

Project Title

Improve Nurses' Confidence and Performance During Medical Emergency (Code Blue)

Project Lead and Members

- Lim Choon Chai
- Huang Na
- Nor Syamsul Nazly Bin Mohamed Said
- Sim Guan Hua Jonathan
- Teo Lee Hwa
- Sun Xia
- Sivaranjini Siva

Organisation(s) Involved

National Heart Centre Singapore

Aims

This project aims to improve nurses' preparedness and coordination skills to save lives in an event of medical emergency.

Background

See poster appended / below

Methods

See poster appended / below

Results

See poster appended / below

Conclusion

See poster appended / below

Additional Information

Singapore Healthcare Management (SHM) Conference 2021 – Merit Award
(Operations Category)

Project Category

Healthcare Training & Education

Keywords

Healthcare Training & Education, Performance Management, Simulated Training,
Manpower Saving, Cost Saving, Safe Care, Nursing, Healthcare Administration,
National Heart Centre Singapore, Operations, Medical Emergency, Code Blue, Life-
Saving Skills

Name and Email of Project Contact Person(s)

Name: Lim Choon Chai

Email: singaporehealthcaremanagement@singhealth.com.sg

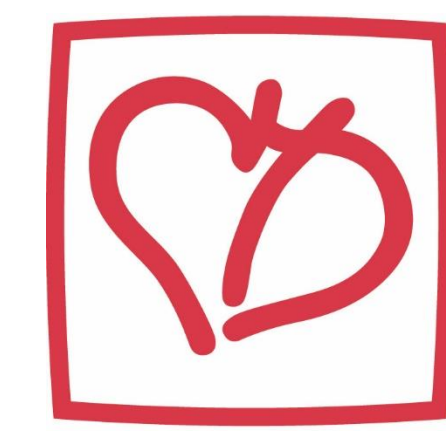
*If you're experiencing problems submitting your content, please contact the CHILD
Administrator at CHILD@ttsh.com.sg*

Improve Nurses' Confidence and Performance During Medical Emergency (Code Blue)



Singapore Healthcare Management 2021

Lim Choon Chai, Huang Na, Nor Syamsul Nazly Bin Mohamed Said, Sim Guan Hua Jonathan, Teo Lee Hwa, Sun Xia, Sivaranjini Siva



National Heart Centre Singapore SingHealth

BACKGROUND

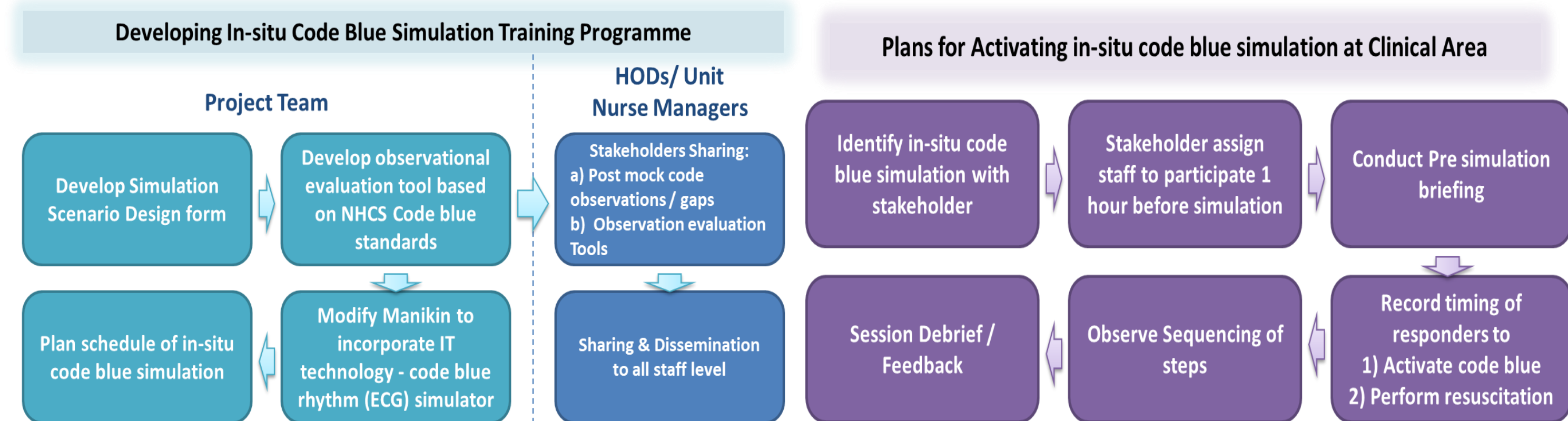
Life-saving skills and knowledge from life support courses for nurses are acquired through classroom trainings. However, as emergency activations in general ward are infrequent, these skills deteriorate at a fast rate - merely 6 months after completion of training. Nevertheless, it is essential to retain these life-saving skills and knowledge to ensure preparedness in an event of medical emergency.

Based on past events, doctors feedbacked that there is room for improvement in nurses' preparedness and performance during an emergency activation. Nurses also voiced out that they lacked the confidence in responding to such emergencies. This project aims to improve nurses' preparedness and coordination skills to save lives in an event of medical emergency.

TARGET

- To improve coordination skills for completion of emergency response task within **10 minutes**
- To increase staffs' confidence in responding to medical emergency situations from **51% to 90%**

SOLUTION IMPLEMENTATION



In-situ simulated Code Blue Training Programme (Clinical Environment)

- Interactive and scenario based training catered to staff learning needs
- Leverage on IT technologies to simulate code blue
- Simulator equipment will simulate ECG rhythm at the clinical setting

Simulation With Different Scenarios



First Responder Team



Standardization in code blue process

- By using an observational evaluation tool based on NHCS Code Blue standard to evaluate staff performance
- Simulated training is instructor led
- Instructor will offer critique and coaching during post session de-brief

Code Blue Simulation Training Observation Form

The Code Blue Simulation Training Observation / Critique Form

Ward _____ Facilitator (s) _____ Assessor _____

Date _____ Time start _____ Time end _____ Observer(s) Name _____

Time	Correct Critical Actions	Incorrect Critical Actions	Comments
1	Assess patient/scene/scene safety	1. No history report obtained	1. Prompt required
2	Call for help/Delegation	2. No vital signs assessed	2. Prompt required
3	Check breathing and circulation	3. No oxygen administered	3. Prompt required
4	Staff activation	4. No time taken to activate code blue	4. Prompt required
5	Activate Code Blue	5. Does not press the Code Blue button	5. Prompt required
6	Positioning and equipment	6. Does not check rise and fall of chest wall	6. Prompt required
7	Resuscitation	7. Does not use established methods for resuscitation	7. Prompt required
8	Teamwork	8. Does not use established methods for resuscitation	8. Prompt required
9	Documentation	9. Does not document	9. Prompt required
10	Equipment	10. Does not use established methods for resuscitation	10. Prompt required
11	Teamwork	11. Does not use established methods for resuscitation	11. Prompt required
12	Documentation	12. Does not document	12. Prompt required

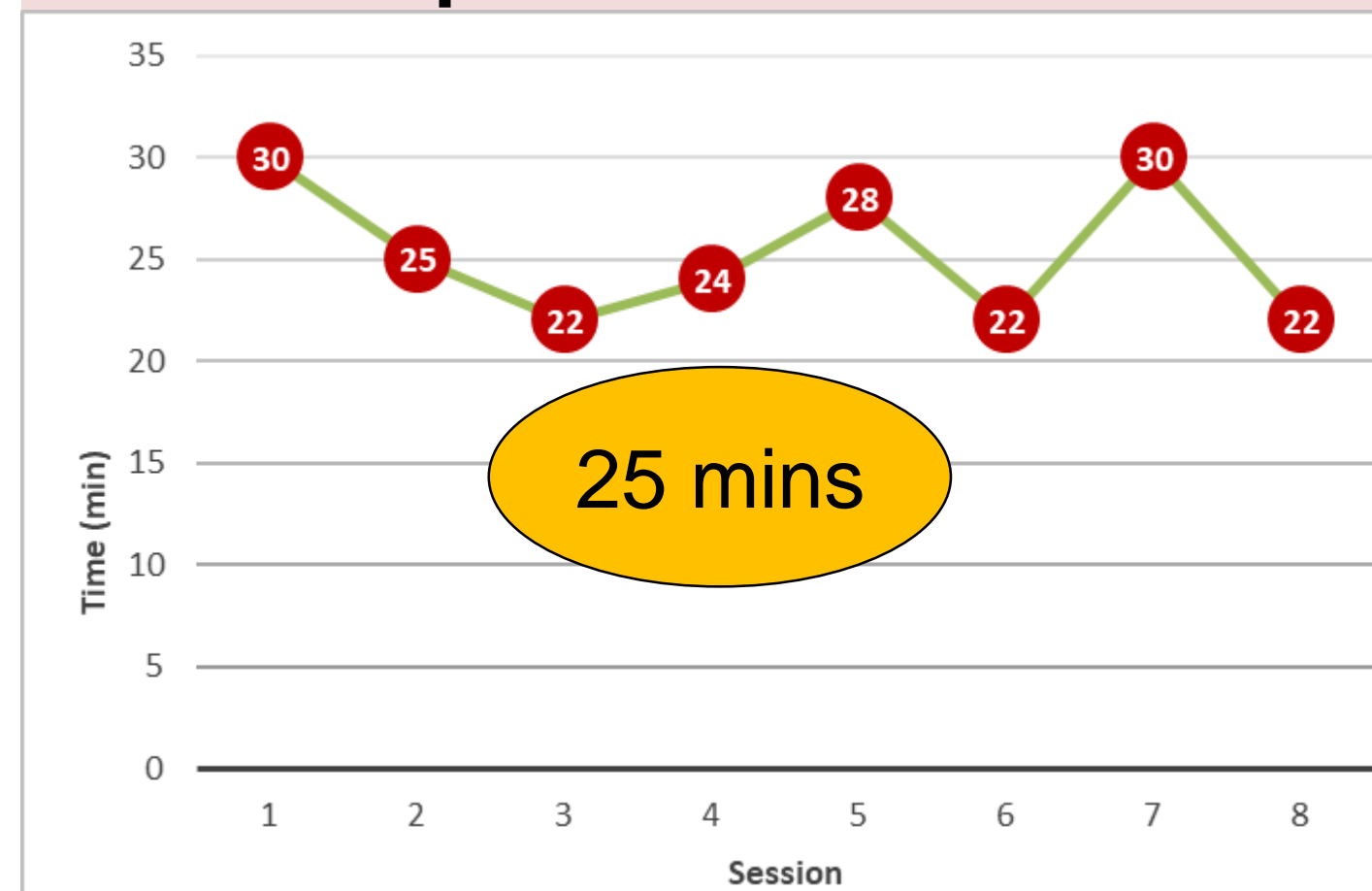
Instructor Observations & Feedback

S/N	Concern	Gaps to enhance
1	Team work	• Collaborate with each others on the task, switch roles
2	Communication	• To strengthen between members, to voice out when not familiar with task and switch role
3	Equipment	• Competency of equipment-need not connect ECG cables from LP 15 to patient, quick combo pad able to pick up ECG • Not familiar with equipment-unable to set up suction apparatus, choose wrong wall outlet
4	Skills	• DRSABC to follow the sequent—did not check responsiveness • Chest compressor tiredness—ideally change every 2 minutes • Interruption of compression—stoppage of chest compression is too long • Incorrect mask cupping and no head tilt chin lift when bag & mask, did not look for rise and fall of chest wall • Delay in initial DCK shock after applying the quick combo pad • ECG machine to remove from the scene to make space
5	Leadership	• Leadership—need to be assertive and delegation of tasks by various members of the team
6	Parameters	• Need to aware of parameters—did not take parameters initially when c/o chest pain

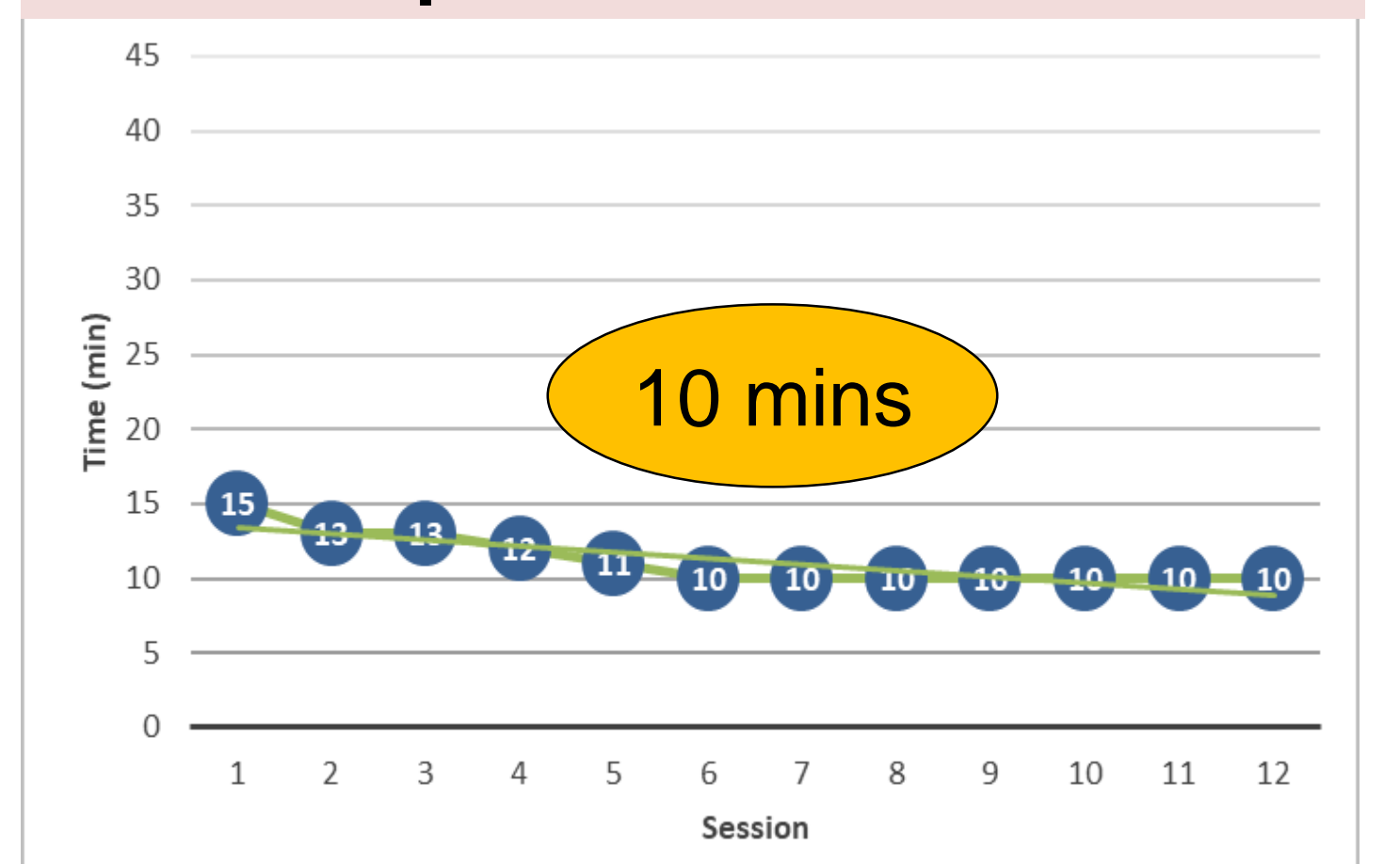
RESULTS

Tangible Benefits

Pre-Implementation: Time Taken to Complete Mock Code Blue



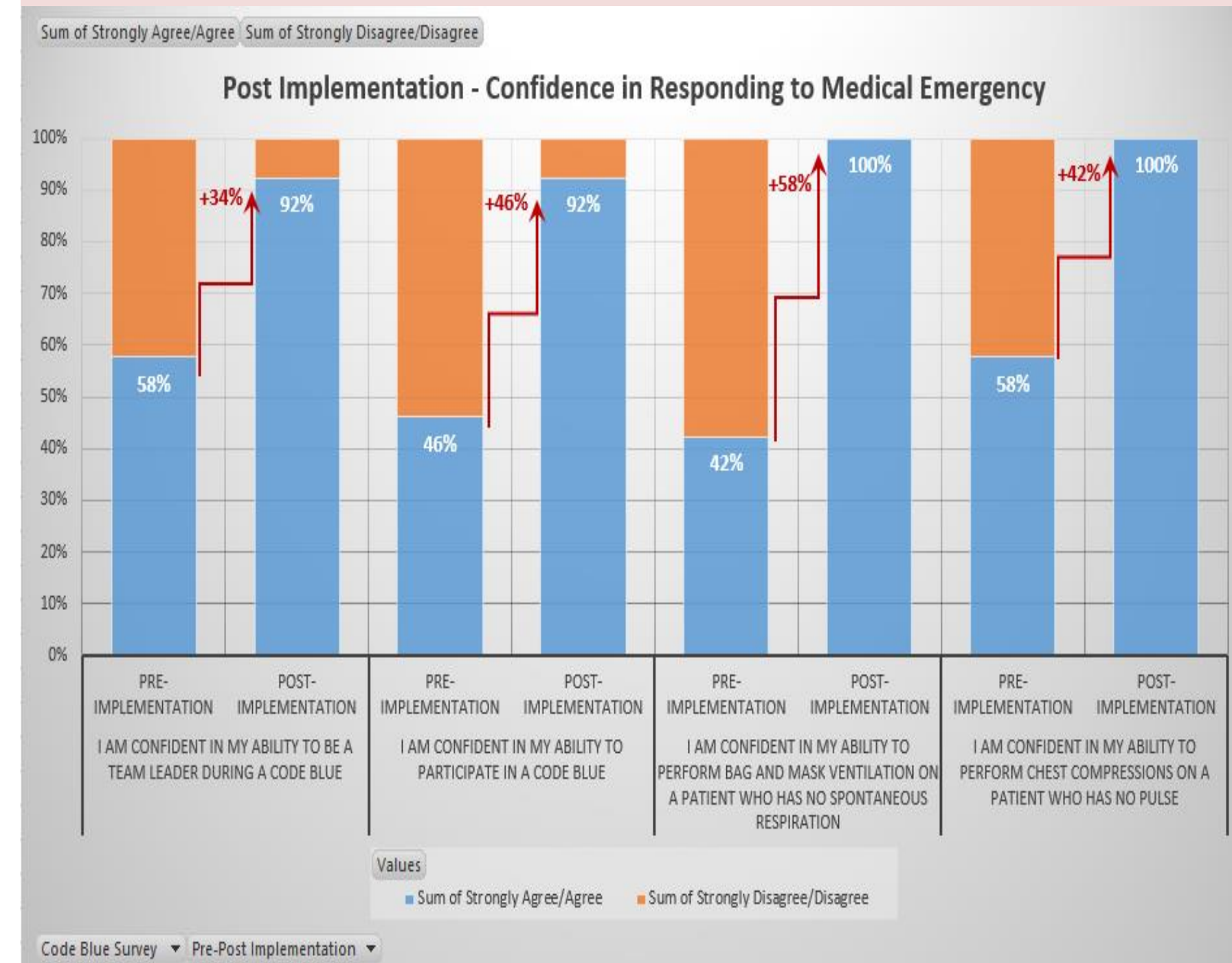
Post-Implementation: Time Taken to Complete Mock Code Blue



Average of 15 minutes faster for each Code Blue Activation!

- Staff are more organised and confident in responding to emergency situation
- Identifiable leadership and clear communication of roles

Increase in Nurses Confidence Level when Responding to Emergencies



Post Code Blue Survey Questions:	Strongly disagree	Disagree	Strongly agree	Agree
I am confident in my ability to perform chest compressions on a patient who has no pulse	0	0	20	6
I am confident in my ability to perform bag and mask ventilation on a patient who has no spontaneous respiration	0	0	21	5
I am confident in my ability to participate in a code blue	0	2	21	3
I am confident in my ability to be a team leader during a code blue	0	2	18	6
Total number	0(0%)	4(4%)	80(77%)	20(19%)

Results obtained from a post Code Blue survey revealed:

- 100% Confidence in Skills & Knowledge
- 92% felt confident in leading or participating in Code Blue

Overall confidence in responding to medical emergencies increased from **51% to 96%**

Staff Involved / Activation	Cost / Activation (Pre-teaching)	Cost / Activation (Post-teaching)
SSN	\$45	\$18
SN		
EN		
Total cost based on 109 activations/year	\$4095	\$1962

An average of **109** code blue activation per year

Estimated manpower savings: **82hrs/annum**

Estimated cost savings: **\$2943/annum**

Pre-Implementation: Resuscitation Process & Efforts

- Not enough compression depth
- Chest compression stops intermittently
- Inconsistent chest compressions

Post-Implementation: Resuscitation Process & Efforts

- 100% achieved quality chest compression
- 100% achieved independence in step of Resuscitation Process

Intangible Benefits

- Safe Learning:** Staffs are comfortable with asking questions and learning from their mistakes without experiencing any repercussions
- Realistic Learning:** Hands-on practice with equipment and clear guidelines at the actual environment is practical and leads to better efficiency in handling medical emergencies
- Enhanced Team work:** Shared responsibility in responding to medical emergencies will improve coordination and boost staffs' morale
- Patient Experience:** More holistic patient care can help to improve patients' health outcome

CONCLUSION There is lesser hesitation during Code Blue with clear defined roles. Identifiable leadership and clear communication of roles are key factors to good performance in resuscitation. With the implementation of these Mock Codes, providers of all levels will be able to familiarize themselves with the clear guidelines and ensure they are following the necessary steps to safe patients' lives.