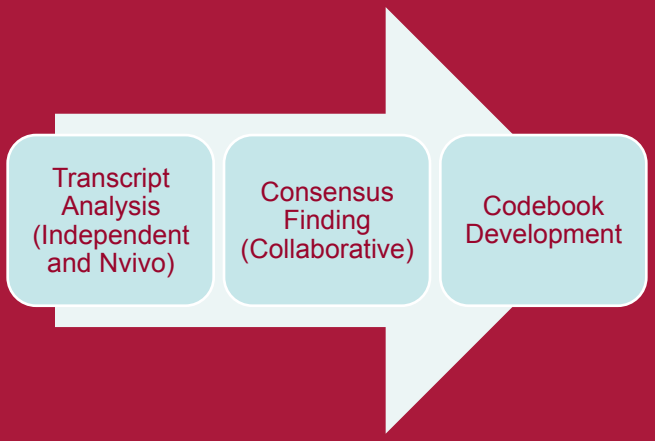
Data Management

- Thematic analysis:
  - Use already-developed concepts from the literature and generate new concepts from the study
- Transcripts entered into qualitative database.
- Read and re-read transcripts for sections that highlight teaching behaviours and philosophies
- Collate similar items to find underlying meanings and themes.
- Collaborate and compare findings from different readers

Data Analysis

- Conventional content analysis of transcripts with multiple coders
  - 3 surgeons
  - 2 research assistants
- Nvivo 8 – organization of content
- Repetitive iterative process to develop an operational codebook
- Collaboration of all data (transcript, field notes) and codebook

Data Analysis



The Codebook

Categories	Codes	Definition
Assessment (of learner)	Adapt to background and level	
	Assess attitude	Insight, willingness to learn, enthusiasm
	Assess 'natural abilities,' strengths	
	Assess progress over time	Seeing improvement in skills
	Demonstration capacity to get stuff to do	
	Formally assess first	
	Observing/probation	
	Quality of resident's work	Check if took history, spoke to patient, etc
	Questioning	
Expectations	Basics in place already	Basics: skills, knowledge (eg. Anatomy)
	Communication	Surgeon -> learners
	Get residents to certain level	
	Increase expectations with level	
	Preparation is expected	
	Service for teaching (quid pro quo)	
Feedback	Consider perception of learning/receiving end	
	Corrective feedback	
	Debrief	Judgement, review decisions, if learner's needs met
	Direct verbal feedback	
	Feedback rattles learner	
	Gradual - advising	

Rigour / Validation / Verification

- Triangulation – multiple data sources
  - Session notes
  - Audiorecorded transcripts analyzed by:
    - 3 surgeon investigators, 2 research assistants
    - Nvivo software
- Audit trail
  - All recordings, notes, worksheets, documents maintained
- Member checking
  - Ongoing process, data and interpretations checked with members of the focus groups

Findings

- Extensive, “rich” data with multiple codes and categories
  - Expectations
  - Feedback
  - Management
  - Preparation
  - Responsibility of the Teacher
  - Rewards of Teaching
  - Assessment
  - Teaching Techniques
  - Motivation

Preliminary Data

- From the Resident focus groups:
  - Instructive
  - Questioning
  - Providing Feedback
  - Managing Time Constraints
  - Creating a Learning Atmosphere
  - Teaching in a Hierarchy
  - Motivating

Preliminary Data

- From the surgeon focus groups:
  - Determining learner preparedness
  - Determining learner level of development
  - Teaching respect for the patient
  - Teaching OR management (role modelling)
  - Teaching technical skills
  - Training before and after the operation
  - Sharing experience in the OR
  - Optimizing the learning environment
  - Eliminating personal distractions

Excerpts (Residents)

" I think that a good surgeon is one that recognizes there are different parts to a case that are good for a junior and good for a senior…"

"Personally, I've found that some of the staff that have taught residents for a long time, they themselves are competent/comfortable in their own skills."

Excerpts (Residents)

"…an OR that's rushed for time. You're never going to get to do anything if you're rushed for time."

Excerpts (Residents)

"I was going to comment on the relative paucity of feedback….As long as you don't do anything fairly disastrous in the OR – damage major structures or large tubes containing blood…or stool for that matter – then everything is fine…"

Excerpts (Surgeons)

"So if a Resident shows up to the OR at an 8 o'clock start and he is not aware of the patients from the previous day that he has operated on, he goes to the ward and gets his work done."

"I Think I give feedback relatively well … whether they' ve done something that I like or not, but at the same time, I remain open"

Excerpts (Surgeons)

"Time is a huge issue… there is a certain margin that has to be added at a teaching centre….but by the same token you have to show them how to be efficient as well."

"Makes no difference how much teaching we do, if learning does not occur, its useless."

Excerpts (Surgeons)

"The important thing in all this is communication…"

"…you want to have high expectations of them, but sort of user-friendly. You want to give them a sense that you value what they do for you, inside and outside the OR."

.."it's a sense of awe that they need… that does not immobilize them but rather motivates them to do the best they can…"

Surgical Educator Teaching Programme (STEP 1)

Teaching in the OR

Objective

Use operative scenarios to:

- Identify factors and behaviors that affect intra-operative teaching
- Discuss how these interplay to affect operative teaching
- Discuss factors and behaviors and how they apply to one's own teaching styles and situations
- Determine how the scenarios can be used to develop Faculty Development Events at one's own institution.

Videos

STEP 1 key themes:

- How to teach with multiple distractions/interruptions
- How to make time for teaching
- How to handle residents who are not prepared (i.e. have not read chart)
- Why do residents come not prepared?
- Should surgery (technical skills) be considered a separate teaching skill to learning around the patient's case?
- What do residents think the expectations of themselves are?
- Teacher-student feedback
- Teaching critical parts of an operation; teaching complicated/rare procedures.
- Addressing colleagues about poor teaching styles
- Communication (i.e. pre-brief, planning ahead, talking during procedure)
- Teaching by example
- Identify learning levels of students

STEP Series

- STEP 2
  - Small groups, identifying challenging teaching situations, factors and solutions
- STEP 3
  - Discussion of intraoperative teaching related to the teaching theory
  - What to take back to the OR

Conclusion

• In academics – the OR is remains THE most important teaching environment
•Teaching is not an innate ability
•There are many factors that can interfere with teaching
  •Lack of OR time
  •Complexity of the procedure
  •Pressures from allied OR staff

Conclusion

- We wanted to find out "how" surgeons and residents perceive "teaching" in the OR
- Qualitative Research is ideal for such questions
- Accepted methodology in Qualitative Research
- Residents and Faculty have different views when it comes to teaching in the OR
- The development of our workshop will allow surgeons to reflect and "improve" teaching in the OR