Instrumentation in the OR: From the Old to the New

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Objectives

- What are the orthopedic team roles and responsibilities
- How the team maintains sterility throughout the procedure
- What contributes to the timeliness in room turnover
- What is appropriate room set up
- How surgical instruments and supplies have evolved over time
- Care and handling of instrumentation
Orthopedic Team

• Background of the team member
  – Highly trained
  – Wide range of specialties

• Surgeon
  – Consent
  – History and physical
  – Communicates needs
  – Positioning patient
  – Performs surgical procedure
Orthopedic Team (cont.)

- **First Assist**
  - Surgeon, PA, NP, CRNFA
  - Extensive training in orthopedics
  - Manipulating tissue, retraction, and skin closure

- **Anesthesiologist**
  - Assess patient’s risk
  - Assess appropriate anesthetic
  - Communicates equipment needs
Orthopedic Team (cont.)

• Circulator
  – Plans and implements patient care
  – Communicates patient’s needs
  – Assists induction
  – Manages OR suite

• Scrub tech
  – Scrubbed in at the field
  – Sets up instrumentation and supplies
  – Assist the surgeon
  – Surgical counts
  – Maintains sterility
Orthopedic Team (cont.)

• Company Vendor(s)
  – Provides technical knowledge for the surgeon
  – Support for application of implants

• Anesthesia tech
  – May assist induction of anesthesia
  – Knowledge of equipment
  – Set-up of equipment and supplies
  – Assigned to turn over anesthesia area
Orthopedic Team (cont.)

- Direct or Indirect care
  - Supply Chain Representative
  - Charge Nurse
  - Scheduler
  - Equipment Technician
  - OR Manager
  - SPD Technician
  - Radiology Technician
  - PreOp/PACU RNs
Maintaining Sterility

- Surgical scrub hands/arms before start of day
- Using proper surgical attire during procedure
  - Sterile gowns
  - Multiple sterile gloves
  - Hoods during total joint procedures
- All staff enters and exits via sub sterile door
  - Laminar flow- To ensure positive pressure in the OR suite thorough the vents in the room
Maintaining Sterility (cont.)

- Circulator performs proper sterile skin prep
- Proper draping of patient
- Circulator maintains traffic in the OR
- Circulator and Surgical Technician both monitor the sterile field and back table
- Skin/incision is protected (Ioban)
- Sterile dressing
Timeliness in Room Turnover

- Turnover team enters as patient is exiting OR
  - Team
    - EVS
    - Perioperative Assistant
    - Surgical Techs
    - RNs
    - Anesthesia Techs

- Per infection prevention standards
  - Everything is wiped from cleanest to dirtiest
  - Mopping occurs last

- Everything must maintain a wet contact time to properly allow bacterial kill time
Timeliness in Room Turnover (cont.)

- Surgeon and Anesthesiologist interview and assess next patient
- Operating Room RN interviews the patient and determines appropriate care plan
  - Checking orders
  - Consents
  - H&P within proper timeframe
  - Labs
  - Clearances
- Site is marked
- Case carts are checked by surgical tech
- Patient is then transported to OR
- Patient time-out
- Average turnover time for Orthopedic procedures is under 30 minutes
Appropriate Room Set-Up

• The surgical field
Evolvement of Instruments and Supplies

- Surgery has come a long way over the years
- Probes, needles, blades, forceps, retractors, scissors, catheters, hemostats, dilators, implants...
  - the list goes on
- All have evolved to what we use today
Evolvement of Instruments and Supplies (cont.)
Saws/ Saw blades
  – Lighter in weight
  – More durable
  – Increased speed time

Drills
  – Lighter in weight
  – Higher speed of rotation

Hoods
  – Implemented mid to late 1980’s
  – Not as noisy
  – Fans are lighter weight
Evolvement of Instruments and Supplies (cont.)

• Suction Irrigator tips
  – Asepto irrigation
  – Separate suction tip

• Bone Cement
  – Poly-methyl methacrylate
  – Drying time decreased
  – Curing process is quicker

• Bovie units
  – More widely used during incision
Evolvement of Instruments and Supplies (cont.)

• Instrumentation
  – Not much change has occurred to the standardization of general orthopedic instrumentation in recent years
    • Advancements are mostly focused on retractors
      – Better view of surgical field
      – Better use of surgical field management
Evolvement of Instruments and Supplies (cont.)

• Today’s instruments will be become historical objects as techniques and equipment are constantly replaced in response to new surgical ideas and advancing technology.

• Extending the life of surgical instruments solely depends on the careful attention to the handling, cleaning, and sterilization process.
Care and Handling of Orthopedic Instrumentation

- Gentle handling
- Ratchets are open
- Soaking in H2O not Saline
- Clear of bio-burden
- Spray with enzymatic cleaner
- Transported to Decontamination via Case Cart
Sterile Processing Department

SPD Process

• Hooded and gowned
• Deep sink/scrubbing of each instrument
• High pressured washer
• Instruments are in placed trays with a use of a count sheet
• Sterilization process
• Back on shelf via proper discipline or back in case cart for next procedure (2 hrs- 24 hrs)
Thank You!
References

- https://www.google.com/search?q=evolvement+of+surgical+instrumentation&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiz85uN_d_kAhUUGDQIHY9bAtkQ_AUIESgB&biw=1920&bih=1024#imgrc=Y-h3xbBuMnOXMM:&spf=1569002326376
- https://www.statnews.com/2016/06/17/medical-devices-history/
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2430446/
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2502426/