

Full Body Patient Simulation Rooms (OR, Trauma, ICU, ER, LDR)

- Ideally these rooms reflect the actual environment they are intended to simulate
 - Square footage should be relatively close to the actual environment
 - Equipment in the rooms should reflect gear that is found in the actual environment
 - Patient Monitors
 - Clinical Workstations
 - PAC's Systems
 - Anesthesia Machines
 - OR lights
 - Ventilators
 - Defibrillators
 - Etc
 - Number of cameras per room
 - At minimum 2 Pan/Tilt/Zoom Cameras per room
 - one camera over the chest of the simulator with ability to capture airway management and defibrillation techniques. Note: during the simulation activity, the camera above the simulator should not be blocked by the vapor barrier of the simulated patient.
 - one camera following the simulator body longitudinally and 45 degrees off the foot of the bed of the simulator. This is to capture entire group treating the patient
 - 3rd Camera if needed is usually placed to the left of the simulator (from center of simulator to simulators left ... focus on anesthesia cart management
 - Optional Monopod cameras provide the option for more flexible capture (it is typically a pan/tilt/zoom camera on a wheeled base)
 - Variations on camera placement depend on types of simulations being conducted within the room. code lead locations ... head of the bed or foot of the bed, and other unknowns TBD may drive changing camera placement
 - Flexibility in camera placement after installation is very important. To facilitate this, each ceiling mounted camera should be placed in a square ceiling tile so that it can be moved (each camera should have enough cabling slack so that the camera can be relocated to any corner of the room)
 - If there are more than 3 cameras in a space, the control room needs an additional large screen display to show camera overviews to show all camera feeds so that the operator can easily select which camera to best record from.
- High Resolution Capture



- At minimum provide one XGA capture point with loopback so that you can easily capture the patient monitor (real or simulated) near the head of the simulator
- Ideally provide at least two locations to capture high fidelity feeds within the simulation room
 - Usually one for the patient monitor (real or simulated)
 - One for the clinical workstation. (Note most new clinical workstations will leverage DVI connectivity in place of VGA. If you are building a new simulation center, highly recommend the usage of at least one DVI-I connector so that both DVI-D and DVI-A/VGA can be supported in a room)
- Higher fidelity areas typically have additional high resolution capture feeds (Ventilator, ultrasound, fetal monitor, etc)
 - OR's and LDR's usually have 3 or 4 XGA capture points
- The high-resolution capture plate usually has a built in monitor loopback.
- XGA plates near the head wall or on the OR boom can have additional composite video and audio inputs to capture video enabled otoscopes or endoscopic camera. Given the trend towards DVI connectors, recommend having a DVI capture point on the OR boom
- Most simulation rooms will have the physical capacity to support multiple patient simulators. Should make the decision up front on whether the functionality for multiple patients in the particular room is necessary.
 - From an infrastructure standpoint and remote simulator management, an additional 3 gang junction box in the control room and the simulation room is necessary to implement this functionality
 - Additionally want to enhance the high resolution capture in a ratio of 2 XGA capture per simulator
- Labor and Delivery
 - Typically has the capture for the Mother and the Baby. So the compliment of XGA capture locations is higher
 - Mother Simulator (usually has two displayed monitors)
 - Patient Simulator
 - Fetal Monitor
 - Note: The torques applied to the baby during birth are captured as data feeds
 - Baby simulator
 - Patient Monitor
 - Clinical workstations ...
 - May want two ... one for the mother and one for the new born
 - There may be two separate simulator PC's to control the Mother and Baby simulators



- Multiple patient, mass casualty
 - Usually integrates multiple simulation rooms
 - Having a flex wall allows adjacent rooms to be opened into one large area
 - The most expensive methodology is having a sky wall ... these have very good sound isolation
 - The second alternative is having a large sliding glass door(s). It can be frosted for privacy, but properly specified glass doors have relatively good sound isolation and glass doors are found in most Critical Care Areas. This is the most cost effective solution to date, and is very common in ICU's
 - Flex walls, similar to ones found in classrooms, are least desirable for their poor sound isolation qualities
- Power Outage Simulation
 - Power needs to be controllable from the control room so that it can properly mirror a power outage
 - Ideally there are 3 power circuits
 - One for simulators (always on)
 - One for general power and lighting (controlled by a switch in control room)
 - One for emergency power (controlled by a red switch in the control room)
 - Low-cost Implementation
 - 2 switches that are used to control each circuit individually from the control room
 - To simulate a power outage, both circuit switches off, 5 to 15 seconds later, red (emergency) outlets are flipped back on.
 - Higher-cost Implementation
 - 2 power circuits have relay control that managed from a Lutron control system with 422 interface from an AMX or Crestron Unit
 - Power for simulators need to be on a dedicate circuit that is always on

The full version of this Planning Guide includes helpful suggestions for construction and sound proofing, network design, operational work flows, and requirements for the audiovisual / server core. Please contact a B-Line Medical representative (info@blinemedical.com or 1.888.228.3838 ext. 1) to receive the complete version.