HOT: Hybrid Operation Technician Success Factor Training in the Hybrid OR

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Perfect TEAM – hightech enviroment
Perfect TEAM Performance
Planning & Management of the Hybrid OR
Complex TEAM interactions in the Hybrid OR
Complex TEAM Interactions in the Hybrid OR

Big Challenges – Big Opportunities

- New high-tech environment
- Operation of the system
- Navigation
- Post-processing
- New materials
- Instrumentation
- New workflows
- Interdisciplinary team work
- Patient safety
Methods / Approach

- Assessment of current situation by systematic interviews and discussions with clinical end-users and medical technology producers about the required knowledge and skills for work in the hybrid operating room.

- Workflow analysis of different clinical specialties and applications

- Development of a catalogue of learning objectives and curriculum for standardized training of a so-called hybrid operating room technician (HOT)
## Methods
### Analyzed Workflows

### Vascular Surgery
- Carotid TEA right/left
- Endovascular Aortic Repair (EVAR)
- Femoral TEA + ITA
- Endovascular interventions thoracic Aorta (TEVAR)
- Shunt revision

### Orthopedic/Trauma Surgery
- C-spine C1-4
- Thoracic spine Th5-12
- Lumbar spine L1-5
- Calcaneus fractures

### Cardiology
- Bi - ventricular pacemaker
- Catheter based mitral valve reconstruction with mitra-clip
- Transcatheter-Aortic Valve Implantation (TAVI)

### Radiology
- Various interventional Recanalizations, PTAs, Stent procedures
Conclusion: Training

4 week course curriculum focused on practical aspects and hands-on

- Basics Hybrid OR, set-up, Hygiene, poss. Applications
- WFs
- Imaging procedures
- Navigation, 2D 3D guidance
- Post-processing
- RIS, PACS, IT
- Radiation safety
- Equipment operation
- Devices
- Interventions
HOT Training Concept

1. Basics Hybrid OR
   - Definition
   - Clinical use
   - Hygiene
   - Prepare Pt
   - Clinical basics
   - VS Basics
   - Case planning
   - Economic basics

2. Basics Imag. & Interv.
   - Basics Angiografie
   - Basics Intervent.
   - Imaging, PACS, IT
   - 2D/3D Imaging
   - Imaging WF
   - Cone beam CT etc
   - Radiation safety

3. Hands on Hybrid OR
   - Pt Lagerung
   - Sterile covering
   - Practical skills
   - Navigation
   - TEAM cooperation

4. Hands on Imaging
   - Angiosystem
   - Special imaging
   - Device handling
   - Interv. techniques
   - Robotic
Results

Assessment and feedback of Pilot Courses (n=18)

- Vendor training is not sufficient
- Need for educational Hybrid OR programs
- Top grades / ranking for course content
- Top grades for practical aspects & exercises
- All participants recommended the course to others
- Evaluation of benefits for routine work is planned
HOT Training Evaluation

Overall Evaluation: 1.9

Recommendation Rate: 100%
HOT Training Evaluation
Conclusions: HOT curricular training concept

- High Tec. in the OR
- „The room is the system“
- Systematic training required for efficiently operating a Hybrid OR
- Workflow driven approach ensures improved patient safety and economics
- Experience with HOT training shows high acceptance
- Which professions should receive such dedicated trainings?
- Content should be further developed in consultation with the clinical societies