

OR 2020

[OR of the Future]

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US population increase

Age Group	2010	2020
Overall	7.9%	17.0%
65 yrs and over	13.3%	53.2%

Source: US Department of Census

National Hospital Discharge Survey

- ✓ Patients aged 65 yrs or over comprised:
 - 12% of the population
 - 40% of hospital discharges
 - 48% of days of inpatient care

NHDS, 1999.

Forecasted % Increases of Surgeries by Specialty

Specialty	2010	2020
Cardiothoracic surgery	18%	41%
General surgery	13%	28%
Neurosurgery	14%	27%
Ophthalmology	15%	47%
Orthopedic surgery	13%	25%
Otolaryngology	6%	14%
Urology	14%	33%

Figures listed are proportional increases relative to 2001.

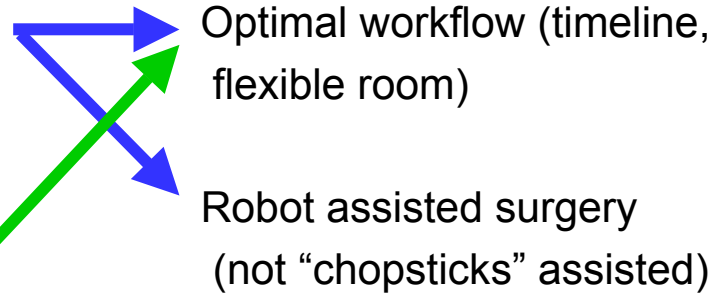
OR of Today

- ✓ Personnel
 - Shortages of nurses, anesthesiologists, surgeons and technicians.
- ✓ System
 - Inefficient, ineffective and redundant procedures
- ✓ Communication & Visualization
 - Fragmented Communications
 - Consultation difficulties
 - 2D, plane images
- ✓ Software
 - Inflexible scheduling systems
 - Inefficient supply management
 - Unshared information
 - Incompatible patient database
- ✓ Hardware
 - Not patient oriented
 - IntraOP diagnostic difficulties
 - Too many cables
 - Instruments incompatibility

What can we do ?

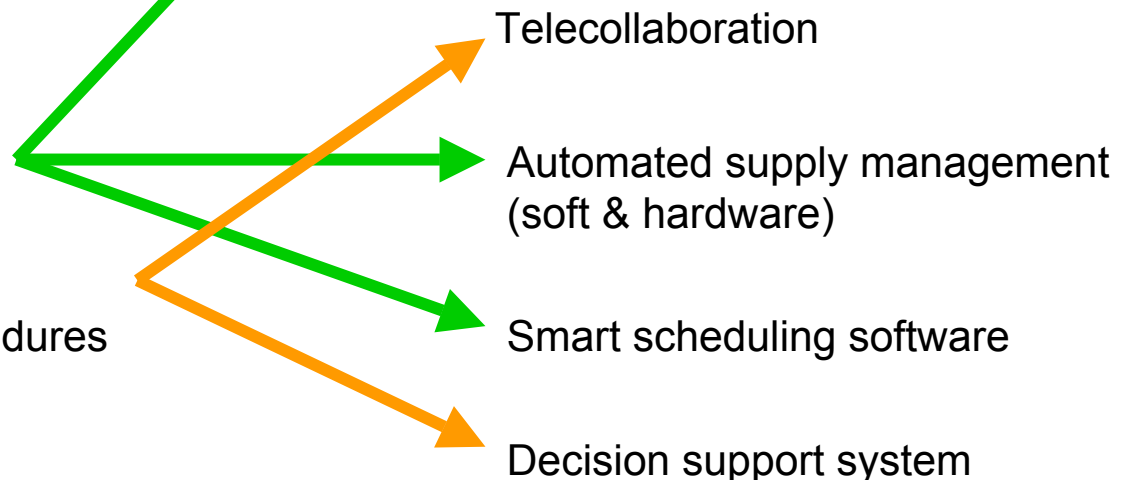
✓ Personnel

- Shortages of anesthesiologists, surgeons, nurses and technicians.





✓ System

- Inefficient,
- Ineffective and redundant procedures






What can we do ?

✓ Communication & Visualization

- Communication difficulties ◀  Telecollaboration (wireless)
- Consultation difficulties
- Plane 2D images  Augmented 3D images




What can we do ?

✓ Software

- Inflexible scheduling systems  Smart scheduling software
- Inefficient supply management  Automated supply management
- Unshared information  Standard structure of database
- Incompatible patient database


What can we do ?




✓ Hardware

- Not patient oriented
(source of infection,
time consuming)  Patient oriented system
(active RF ID, active monitor sensor...)
- IntraOP diagnostic difficulties  Intraoperative imaging (US, MR...)
- Too many cables
(source of infection)  Standard, wireless, plug & play,
hot swappable interface
- Instruments incompatibility
(inefficient, time consuming)

New Tools of Today

- ✓ Image
 - PACS
 - 3D surgical simulation program

- ✓ Surgical robots
 -  ZEUS® Surgical System
 - *da Vinci*®
 - EndoWrist® Instruments
 - InSite® Vision System : High resolution 3-D endoscope and image processing equipment
 - Navigator™ Camera Control

- ✓ Voice recognition system
 -  AESOP® Endoscope Positioner
 -  HERMES® Control Center
 -  SOCRATES™ Telecollaborative System



To do List

- Optimal workflow
- Smart scheduling, automated supply management
- Standardization of software & hardware interface
- Patient oriented system
- Telecollaboration
(teleconsultation, telementoring, telepathology)
- Robot assisted surgery (telesurgery)
- Intraoperative imaging
- Decision support system

Goals of OR 2020

- ✓ Safety of Patient
- ✓ Improved Cost / Effectiveness
- ✓ Better Workplace for OR staffs

Working Groups




- ✓ Group 1: Workflow
- ✓ Group 2: Systems Integration and Standards
- ✓ Group 3: Telecollaboration
- ✓ Group 4: Robotics
- ✓ Group 5: Intraoperative Imaging
- ✓ Group 6: Decision Support

OR 2020

will be characterized by ;

patient oriented system with active sensors,
optimal workflow,
standardized interfaces,
intuitive communications that enable
telecollaborations,
robotic surgeries,
decision support systems,
smart scheduling and supply systems.

Benefits?

- ✓ Patients 
- ✓ Hospitals 
- ✓ Nurses, Technicians 
- ✓ Surgeons,
Anesthesiologists 