**Supplementary Appendix**

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# **Appendix A. Leadership Saves Lives (LSL) Workshop Curriculum**

Guiding coalition members were exposed to three intervention components: (1) three annual forums to bring together members from all 10 LSL sites; four semiannual, one-day workshops at their own hospitals; and (3) access to a web-based platform that included a repository of project resources and spaces for discussion. This most intensive of these three components were the semiannual in-hospital workshops, detailed below.

|  |  |
| --- | --- |
| **Structure** | One-day workshops (6-8 hours each) held twice a year over a period of two years, facilitated by two LSL study team members. The format included lecture-based introduction of the content, followed by learning experiences to encourage engagement and application of the content to each coalition’s context (discussions, cases, simulations, and work sessions). For each hospital, the lead facilitator remained constant and the support facilitator changed with each round of workshops.  |
| **Content** | **Focus 1: Building a culture that supports creative problem solving*** We prepared coalitions to **bring the right perspectives to the table** by providing instruction and learning experiences related to role clarity,1 working across boundaries,2, 3 and working with hierarchy.4, 5
* We **pursued full engagement** as guiding coalition members contributed their unique skills and perspectives to a common objective by providing instruction and learning experiences related to leadership and followership,6 representational groups,7-9 psychological safety,10 group decision making,11 levels of analysis12, 13
* We **promoted progress** by providing instruction and learning experiences related to managing conflict14 and building accountability15 within the group

**Focus 2: Implementing evidence-based strategies to reduce mortality in patients with acute myocardial infarction (AMI)** * We introduced **evidence-based strategies** and aspects of organizational culture associated with lower 30-day RSMR for patients with AMI16, 17
* We facilitated the coalition through the **strategic problem solving approach** (defining the problem of AMI mortality, setting and measuring progress toward shared objectives for AMI mortality reduction, identifying and prioritizing of root causes of mortality, and generating and pursuing strategic solutions).18
* We supported the coalition to apply the **AIDED model** for stick and spread of LSL-related innovations19
 |
| **Application between workshops** | Between workshops, coalitions were expected to take steps to identify, prioritize and address root causes of AMI mortality at their hospitals. At subsequent workshops, they reported on their progress, with the goals of (1) identifying and addressing implementation challenges, and (2) further developing their individual and group leadership capacity. |
| **Ensuring fidelity of intervention across hospitals** | All coalitions covered the same curriculum over the course of the four in-hospital workshops. Workshop content was tailored to the local context in each hospital by adjusting the timing of modules to meet teams’ most pressing needs, adapting the specific examples and experiential learning exercises used in each module, articulating linkages between content areas and ongoing work in each hospital, and allowing each hospital to focus on root causes of AMI mortality that were most salient in their environments. Adherence to the core workshop curriculum was assessed through the use of fidelity checklists20, 21 that were completed by each member of the facilitation team after the delivery of each workshop. |

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# **Appendix B. Hospital Organizational Culture for Cardiovascular Care: 31 item instrument**

|  |  |
| --- | --- |
| Factor | Item |
| Learning and Problem Solving | Clinicians are encouraged to creatively solve problems related to AMI care. |
| There is good coordination among the different clinical units involved with the care of patients with AMI. |
| The clinicians who care for patients with AMI hold each other accountable for high quality care. |
| We rely on data to guide our improvement processes.    |
| Our hospital has frequent interactions with outside organizations (e.g., other hospitals and professional associations) to acquire new knowledge on how to improve AMI care. |
| In this work environment, people are interested in better ways of doing things. |
| In this work environment, people often resist new approaches. |
| In this work environment, people value new ideas. |
| Despite the workload, people in this work environment find time to review how the work is going. |
| In this work environment, someone makes sure that we stop to reflect on the team’s work process.    |
| Psychological Safety | If you make a mistake in this work environment, it is held against you. |
| People in this work environment are able to bring up problems and tough issues. |
| In this work environment, someone would deliberately act to undermine my efforts. |
| It is difficult to ask others in this work environment for help. |
| In this work environment, people’s unique skills and attributes are valued and utilized. |
| People in this work environment speak up to challenge assumptions.   |
| Senior Leadership Support | Senior management has set reducing 30-day AMI mortality as a priority. |
| Opinion leaders have indicated that current practices for patients with AMI can be improved.   |
| Opinion leaders have encouraged changes in practices to improve AMI care.  |
| The necessary financial resources for personnel and equipment are provided for the care of patients with AMI. |
| Commitment to the Organization | I would be very happy to spend the rest of my career at this hospital. |
| I enjoy discussing my hospital with people outside of it. |
| I think I could easily become as attached to another hospital as I am to this one. |
| I do not feel like ‘part of the family’ at this hospital. |
| I do not feel ‘emotionally attached’ to this hospital. |
| This hospital has a great deal of personal meaning to me. |
| I do not feel a strong sense of belonging to my hospital. |
| Time for Improvement | In this work environment, people caring for patients with AMI are overly stressed.  |
| In this work environment, the time pressure gets in the way of doing a good job. |
| In this work environment, people are too busy to invest time in improvement. |
| There is simply no time for reflection in this work environment. |

# **Appendix C. Qualitative Interview Guide**

**LSL Interview Guide: Round 3 final**

*We are interested in understanding your hospital’s experience with LSL. We would like your permission to record this interview. This lets us listen carefully to you rather than taking notes and we will accurately capture our conversation. All information will be kept strictly confidential and no identifying information about you or your organization is included on the transcript. Digital files with audio-recorded material will be deleted as soon as the transcripts have been reviewed for accuracy. If at any point you would like me to turn off the recorder, please let me know. You are free to decline to participate, to end our interview at any time for any reason, or to choose to skip any question.*

1. Please describe your role on the LSL project.
2. We are interested in changes in your **implementation of the LSL strategies**. We can go through these in any order you like (share the list to refer to).
* Can you tell me how the change came about?
* What things did you have to work through?
* Were there any surprises along the way?
* Have the changes stuck so far? Tell me about that.
1. What if anything changed in the last year **in terms of aspects of culture?** We can go through these in any order you like (refer to the list).
	* Can you tell me how the change came about?
	* What things did you have to work through?
	* Were there any surprises along the way?
	* Have the changes stuck so far? Tell me about that.
2. Please describe your **experience in the guiding coalition**?
	* What has it been like working in this group over the last year?
	* What kinds of difficulties have had to be worked through?
	* How was that accomplished?
	* How has your experience in the group changed over the course of LSL if at all?

What has been the experience of working with senior management in the last year?

What have they done to promote LSL?

What have they done that has hindered progress?

Have you considered how LSL might apply to other conditions like heart failure or stroke, or to other parts of the hospital?

if so, can you please talk a little about what you are doing or planning to do?

As you know, we are trying to understand how your hospital is experiencing changes in practices or culture that may improve AMI care. Is there anything we have not asked you that we should have?

8. We would be interested in any feedback you would like to share about parts of LSL (**only if time permits at end of interview)**

* LSL workshops (in hospital)
* LSL online community
* Site-led LSL activity (meetings, processes, initiatives) since we last visited
* LSL annual meetings (national – 10 hospitals)

**STRATEGIES**

COLLABORATION WITH EMS

MD AND RN CHAMPIONS

PHARMACIST ROUNDING

CREATIVE PROBLEM SOLVING

NURSES DEDICATED TO CATH LAB

**DOMAINS OF CULTURE**

LEARNING ENVIRONMENT (Staff regularly consult with each other on how to improve AMI Care)

SENIOR LEADERSHIP SUPPORT (Senior management encourage and support changes in practice to improve AMI care)

PSYCHOLOGICAL SAFETY (It is easy to speak up about what is on your mind; not afraid of repercussions)

COMMITMENT TO THE ORGANIZATION (Staff have a strong sense of belonging to the hospital)

PRESSURE IN THE SYSTEM (Staff are overly stressed and too busy to invest time in improvement)

# **Appendix D. Observation Guide**

**LSL Selective Observation Guide**

|  |  |  |  |
| --- | --- | --- | --- |
| Selective observations (1 hour each) | Year 1 | Year 2 | Total hours |
| Rounding on patients with AMI |  |  |  |  | 2 |
| Cardiovascular service line department meeting |  |  |  |  | 2 |
| Hospital management committee meeting |  |  |  |  | 2 |
| Guided walk-around in CCU or other nursing unit  |  |  |  |  | 2 |
| Guided walk-around in ED  |  |  |  |  | 2 |

***Observations of rounding and meetings***

*We are interested in understanding how you provide care for patients with AMI at this hospital. We would like to observe your team at work to learn how you do things here.*

|  |  |
| --- | --- |
| Physical Environment/ Context | * Where is the interaction taking place?
* What is the space like?
	+ Cluttered/Neat? Quiet/Loud? Energetic/Relaxed? Bright/Dim? Other?
	+ Who sits or stands where relative to others?
 |
| Actors/ Participants | * Who is doing what?
* What are the relationships between participants?
	+ Who interacts with whom?
	+ Who empowers or silences whom?
	+ How is power and authority exercised?
* Who is missing?
 |
| Timing  | * What is the frequency and duration of the meeting/rounds you are observing?
* Is this a new or established processes?
 |
| Informal factors | * What non-verbal cues do you observe?
* What visual cues to you observe?
* What symbols or symbolic acts do you observe?
 |

***Structured observations of patient care units***

*We are interested in understanding how your hospital provides care for patients with AMI. To help us understand your experiences, we would like to see and learn about what it’s like on your patient care units.*

Guiding questions (only if needed):

* Can you show me the physical layout of the unit?
* Tell me a bit about the staffing on this unit?
* Where do people go for breaks?
* Where do staff have meetings or discussions with/about patients?
* How do staff communicate with each other and with other departments?
* What is it like for patients and families arriving and departing from the unit?
* Is there anything unique about this unit that we should know about?

|  |  |
| --- | --- |
| Physical Environment/ Context | * What is the space like?
* Cluttered/Neat? Quiet/Loud? Energetic/Relaxed? Bright/Dim? Other?
* What artifacts of culture do you observe?
 |
| Actors/ Participants | * Who is doing what?
* What are the relationships between participants?
	+ Who interacts with whom?
	+ Who empowers or silences whom?
	+ How is power and authority exercised?
* Who is missing?
 |
| Timing  | * What is the timing of your visit (morning/evening, busy/slow, shift change, tied to other cyclical patterns?
 |
| Informal factors | * What non-verbal cues do you observe?
* What visual cues to you observe?
* What symbols or symbolic acts do you observe?
 |

***Debrief notes***

Your observations will be used to color the interpretation of the interview data. At the end of each set of observations, the researcher should create a debrief note (approx 1-2 pages per hour of observation) that summarizes the experience with an emphasis on organizational culture.

## **Appendix E: AMI Change Over Time**