Standardized Simulation Data Collection System for Improving Patient Safety
Request for Lokahi RMOT Initiative Funding

I. Executive Overview

A. Project Identifiers

Initiative Name: Mitigating Risk and Demonstrating Improved Patient Outcomes using a Standardized Data Collection System for Simulation

<table>
<thead>
<tr>
<th>Type of Request</th>
<th>“One-Time” Investments</th>
<th>Pilot of Proof-of Concept Initiatives</th>
<th>Research and Design of Clinical/Patient Safety Improvements</th>
<th>Initiatives with Far-Reaching Impact</th>
</tr>
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<tbody>
<tr>
<td>Check Applicable</td>
<td>X</td>
<td></td>
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<thead>
<tr>
<th>Date Submitted</th>
<th>Proposed Initiative Start Date</th>
<th>Proposed Target Completion Date</th>
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<tbody>
<tr>
<td>February 2013</td>
<td>Q2 2013</td>
<td>Q4 2013</td>
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</table>

Areas Impacted: All regions – Program-wide initiative

Initiative Sponsor: Mark Littlewood, Senior Director Quality TPMG; Doug Bonacum, VP, Quality, Safety, and Resource Management

Initiative Manager: Connie M Lopez, National Leader, Risk Management & Patient Safety
B. Executive Summary

Our eight KP regions have a family of simulators but do not have resources for purchasing an effective debriefing and data collection system.

Effective debriefing promotes learner reflection and behavior change which have the potential to mitigate risk and improve patient outcomes. Video and data collection enables effective debriefing. Currently, behaviors are captured by observers during simulations on paper checklists which are discarded after training. StudioCode, a mobile video and data collection system would provide a mechanism for data collection from patient simulation environments via laptop computers.

Instead of using paper checklists to capture learner behaviors, observers would use iPads and/or iPhones to document learner behaviors. Through a combination of desktop and mobile software, data can be captured from multiple observers which would allow for observation through multiple lenses and provide tremendous support for interprofessional education. StudioCode video and data collection system provides for effective debriefing to ensure the transfer of learning to real clinical settings.

StudioCode time stamps course objectives so instructors can quickly link learner behaviors to objectives in the video providing a more effective debriefing experience. Video and data can be exported from the mobile system allowing for analysis of captured learner behavior. Once the learning objectives are met during a simulation, if there is a gap in performance, this data can be relayed back into the simulation setting to improve the attainment of the educational objectives.

This application is for the purchase of video/data collection systems so each region and up to 5 medical centers would have the tools to provide effective debriefing. StudioCode will afford the following benefits across the program:

1. Robust data collection that can be collected in-situ or center simulated setting
2. Construction of standardized data collection tools that can be customized and used at independent locations in all 8 KP regions
3. Superior video/audio quality for video debriefing to help ensure learning objectives are met
4. Support current standards, guidelines, policies, and procedures in the organization
5. Assess learning retention by running subsequent simulations to test progress
### C. Initiative Funding Needs and Sources Summary

<table>
<thead>
<tr>
<th>Source</th>
<th>Funding Needed</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Lokahi</td>
<td>TOTAL: $284,567.50</td>
<td>A. Learner Engagement1 Package (equipment, service and training/support) for 8 regions (includes Wireless1, plus 3 iPad coding modules, 2 year technical support, 2-day initial training and 1 day additional training)</td>
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<td></td>
<td>A. Regional grant program: $211,480 ($26,435 x 8 regions)</td>
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<td></td>
<td>B. Matching grant program for medical centers: Up to $66,087.50 based on each medical center contributing the remainder of the cost for Learner Engagement 1 Package</td>
<td>B. Learner Engagement1 Package for up to 5 Medical Centers (This number is targeted based on knowledge of current simulation infrastructure and interest in purchasing video/data collection equipment at the medical center level. This funding is dependent on their funding ability)</td>
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<td></td>
<td>C. NATIONAL RISK MANAGMENT grant for training and support in developing program: $7,000</td>
<td>C. These funds will cover travel and expenses for NATIONAL RISK MANAGMENT Team member to participate in StudioCode training and support regions in developing measurable objectives for simulation data collection</td>
</tr>
<tr>
<td>National</td>
<td>Salary covered by National Risk Management</td>
<td>National Risk Management Simulation Leader to manage and support the project</td>
</tr>
<tr>
<td>Regional</td>
<td>Covered by the Regions</td>
<td>One MD or RN Educator or SimTech to manage and support the project and run simulations</td>
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<tr>
<td>Local Entities</td>
<td>Covered by local centers</td>
<td>Simulation Team to manage and support the project and run simulations</td>
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II. Project Specifics

A. SBAR (Situation, Background, Analysis, Recommendation)/ IBAC (Issue, Background, Analysis, Conclusion)

Situation

Currently, many simulation programs are not collecting data or measuring outcomes of their simulations. Many do not use video to capture their simulations, and if they do, they use either handheld video cameras or webcams that come with the simulation equipment. These handheld cameras and webcams allow for recording of actions and playback only. The software to collect data linked to the video that operates the webcams is very rudimentary and does not allow for robust data collection and the video and audio quality is poor. This is inefficient and limits the effectiveness of evaluating learner actions during a simulation and transfer of learning to the clinical setting.

Background

There are two KP regions that have pilot tested the StudioCode technology to capture simulation video and data. The Southern California and Mid-Atlantic regions have used this technology in both in-situ and fixed lab settings, and have been able to collect data for immediate debrief, formative assessment, and research purposes. The data collected ranged from clinical skills to human factors. The mobile Studiocode units have been used in conjunction with simulation to test new clinical environments and assist in failure mode effect analysis (FMEA).

In addition to StudioCode, iCoda for the iPad and iPhone, is a tool that would engage learners anywhere within the Kaiser Network and would assist with the transfer of learning to clinical settings. iCoda allows for the same data collection methodology as StudioCode but without video collection. A rubric can be established for a particular simulation and then can be used to capture performance data in a simulated setting. Video can be connected with this data and used during debriefing

NOTE: Kaiser Permanente is seeking to create a KP Maintenance of Certification for Anesthesia (MOCA) Simulation–based Program. Video capture is a mandatory element for MOCA Program accreditation.

Assessment

Our eight KP regions have a family of simulators but do not have resources for effective debriefing and data collection. Use of an effective data collection and debriefing system will enhance our current simulation programs and would have the potential to mitigate risk and improve patient outcomes. StudioCode will afford benefits across the program. Data can be collected in-situ or retrospectively in more detail using video review. Construction of a variety of standardized data collection tools can be customized and used at independent locations in all 8 KP regions for quality video debriefing to help ensure learning objectives are met.

A Matching Grant Program for 5 Medical Centers will support the use of effective video capture and data collection at the local level or point of care. Providing resources to our medical centers will improve access to and use of the equipment and support data collection for all programs. This number is targeted based on knowledge of current simulation infrastructure and interest in purchasing video/data collection equipment at the medical center level.
Recommendation

The recommendation is to fund the purchase of eight camera systems, hardware (including laptops), training and eight software licensing packages (one Learner Engagement1 Package) per region) PLUS and additional year training and support for the regions as well as fund half the cost of five camera systems, hardware (including laptops), training and five software licensing packages (one Learner Engagement1 Package) for 5 Medical Centers.

Required resources:

- National Risk Management staff - to coordinate the equipment purchase and training
- Regional Simulation Team – to coordinate the selection of Superusers and equipment training.
- Existing local simulation teams - to select Superusers as well as conduct local simulations and collect local data

For the regions:

- Purchase of 8 Studiocode licenses – see attached quote
- Purchase of 8 AV mobile units – see attached quote
- Purchase training on use the software and support post pilot implementation (3, 6 or 12 months post pilot implementation)

For 5 medical centers:

- Purchase of 5 Studiocode licenses – see attached quote
- Purchase of 5 AV mobile units – see attached quote
- Purchase training on use the software and support during pilot phase (3, 6 or 12 months post pilot implementation)

**NOTE:** Med Centers will pay half the cost of the above purchases
B. Detailed Financial and Operation Plan

 Proposal: Each region will receive the data collection equipment and training in 2013 to capture video and collect data collection during simulations. Performance data collected with this system may include teamwork and communication measures such as TeamSTEPPS elements as well as medical management measures. Each region receiving the equipment and training would be expected to participate in a practice sharing collaborative call led by National Risk Management quarterly. Practice sharing collaborative calls will provide the opportunity for providing ongoing feedback on and assessment of the equipment use and data collection.

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Target Start Date</th>
<th>Target Complete Date</th>
<th>Anticipated Cost</th>
<th>Anticipated Funding Source</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Equipment purchase and training will occur in 2013</td>
<td>Q2 2013</td>
<td>Q4 2013</td>
<td>$218,480 ($26,435* x 8 Regions plus $7,000 for NRM)</td>
<td>Lokahi</td>
<td>National Risk Management (NRM) will support the purchase, distribution and training of video/data collection equipment.</td>
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<td>Quarterly collaborative practice sharing calls established after equipment purchase</td>
<td>Q2 2013</td>
<td>Ongoing</td>
<td></td>
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<td>National Risk Management will lead a National Simulation practice sharing collaborative call quarterly as an opportunity to provide ongoing feedback and assessment of the equipment use and data collection.</td>
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<td>Regional StudioCode Superuser(s) will be indentified e.g.1 MD Educator, 1 RN Educator, 1 SimTech</td>
<td>Q2 2013</td>
<td>Q4 2013</td>
<td></td>
<td></td>
<td>Regions will identify StudioCode Superusers MOU will be signed (see attached)</td>
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<td>Selection of 5 medical centers</td>
<td>Q2 2013</td>
<td>Q4 2013</td>
<td>$132,175 ($26,435* x 5 medical centers)</td>
<td>Lokahi – 50% Medical Center - 50%</td>
<td>Regions will identify and invite 5 MCs to receive the equipment and training. These Centers will have existing infrastructure to support the use of the equipment. <strong>MOU will be signed (see attached)</strong></td>
</tr>
<tr>
<td>Creation of Code Windows, Simulations and Data Collection</td>
<td>Q2 2013</td>
<td>Q4 2013</td>
<td></td>
<td></td>
<td>Regions and local teams will identify technical and non-technical skills data to be collected during simulations</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>Q2 2013</td>
<td>Q4 2013</td>
<td></td>
<td></td>
<td>Regions and local centers will have the opportunity to share equipment use and data collected quarterly during the collaborative practice sharing call.</td>
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**Learner Engagement 1 Package Costs**

<table>
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<tr>
<th>One Time Costs</th>
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<tbody>
<tr>
<td>Software</td>
<td>$6,885</td>
</tr>
<tr>
<td>Hardware</td>
<td>$14,500</td>
</tr>
<tr>
<td>Training</td>
<td>$2,600</td>
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<tr>
<td>Sub-Total One-Time Costs</td>
<td>$23,985</td>
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**Annual Costs**

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<tr>
<td>Technical Support/ Additional Training</td>
<td>$2,450 Includes one day onsite training</td>
</tr>
<tr>
<td><strong>Total 1st Year Cost</strong></td>
<td><strong>$26,435</strong></td>
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C. Initiative Metrics

1. Number of Superusers trained by Q4 2013 (Target: 3 users per Region)
2. Number of courses using the video/data collection system (Target: 2013: 1 per region, 2015: 50% of courses)
3. Number of courses reviewed and modified as needed based on information collected using the video/data collection system (Target: 2015 - 100%)
4. Use of national standardized metric related to human factors (Target: 1 each year)

D. Project Considerations

1. Overlap or Dependency with Other Initiatives – this project supports patient safety programs including simulation

2. Organizational Changes Required to Capture Benefits – regional and/or local ongoing support of simulation-based programs including video capture for effective debriefing and commitment to providing equipment Superusers

3. Potential Risks/Obstacles and Plans to Address

<table>
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<tr>
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<th>Plans to Address</th>
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<tbody>
<tr>
<td>Regional and local leadership support for the project</td>
<td>Create a Memorandum of Understanding outlining the project goals and objectives. Regional and medical center leadership will need to sign the MOU document (see Appendix A)</td>
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E. Supplemental Information addressing Investment Justification and Transferability

StudioCode can be used in all KP regions for all educational programs anywhere within the organization to observe and measure human behavior.

StudioCode will assist in collecting data and comparing behavior over time. Learning retention could be accessed by running subsequent simulations to test progress. If there is a gap in performance, this data can be relayed back into the simulation setting to improve the attainment of the educational objectives, and ultimately performance in the real clinical setting.

Future Implications:
1. Medical school and residency training
2. Nursing competencies & new grad programs
3. Regulatory requirements
4. Medical specialty certification
5. HCOM training
NOTE: Kaiser Permanente is seeking to create a KP Maintenance of Certification for Anesthesia (MOCA) Simulation–based Program. Video capture is a mandatory element for MOCA Program accreditation.
APENDIX A – MOU

Project: Standardized Simulation Data Collection System for Improving Patient Safety

Memorandum of Understanding

____________________ (region or medical center) is participating in using a Simulation Data Collection System Project for Improving Patient Safety

____________________ (region or medical center) agrees to:

A. Identify Data Collection Superuser(s). The Superuser(s) will include regional/medical center leader(s) such as 1 MD Educator, 1 RN Educator and/or 1 SimTech

B. For Medical Center participants only: Contribute 50% match of the purchase cost of the system (up to a maximum contribution of $13,217.50 per medical center)

C. Provide initial training to the Superusers on the use of the StudioCode/iCoda software and equipment (included in the grant)

D. Utilize the StudioCode/iCoda software and equipment during simulation-based programs

E. Participate in a collaborative practice sharing call quarterly as an opportunity to present simulation findings/data

F. Develop a succession plan for Superusers leaving their role so that a new Superuser can be trained on the use of the data collection system

National Risk Management agrees to:

1. Provide simulation data collection equipment and training support those receiving the equipment

2. Provide the support of a subject matter expert(s) in simulation and data collection

3. Facilitate quarterly inter-regional teleconferences to share successes, best practices, and innovations in simulation and data collection as part of a national simulation collaborative practice sharing group.

4. Provide consultation as needed on any aspect of this project.

For the Region/Medical Center:

____________________
Regional Leader

For National Risk Management:

Connie Lopez, NATIONAL RISK MANAGEMENT National Simulation Leader