

Simulation based mock-up evaluation: HQCA Framework & AHS Case Studies

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Framework Development

- Simulation based mock-up evaluations:
 - Full scale mock-up environment
 - Individuals or teams enact relevant tasks
 - Data is collected and analyzed from the simulations
 - Recommendations made to:
 - guide design decisions
 - optimize the environment

Framework Development

- Literature review
- Stakeholder kick-off meeting on Feb 27/15
 - 28 attendees representing:
 - Alberta Health Services
 - Alberta Infrastructure
 - Architecture Firms
 - Center for Health Design
 - Continuing Care
 - Covenant Health
 - CSA Canada
 - Health Quality Council of Alberta
 - Patients
 - Primary Care
 - W21C

Framework Development

- Project lead & team members drafted framework document
- Stakeholder feedback
- National/international (USA, UK) feedback:
 - Human Factors
 - Patient Simulation
 - Healthcare Architecture
- Dissemination anticipated Jan 2016
 - Publically available on HQCA website
 - CSA Z8000

Framework Goals

- Enhance awareness and use of simulation-based mock-up evaluations
- Assist with planning for an evaluation, as applicable, before the design process starts
- Provide guidance for individuals/ organizations to conduct a mock-up evaluation

Framework Principles

1. A simulation-based mock-up evaluation should be considered, and if applicable planned, as part of the pre-design process that established the need for a project.

Framework Principles

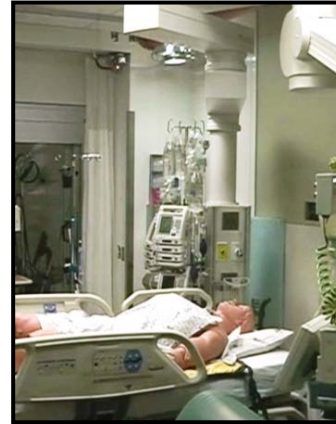
2. The mock-up evaluation should be thoroughly planned to maximize effectiveness.

Framework Principles



Framework Principles

Mock-up fidelity



Framework Principles

3. Construction of the mock-up should align with evaluation timing and objectives.

Framework Principles

- Evaluation objectives

- Unit configuration

- Room size

- Design or design feature comparisons

- Space requirements for equipment or processes

- Access to patient and/or equipment

- Patient/family spaces and experiences

- Patient transport routes to and from the room

- Room configuration

- Furniture, fixtures, and equipment placement

- Furniture, fixtures, and equipment usability

- Visibility of patient, monitors, supplies, and/or equipment

- Supply placement

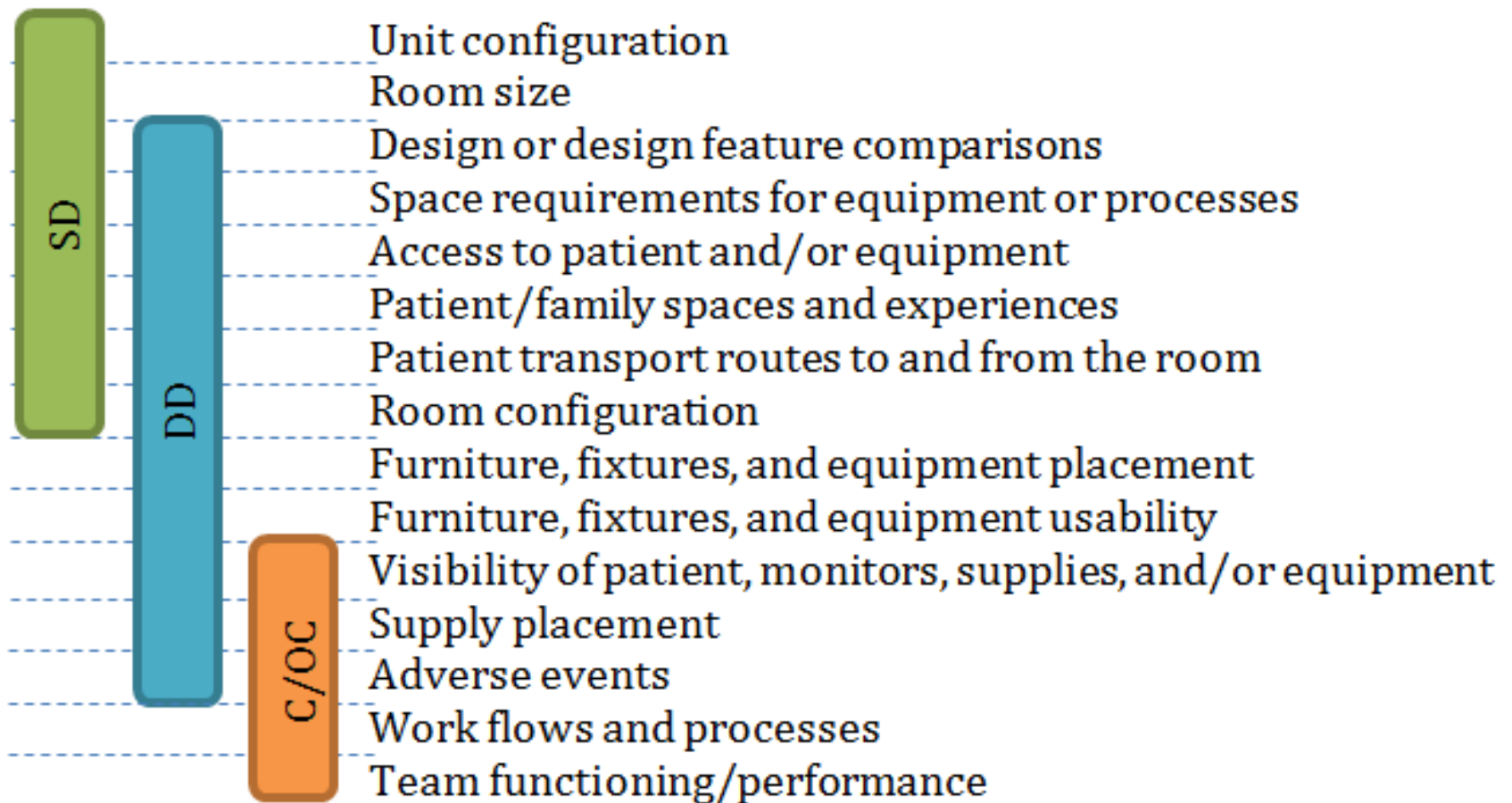
- Adverse events

- Work flows and processes

- Team functioning/performance

Framework Principles

- Evaluation objectives and design stage



Framework Principles

4. The simulation scenarios that are created and enacted should test the evaluation objectives.

Framework Principles

5. Recommendations should be informed by evidence-based data from scenario enactments.

Simulation Based Mock-up Evaluation Case Studies

SHC Mock-ups



ACU Patients Room



ED Exam Room



Out Patient Exam Room

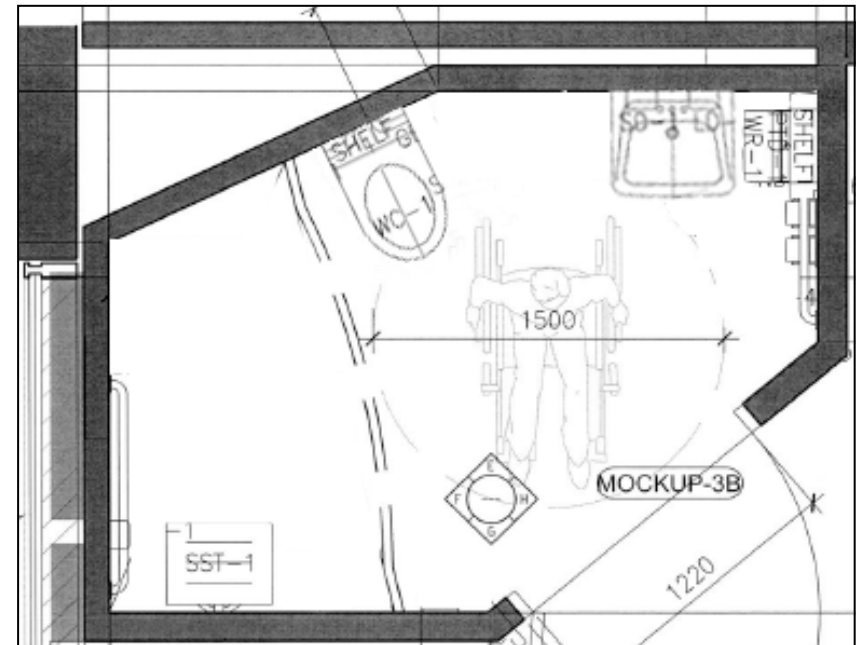
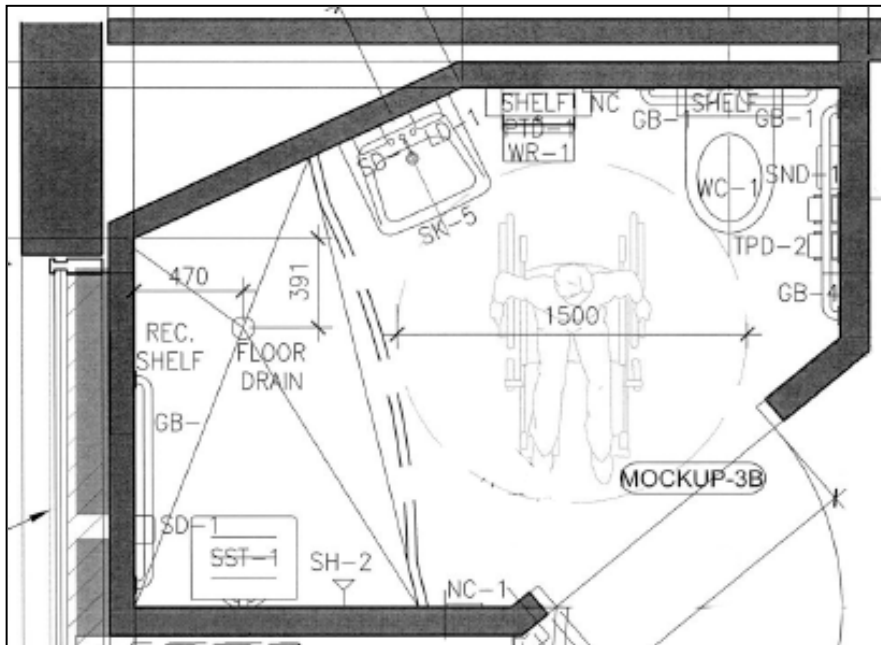


ICU Patient Room

(Caird, Shultz, Mayer, Chisholm, & Teteris, 2010)



SHC Mock-ups



SHC Mock-ups



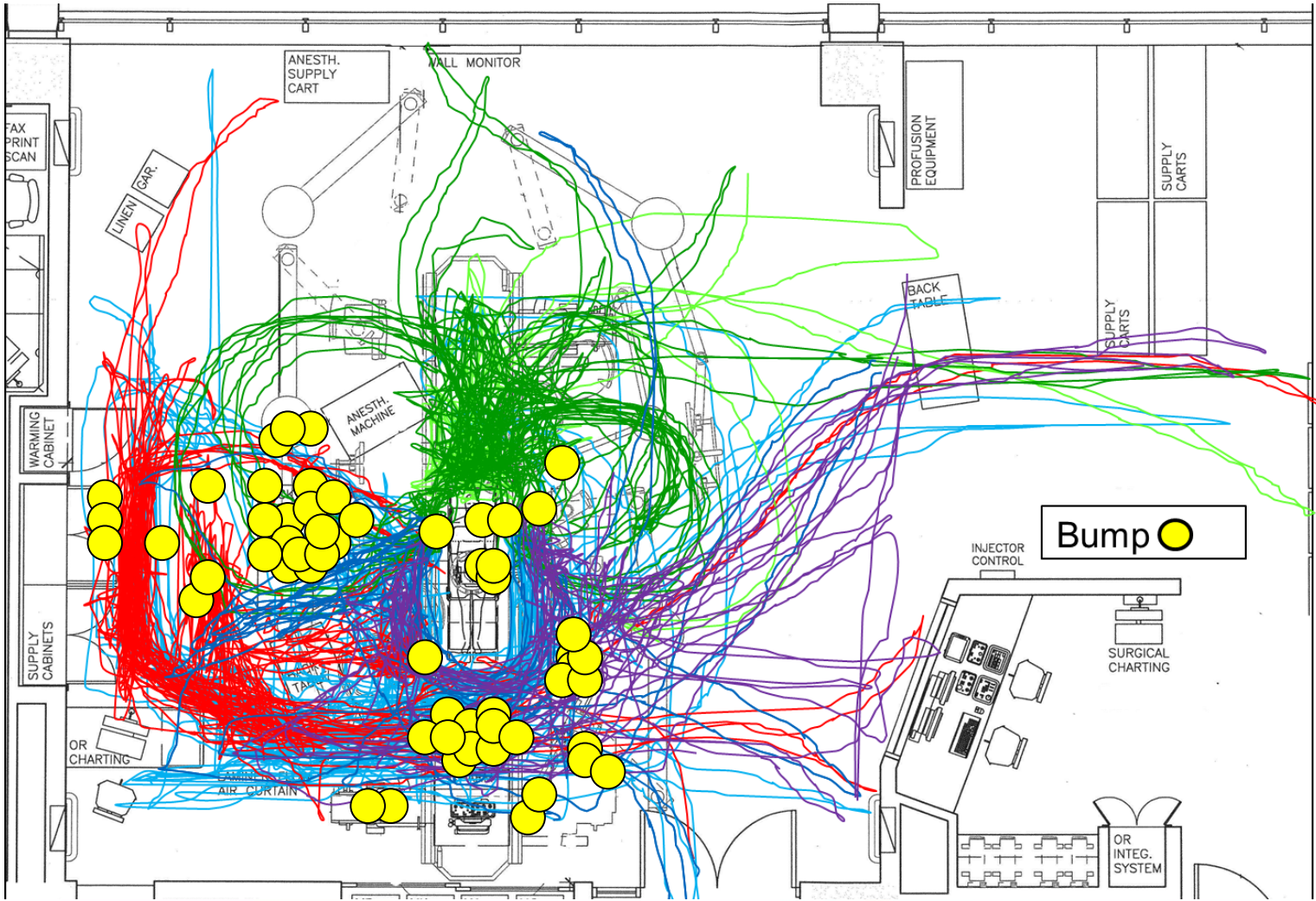
South Health Campus

■ Cost of mock-up evaluations	\$ 258,993
■ Cost savings at full build	<u>\$1,947,200</u>
■ Net savings at full build	\$1,735,207

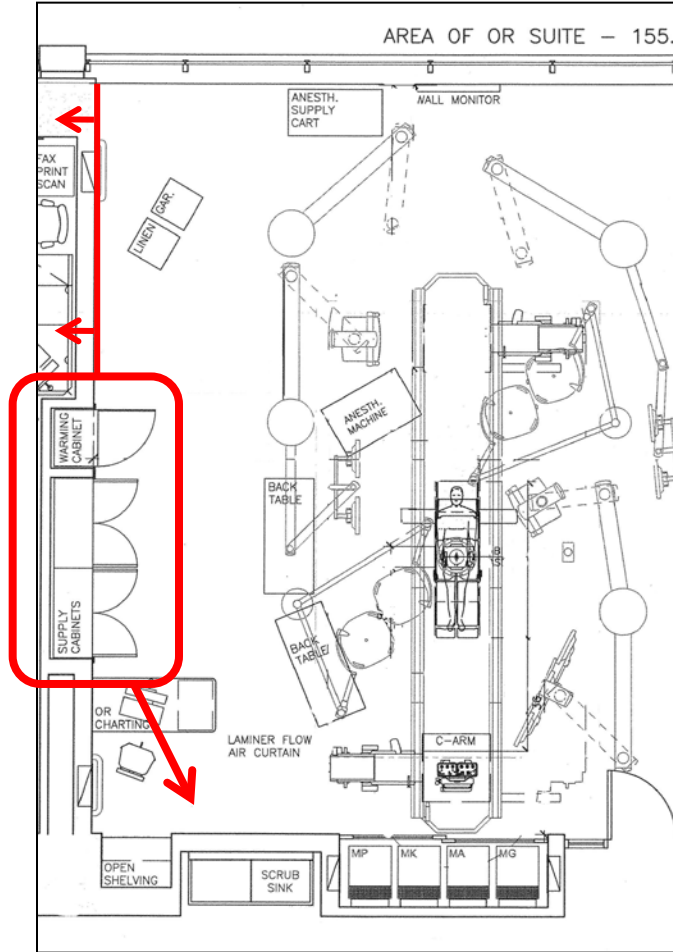
ITOR Mock-up



ITOR Mock-up

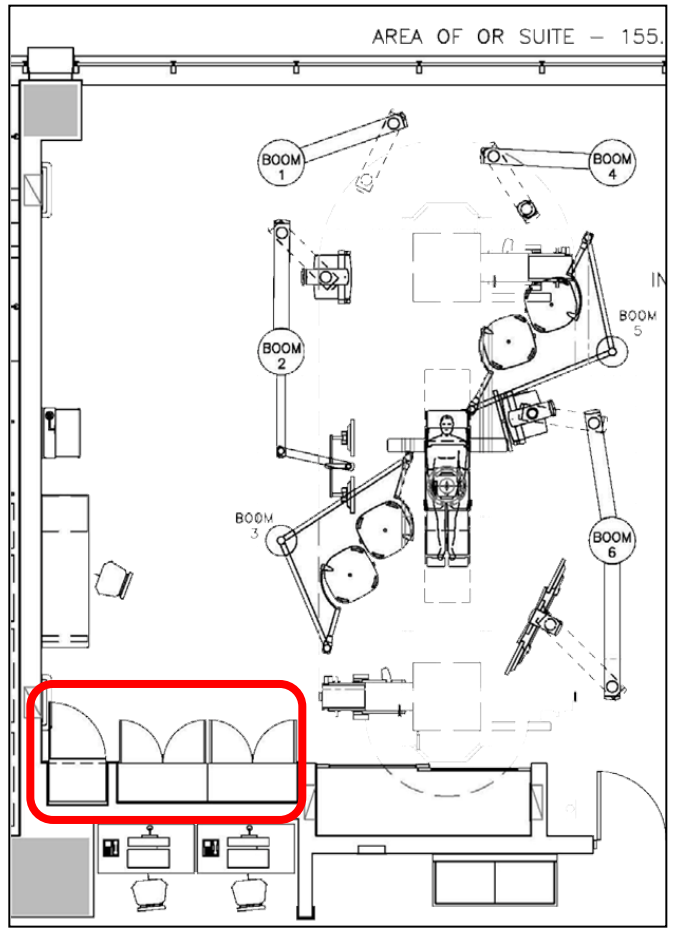


ITOR Mock-up



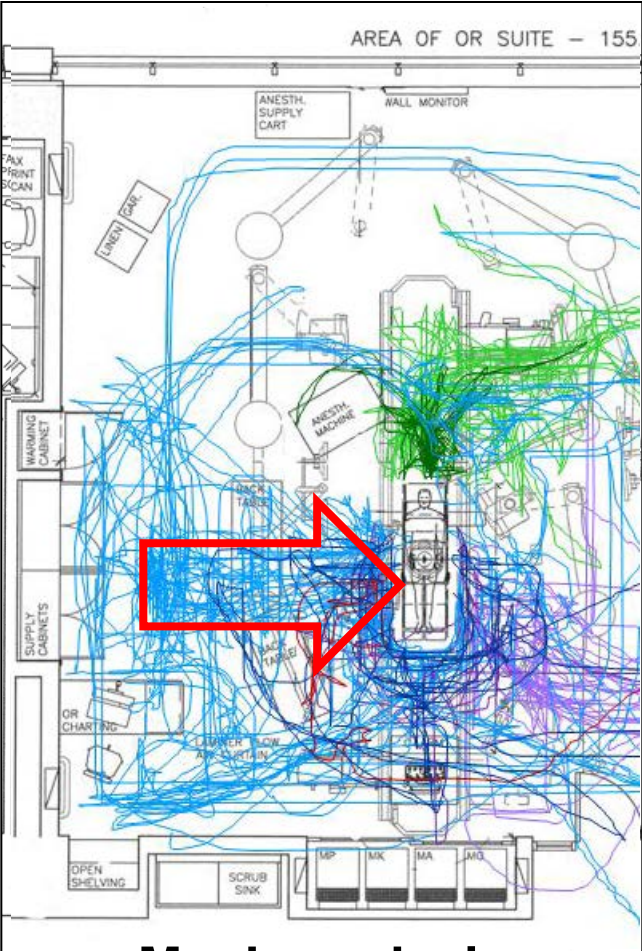
Mock-up design
(Feb 16, 2010)

Moved wall
out and
relocated
supply
cabinets

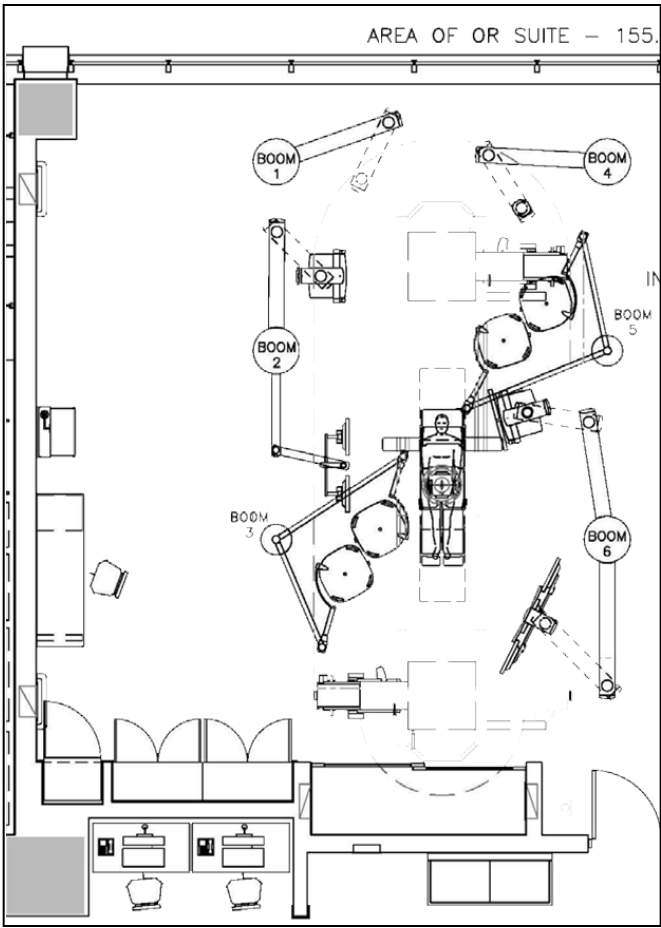


Built design
(Nov 28 & 29, 2012)

ITOR Mock-up

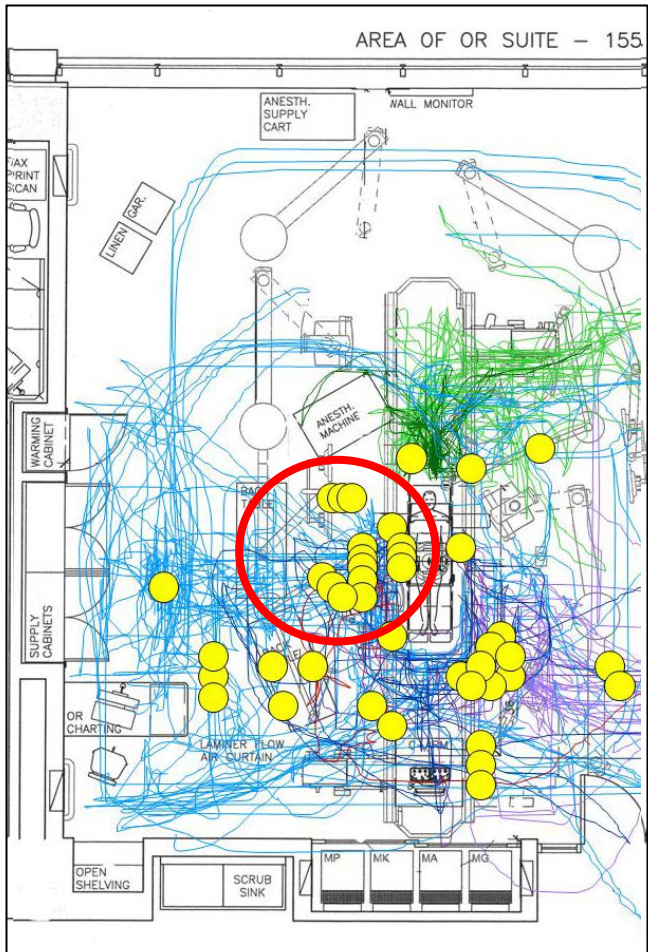


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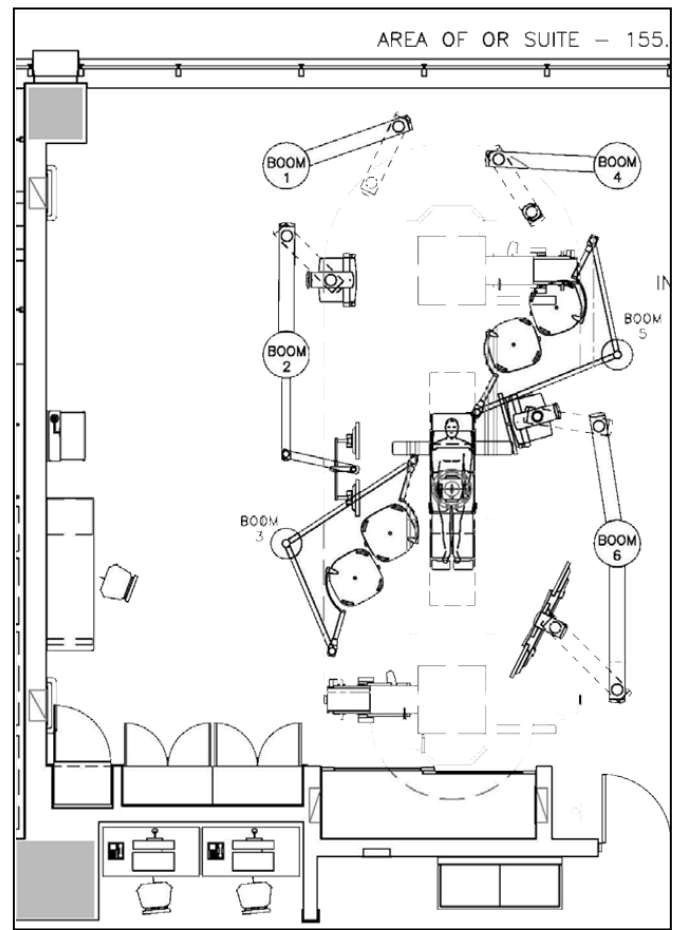


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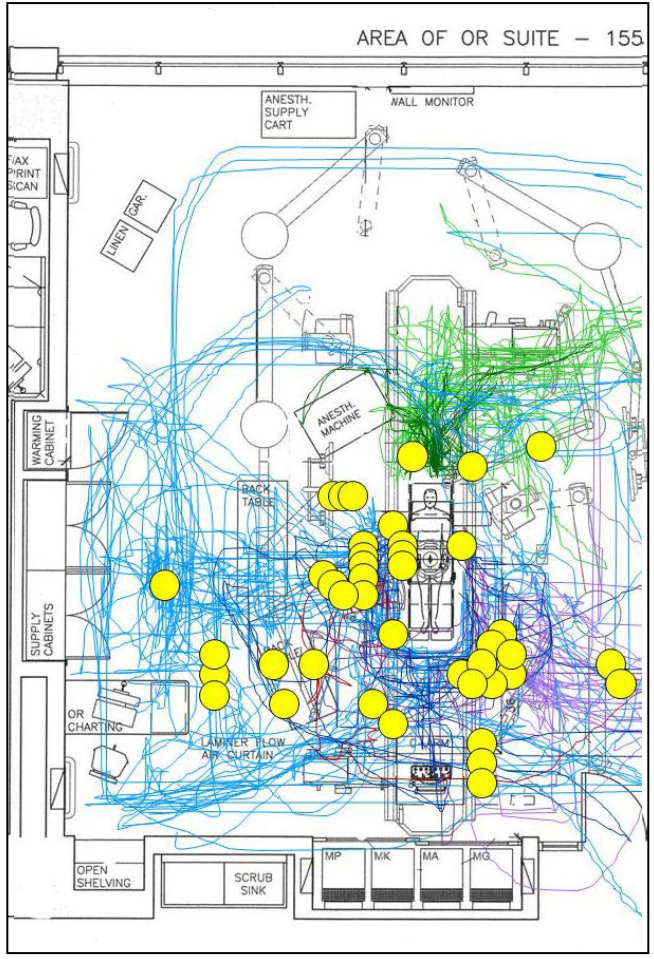


Mock-up design
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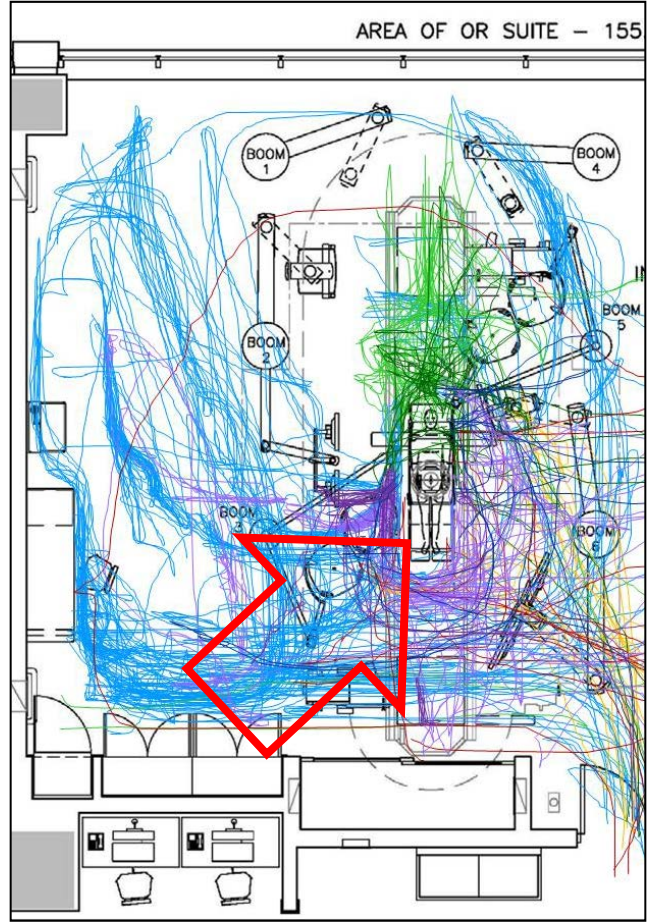


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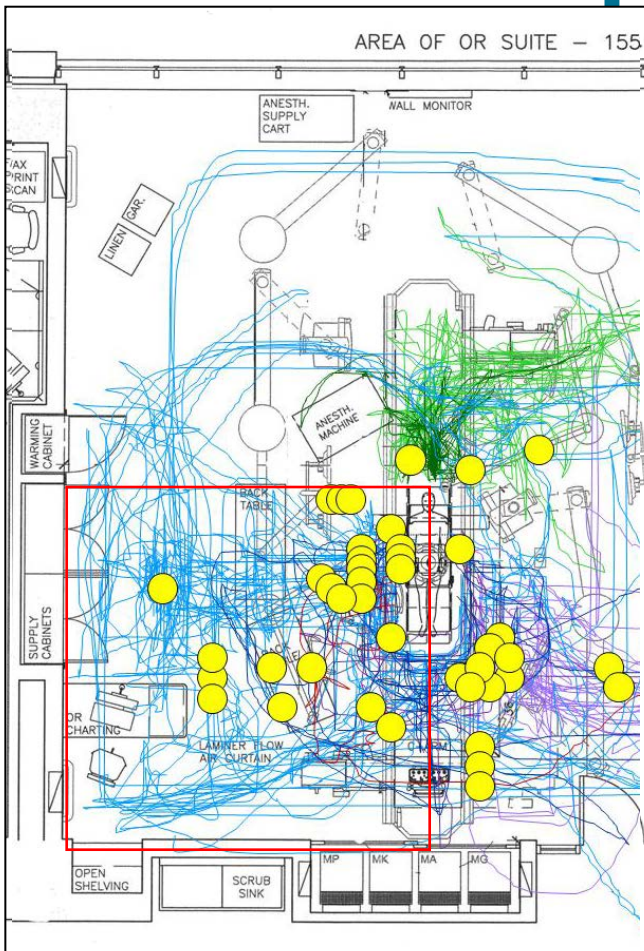


Mock-up design
(Feb 16, 2010)



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(Nov 28 & 29, 2012)

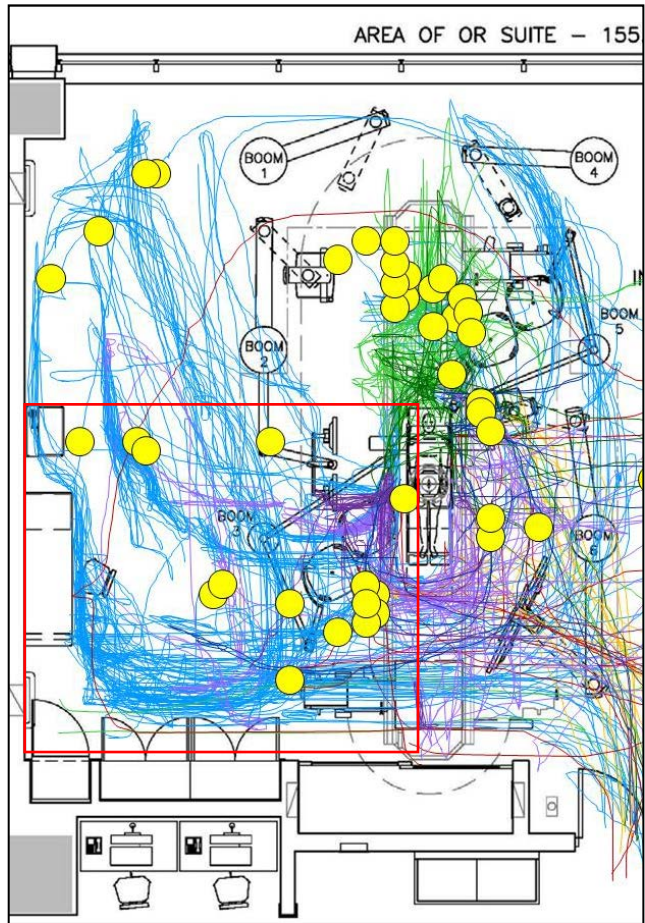
ITOR Mock-up



Mock-up design
(Feb 16, 2010)

Nursing area bumps:

↓ 44%
(25 vs 14)



Built design
(Nov 28 & 29, 2012)

Acknowledgements

■ Project lead

- Jonas Shultz

■ Project team member

- Bev Knudtson, Jason Laberge, Mirette Dube, Steve Fowler, Susan Biesbroek, Trevor Peter

■ Stakeholder members

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- Ellen Taylor, Tony Easty, Craig Zimring, Sue Hignett, Anjali Joseph

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- Christie Langtry, Angelika Schlacher, Cassandra MacBeth, Claudia Gonzalez

For more information ...

- Listen to the W21C patient safety podcast
– goo.gl/qRN3oF



- Contact Jonas Shultz
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