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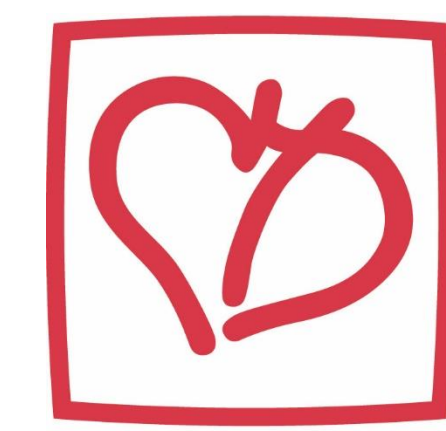
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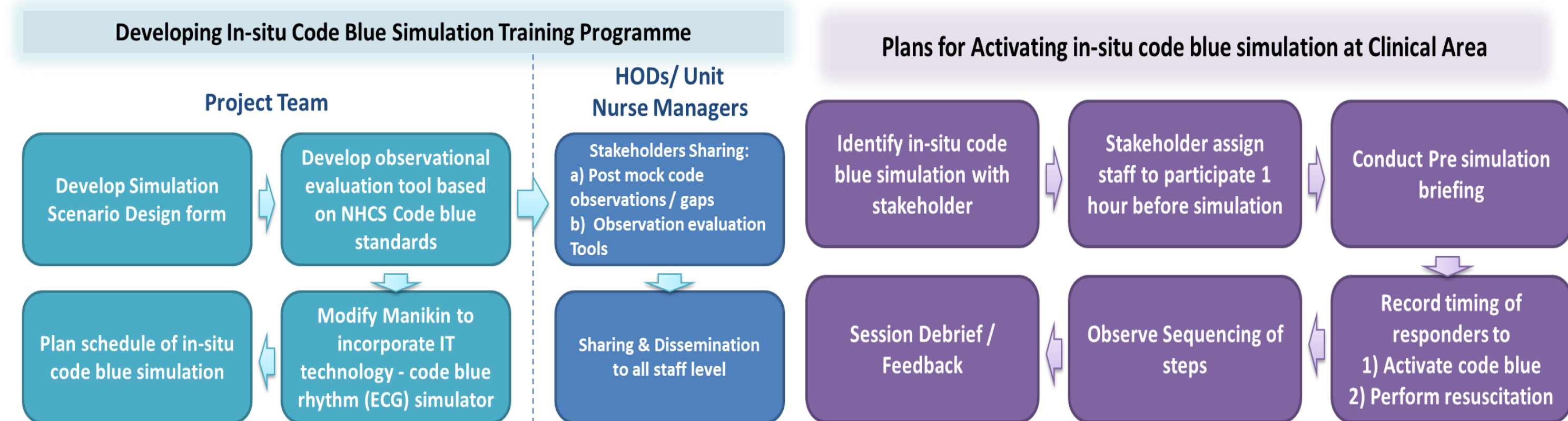
BACKGROUND

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

Developing In-situ Code Blue Simulation Training Programme

Project Team
- Develop Simulation Scenario Design form
- Develop observational evaluation tool based on NHCS Code blue standards
- Plan schedule of in-situ code blue simulation
- Modify Manikin to incorporate IT technology - code blue rhythm (ECG) simulator

HODs/ Unit Nurse Managers
- Stakeholders Sharing: a) Post mock code observations / gaps b) Observation evaluation Tools
- Sharing & Dissemination to all staff level

Plans for Activating in-situ code blue simulation at Clinical Area
- Identify in-situ code blue simulation with stakeholder
- Stakeholder assign staff to participate 1 hour before simulation
- Conduct Pre simulation briefing
- Session Debrief / Feedback
- Observe Sequencing of steps
- Record timing of responders to 1) Activate code blue 2) Perform resuscitation

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

Scenario 1: Patient collapsed at waiting room
Scenario 2: SSU patient bedside
Scenario 3: Patient collapsed during treadmill exercise

First Responder Team

Scenario 1: Clinic 4B Nurses
Scenario 2: SSU Nurses
Scenario 3: Cardiac Rehab nurses & Physiotherapist

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

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 DC 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**

25 mins
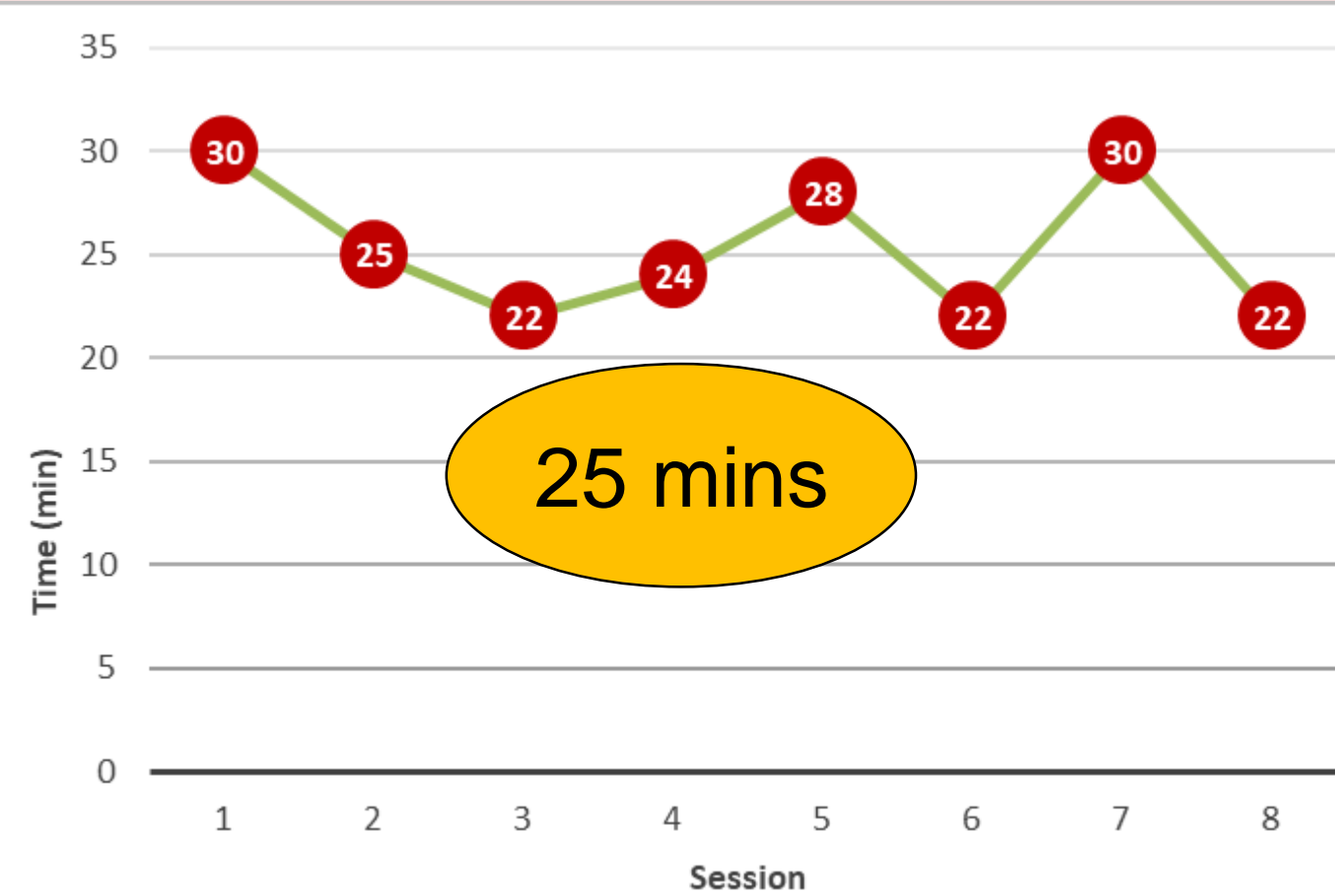
Post-Implementation: Time Taken to Complete Mock Code Blue

10 mins
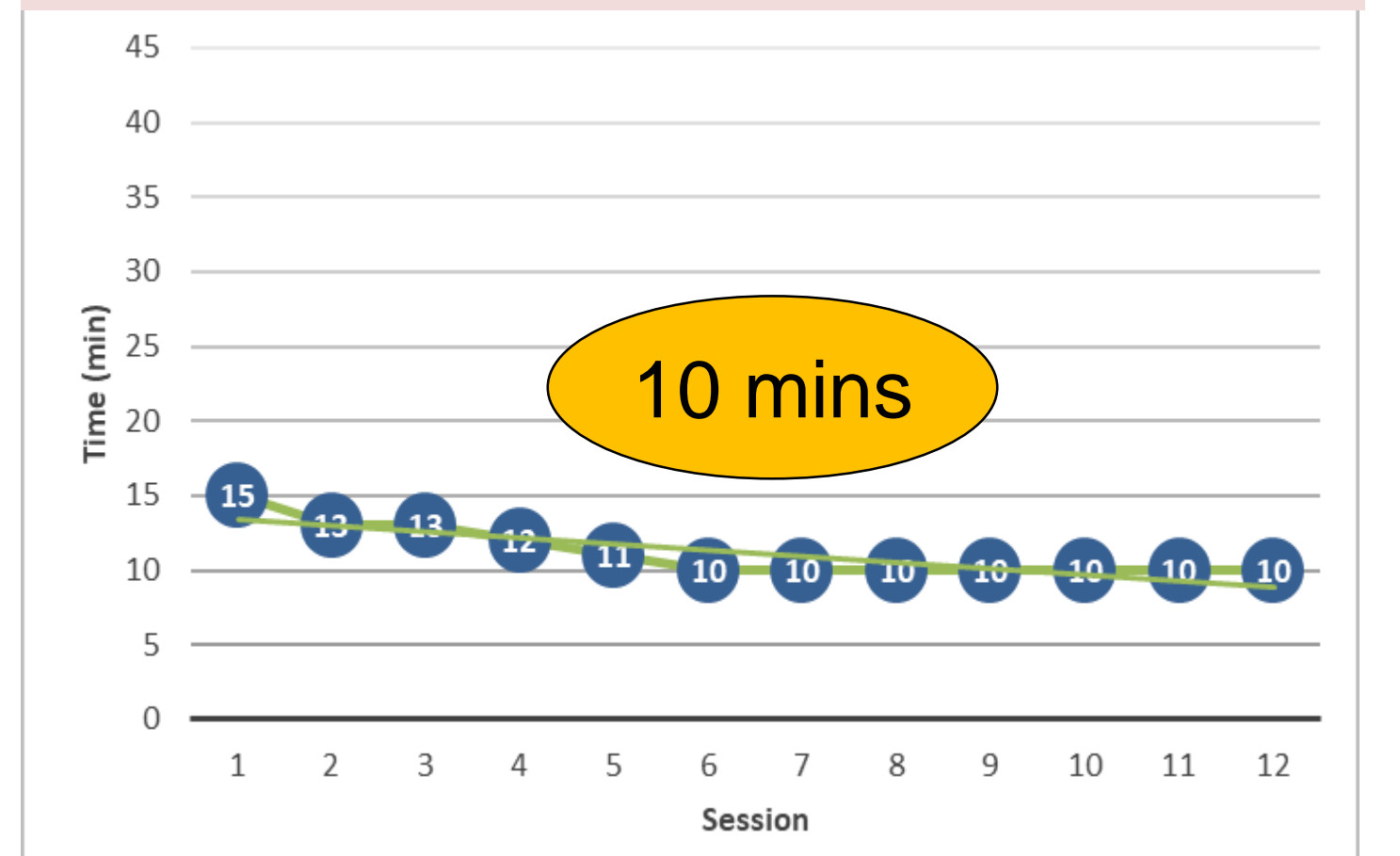
Average of 15 minutes faster for each Code Blue Activation!

✓ 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 Implementation - Confidence in Responding to Medical Emergency
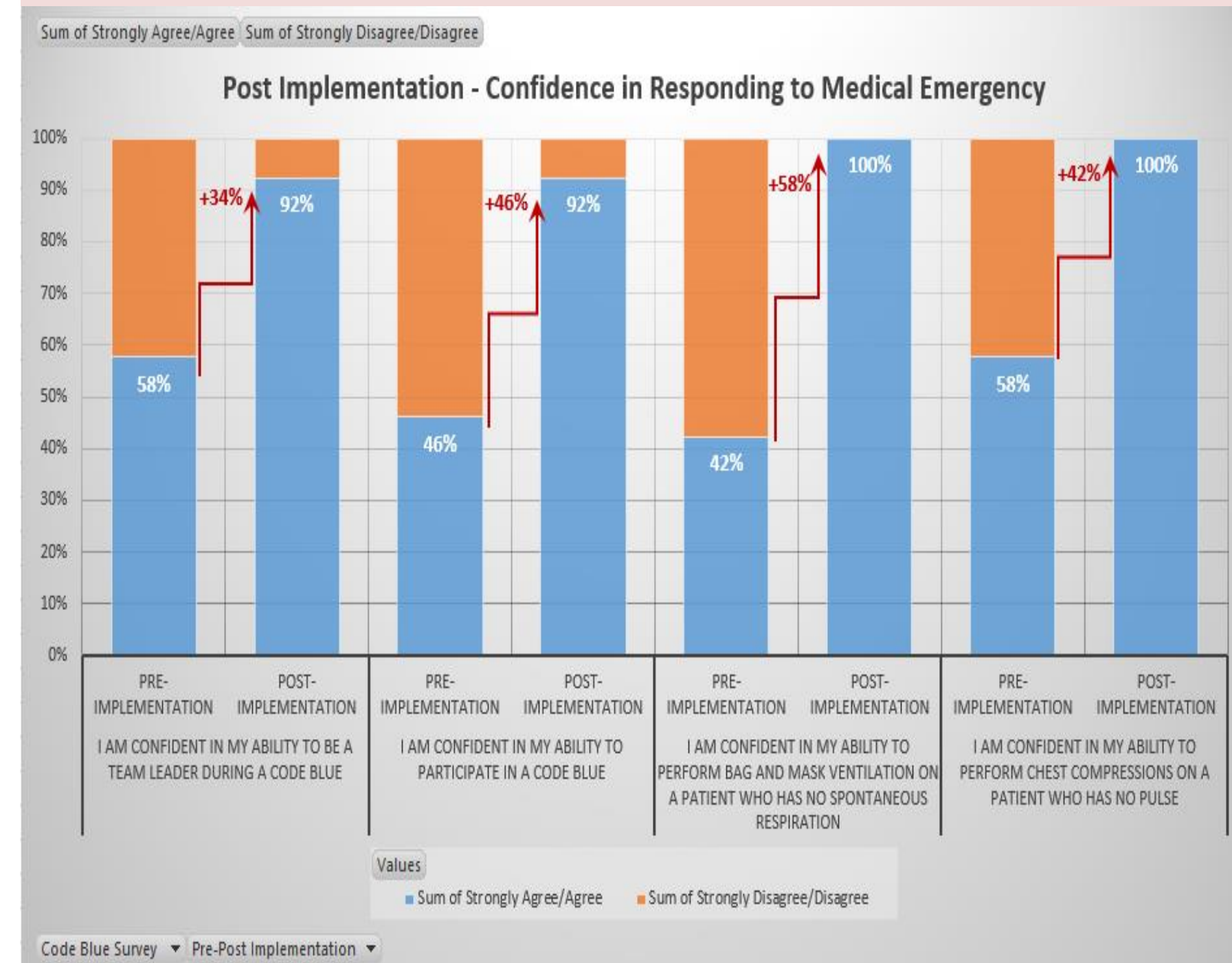
Post Code Blue Survey Questions	Strongly disagree	Disagree	Strongly agree	Agree
I am confident in my ability to perform chest compressions on a patient who has no pulse	0	0	20	6
I am confident in my ability to perform bag and mask ventilation on a patient who has no spontaneous respiration	0	0	21	5
I 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

Based on *compression data* downloaded from Code Blue simulation:
❌ 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.