**SESSION TITLE:** Elective OR Scheduling, Excelling Preoperative Care, and Accommodating Emergencies in Collaboration with Multidisciplinary Teams

**SPEAKER NAME:** Munira Amin, BSN  
Parveen Amirali Hajiyani, BSN

**SESSION NUMBER:** 9057

**DATE/TIME:** Wednesday, March 6, 2013, 8:15-9:45am

**CONTACT HOURS:** 1.5 CH

**OVERVIEW:**
This presentation will help perioperative nurses learn to work independently in a multi-OR setting with limited resources, and help them learn to deal with challenges between the surgeons, anesthesia, and nursing personnel. Collaborating an OR list with multiple specialties, surgeons, anesthetists, and nursing personnel, with the expectation of excellence in care with limited resources, is a skill that needs to be mastered. This session focuses on block allocating surgeons to give ample time for operating and organizing their list while enhancing utilization. This session will focus on calculating utilization, including tracking and other indicators.

**OBJECTIVES:**
1. Discuss the formation and monitoring of OR indicators.
2. Discuss the guidelines and literature for scheduling emergency OR and monitor its performance.
3. Share soft skills for dealing with difficult people and scenarios.
4. Review AORN standards for preoperative patient care and relate its importance with the role of OR Scheduler.

**BIOGRAPHIES:**
Munira Amin, BSN, works at Aga Khan University Hospital, Karachi, Pakistan. She has worked in the OR for over seven years and has expertise as a scrub nurse in ENT and general surgery. She has over two year's experience as clinical nurse instructor in the OR and has more recently been working as the OR scheduler (OR coordinator) for the past three years. Munira's core job responsibilities include proper scheduling of elective surgeries and prioritization of emergency surgeries on the basis of acuity and availability of material and human resources. Maintaining OR Indicators along with the tracking of OR Utilization, and then scheduling the ORs on block allocation, is also one of the core responsibilities.

Parveen Amir Ali Hajiyani, BScN, RN, is a graduate of general nursing diploma class of 1987 and post-RN BScN class of 2004 at Aga Khan University Hospital, Karachi, Pakistan, a tertiary care hospital. Parveen started her career as a registered nurse in the adult medical unit at Aga Khan University, gradually based on her performance, she was promoted to clinical nurse instructor, head nurse, and OR scheduler, and is currently manager of the OR.
<table>
<thead>
<tr>
<th>CONTACT INFORMATION:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Munira Amin, BSN</td>
</tr>
<tr>
<td>OR Scheduler</td>
</tr>
<tr>
<td>Aga Khan University Hospital</td>
</tr>
<tr>
<td>Karachi 74800, Pakistan</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:munira.amin22@gmail.com">munira.amin22@gmail.com</a></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Parveen Amirali Hajiyani</td>
</tr>
<tr>
<td>OR Manager</td>
</tr>
<tr>
<td>Aga Khan University Hospital</td>
</tr>
<tr>
<td>Karachi 74800, Pakistan</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:parveen.amirali@aku.edu">parveen.amirali@aku.edu</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FACULTY DISCLOSURE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Munira Amin</td>
</tr>
<tr>
<td>7. No conflict.</td>
</tr>
<tr>
<td>Parveen Amirali Hajiyani</td>
</tr>
<tr>
<td>7. No conflict.</td>
</tr>
</tbody>
</table>
Aga Khan University Pakistan is…

- Not-for-profit, private teaching institution
- First hospital in Pakistan to be awarded Joint Commission International (JCI) Accreditation for achieving and maintaining highest international quality standards in health care in 2006
- First hospital in to receive ISO 9001: 2008 certification
- Has 577 beds in operation which offers a wide range of services
- Has 14 Main Operating Rooms and 4 Surgical Day Care Operating Rooms with one Lithotripsy Suite.
Definition of Elective Surgery

An elective case can be defined as

• Planned, non-emergency surgical procedure
• One for which the patients can wait at least 3 days without sustaining additional morbidity

Background

- ORs have been estimated to account for more than 40% of a hospital’s total revenues
- Improving OR efficiency is a challenging problem for several reasons:
  - Finding a schedule that balances resource utilization (e.g., ORs, surgeons, nurses, etc.) is a combinatorial problem, which includes decisions such as how many ORs to open, allocation of surgeries to ORs, and surgery sequencing decisions.
  - There is significant uncertainty in several of the activities involved in the delivery of surgical care, including the duration of the surgical procedure.
Types of Elective Surgery Scheduling

- **Block Booking** (commonly known as Block Scheduling system)
- **Open Booking**
- **First-come first-serve system**
- **Combined: Block + first-come first-serve waiting list**

**Block Scheduling**

Under a block-booking system, individual surgeons or surgical groups are assigned times in a particular OR (e.g., weekly or monthly) schedule.

Block time is commonly increased for surgical groups that demonstrate more than 80-85% utilization and decreased when utilization is 70-75%
Potential Problems Not Addressed by Block Scheduling

- Some surgical services have a relatively greater number of urgent cases than others.
- It does not easily accommodate emergencies, which are particularly common in trauma centers.
- Block allocation system should not allocate 100% of the available OR time.

Open Scheduling or Booking

The open-booking policy is more common in destination medical centers.

- Such health care centers often see complex patients that have travelled long distances, and it might only become certain that they are candidates for surgery upon arrival and completion of a medical examination.
- For instance, the health care provider that motivates the problems we consider has a goal of offering surgery on 24 hours notice for non-regional patients in need of surgery.
Remaining two systems

First-come first-serve system

Combined: Block + first-come first-serve waiting list.

Scheduling Office

The scheduling office is OR’s interface with the world and an important point of contact between the OR and its most immediate customers, the surgeons.

- For surgeons’ secretaries who book operations, the scheduling office may be the only point of contact.
Emergency Cases Prioritization

Conceptual Triage Model

John Hopkins Method of prioritization

Emergency cases scheduling system in AKUH

Conceptual Triage Model

<table>
<thead>
<tr>
<th>Time (hours)</th>
<th>Urgency 1</th>
<th>Urgency 2</th>
<th>Urgency 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>1</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>2</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>3</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>4</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

Operational / Logistic Determinants

Consequence

- Likelihood
  - HIGH
  - MEDIUM
  - LOW

- Risk
  - HIGH
  - MEDIUM
  - LOW
Johns Hopkins’ Method of Prioritization

**LEVEL-1 EMERGENCY**
Life Threatening Condition

**LEVEL-2 EMERGENCY**
Priority status: patient’s condition will deteriorate significantly if not done urgently

**LEVEL-3 EMERGENCY**
Cases that cannot wait until the next day’s elective schedule and might be known in advance

---

Emergency Cases Scheduling System in AKUH

The AKUH system focuses on accommodating emergency surgeries along with the semi-emergency surgeries.

The prioritization is based on the timings which are denoted by color coding, the description is as follows also in consideration with patient's NPO status.
Emergency Color Coding

Red Emergency
- Any case booked by surgeon which has to be operated within 45 minutes if OR is made available.

Orange Emergency
- Any case booked by surgeon which has to be operated within 6 hours.

Blue Emergency
- Any case booked by surgeon which can be operated in next 24 hours.

A pessimist sees the difficulty in every opportunity; an optimist sees the opportunity in every difficulty.

Sir Winston Church
Definition of Indicators

Measuring performance became vital for the improvement of work processes to reduce operational costs and promote the satisfaction of clients.

The objects of such measurements include the necessary structure or what was actually used, the processes and results obtained, as well as the influences and repercussions observed in the environment; the instruments used are the indicators.

Why Use Indicators?

- Quantitative measures
  - used to reevaluate, re-plan, and reorganize the activities of a given service

- Supporting decision-making in the management of care

- Evaluation of a service be appropriately performed
Operating Room Utilization

The classic definition of OR utilization is:

- The sum of the time it takes to perform each surgical procedure (including preparation of the patient in the OR, anesthesia induction, and emergence) + the total turnover time / divided by the time available.

Utilization — the time that is actually used

Utilization is an evaluation of the clinical activity in a staffed OR.

Utilization continued...

Strum et al. (1) defined the concepts “overutilization” and “underutilization.”

- **Underutilization** is defined as time during the scheduled hours of operation that is not used, and
- **Overutilization** is defined as the time used by scheduled cases past the end of the scheduled time.

Factors affecting OR Utilization

- Case Duration
- Variability of case duration
Utilization continued...

Utilization rates are dependent on many factors:

- An appropriately booked schedule
- Cases starting on time
- Cases ending on time
- Has correct case times
- Quick turnovers

OR Start Time

- The percentage of theatre sessions where the first case is commenced at (or before) the session start time.
- Starting on time is one of many parameters used to evaluate efficiency of the operating room.
- Benchmark of Surgical Start Time is 95%
Start Time in AKUH

Start time is defined as the time when the first patient is wheeled into the OR. The start time will be 0800 hours for all ORs on Monday, Tuesday, Thursday, Friday, Saturday, and 0900 hours for Wednesday. This will be measured for the first case of each OR.

**Note:** 15 minutes is given as grace time before counting delay

---

Surgical Cancellations

- Cancellation refers to the non-performance of planned surgery for any reason from dashboard indicators
- The incidence of surgical cancelations overall ranged from 2.2% to 30%.
Causes for Surgical Cancellations

- Lack of OR time
- Patient medically unfit
- Patient no show
- No hospital bed
- Surgeon decided against the procedure

The role of nursing in the prevention of surgical cancellations is less well defined.

Turnover Time

- **Turnover time** is the time from when one patient exits an OR until the next patient enters the same OR.

- **Anesthesiologists** consider turnover time to be the time from when the patient is sent to the post-anesthetic recovery room until the next patient is brought in.

- **Surgeons** consider the period to be the time from the closure of a surgical wound until the first incision in a new patient.
Turnover time continued...

- Turnover time includes the cleaning of OR and setting up but not the delay between cases.
- Cleaning time has accounted for delay and prolonged turnover, often generating complaints and discontent on the part of surgeons.

What is Lean?

- Lean is the set of "tools" that assist in the identification and steady elimination of waste.
- Lean is about focus, removing waste, and increasing customer value.
- Lean is about smooth process flows, doing only those activities that add customer value and eliminating all other activities that don’t.
Lean Principles

• It encourages participants to identify the value of the organization’s product (such as high quality clinical care)

• It maps out all the steps needed to produce a valuable product

• Eliminate steps that do not create value.
Step I: Flow Charting of OR Turnover Process

On the map of OR, each team member used a colored marker to draw his or her steps in a typical Thoracic case.

Some members drew multiple circles around the perimeter of the OR and others drew arrows back and forth between the case cart and equipment table.

Analysis of Step I

It was found out that they walked 2.4 miles for each turnover.

They also analyzed the number of minutes each person spent preparing for the next case, finding that scrub nurses and anesthesiologist did most of the work between cases.
Step II: Walking in each other’s shoes

They then asked staff to walk in each other’s shoes for a week and analyze the results.

Analysis of Step II

Each member followed a person with a different role; for instance, the surgeon followed the scrub nurse and was “Blown away” by all the tasks the nurse did between the cases.

This all helped the team identify wasted movements.
Implementation

- Standardized all equipment locations and procedures to include hospital assistants in the case process.
- Used Parallel Processing
  - Circulating Nurse: Goes out to see the next patient
  - Scrub Nurse: Places soiled instrument in the cart

Implementation

OR Script Created that outlines each team member’s role (for first case); also include the activities to accomplish the day before surgery
Gains

Reduction in non-operative time, i.e. decrease turnaround time.

Non-operative time is defined as the time of closing incision on one patient to incision of next patient.

To summarize indicators

It has been said that figures rule the world. Maybe. But I am sure that figures show us whether it is being ruled well or badly.

Johann Wolfgang von Goethe
Have you ever felt the need of such tools in dealing difficult situations?
True or False:

Difficult situations are created by difficult people

And

Still most people don’t consider themselves difficult.

When unresolved, both difficult people and difficult situations lead to conflict.

Dealing with conflict is key role of Leader, Leadership and conflict go hand-in-hand.
Have you met these people?

Resolving Conflict

- Define Acceptable Behavior
- Hit Conflict Head-on
- Understanding the WIIFM Factor
- The Importance Factor
- View Conflict as Opportunity
Difficult People Versus Difficult situation

Close your eyes and think for 10 seconds about 1 or 2 examples of difficult people creating difficult situations.

Someone wants something you can’t give them

- Surgeon wants three ORs running simultaneously
- Team wants to rush patient without information; all ORs are running (e.g. C-Section, Limb threatening)
- Neuro Pattie is missing but still surgeon wants to close the surgical site.
- Surgeon wants to operate but is not credentialed
Someone wants something you won’t give them

As per the specialty concept, people want to get relieved early as soon as the list finishes... but in our structure we cannot do that. OR people demand overtime instead of hour balancing despite of having loads to return to department.

Someone violates policies/governing rules or commits an illegal act

- Expired implants are found between surgery... what to do? Autoclave it or waiting anesthetized patient??
- Sleeping in night shifts, going out of hospital from duty, using internet for personal reasons
Someone takes a problem to the wrong individual

AC shutdown, problem of lights reported directly to manager rather than to equipment coordinator and Head Nurse, etc.

Conclusion

- Maintain or enhance self-esteem
- Listen and respond with empathy
- Ask for help whenever needed
- Encourage the involvement
- Make it a win-win for both sides
- Most of all, Be Empathetic and give Human Touch to all your deeds... success will be in your hands. ☺
According to Maslow’s, each individual has an innate internal hierarchy of needs that motivates all human behaviors.

Maslow’s Hierarchy continued...

When a patient is coming to the OR for surgery, he/she is handing over their self to health care personnel and it is then their responsibility to fulfill the needs as described in Maslow’s Hierarchy.

The needs that can be fulfilled as part of preoperative patient care are as follows:

- Anxiety
- NPO status
- Pain
- Vital Signs
Preoperative Anxiety

- Anxiety is described as an unpleasant state of uneasiness or tension, which may be associated with abnormal hemodynamics as a consequence of sympathetic, parasympathetic, and endocrine stimulation.

- Studies have shown that high preoperative anxiety levels can lead to increased postoperative analgesic requirement, prolonged hospital stay, significant contribution to adverse perioperative outcome, and poor patient satisfaction.

- The use of preoperative medically trained clowns for children undergoing surgery can significantly alleviate preoperative anxiety.

Strategies to Reduce Preoperative Anxiety

Preoperative anxiety is related to fear of the unknown, unfamiliar place, loss of control of situation, and fear of death. The interventions that can be done to reduce preoperative anxiety are as follows:

- Pharmacological therapy
- Provision of information
- Distraction
- Attention focusing
- Relaxation procedures
Documentation

All parameters should be documented in patient’s file; sample forms from AKUH are shown as an example.

In AKUH, the patients are called at least 45 minutes prior to surgery and vital signs are checked and documented in the patient chart.

Take Home Message

We can’t solve problems by using the same kind of thinking we used when we created them.

*Albert Einstein*

There are two kinds of people, those who do the work and those who take the credit. Try to be in the first group; there is less competition there.

*Indira Gandhi*
References:

- Surgery encyclopedia. [http://www.surgeryencyclopedia.com/Ce-Fi/Elective-Surgery.html#ixzz2EC2zAdYr](http://www.surgeryencyclopedia.com/Ce-Fi/Elective-Surgery.html#ixzz2EC2zAdYr) retrieved on Dec 06, 2012
- McIntosh, C., Dexter, F., Epstein, R.H. The Impact of Service-Specific Staffing, Case Scheduling, Turnovers, and First-Case Starts on Anesthesia Group and Operating Room Productivity: A Tutorial Using Data from an Australian Hospital. International Anesthesia Research Society. Vol. 103, No. 6, December 2006
- [http://opres.highwire.org/content/58/4-Part-1/802.full.pdf+html](http://opres.highwire.org/content/58/4-Part-1/802.full.pdf+html) retrieved on Dec 06, 2012
- [http://opres.highwire.org/content/58/4-Part-1/802.full.pdf+html](http://opres.highwire.org/content/58/4-Part-1/802.full.pdf+html) retrieved on Dec 06, 2012
- Surgery Dashboard Indicator NSW Ministry of Health March 2012 Version 3.1
- Wright JG, Roche A, Khoury AE. Improving on-time surgical starts in an operating room. Canadian Medical Association 2010; 53(3) : 167-170
- [http://www.lean.org/WhatsLean/](http://www.lean.org/WhatsLean/)
- Pritchard MJ. 2009. Healthcare professionals should be encouraged to use appropriate interventions to identify and assess anxious patients. Identifying and assessing anxiety in pre-operative patients. Nurs Stand 23(51): 35-40
- Pritchard MJ. 2009. Healthcare professionals should be encouraged to use appropriate interventions to identify and assess anxious patients. Identifying and assessing anxiety in pre-operative patients. Nurs Stand 23(51): 35-40
- Operating Room Management, 1999.