

#### CHI Learning & Development System (CHILD)

#### **Project Title**

Infection Prevention Competency in Pandemic Resuscitation (IP-CPR)

#### **Project Lead and Members**

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Team:

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- SSN Sugeeta Ramadas
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#### **Organisation(s) Involved**

SingHealth Community Hospitals

#### **Healthcare Family Group Involved in this Project**

Medical, Nursing

#### **Aims**

Our primary aim was to increase competency and adherence to infection prevention and control measures during resuscitation from 60 % to 100% for healthcare workers (HCW) in Bright Vision Hospital within 3 months, as assessed by internal audit of our Infection Control Nurse (ICN). We aimed secondarily for zero COVID 19 infection as a result of nosocomial transmission from resuscitation among HCWs in this time.

#### **Background**

See poster appended / below

#### Methods

See poster appended / below



#### CHI Learning & Development System (CHILD)

#### Results

See poster appended / below

#### Conclusion

See poster appended / below

#### **Additional Information**

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

#### **Project Category**

Care & Process Redesign, Workflow Redesign, Safe Care, Risk Management Training & Education, Simulated Training

#### **Keywords**

Cardiopulmonary Resuscitation, COVID-19, Healthcare Workers, Infection Prevention and Control, Cause and Effect Analysis, Pareto Chart, Personal Protective Equipment, Airborne Precaution, COVID-19 Code Blue Algorithm

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# Infection Prevention Competency in Pandemic Resuscitation (IP-CPR)



Bright Vision • Outram • Sengkang

Author - Dr Ting Sing Ling (SingHealth Community Hospital)
Team:

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## Background

Bright Vision Hospital (BVH) was the first community hospital to respond to the challenge of caring for COVID-19 patients at higher risk of clinical deterioration. Healthcare worker infection rates are as high as 20% in various reports. This risk increases dramatically during resuscitation of COVID-19 patients due to the aerosol generating nature of Cardiopulmonary resuscitation (CPR). This is especially so when healthcare workers (HCWs) do not adhere to infection prevention measures such as appropriate Personal Protective Equipment (PPE) donning and doffing. The safety of our staff is paramount as only healthy HCWs can continue clinical care, allowing us to keep patients at the heart of all we do.

Singapore Healthcare

Management 2021

A group simulation session on resuscitation of a COVID-19 patient in BVH, revealed only a dismal 60% of HCWs were competent and adhered to infection prevention and control (IPC) measures.

## **Mission Statement**

Our primary aim was to increase competency and adherence to infection prevention and control measures during resuscitation from 60 % to 100% for HCWs in Bright Vision Hospital within 3 months, as assessed by internal audit of our Infection Control Nurse (ICN).

We aimed secondarily for zero COVID-19 infection as a result of nosocomial transmission from resuscitation among HCWs in this time.

# Analysis of problem

A project team consisting of doctor and nurses was formed. Brainstorming helped to enumerate possible factors contributing to low passing rate by using a Cause and Effect Analysis (Figure 1).

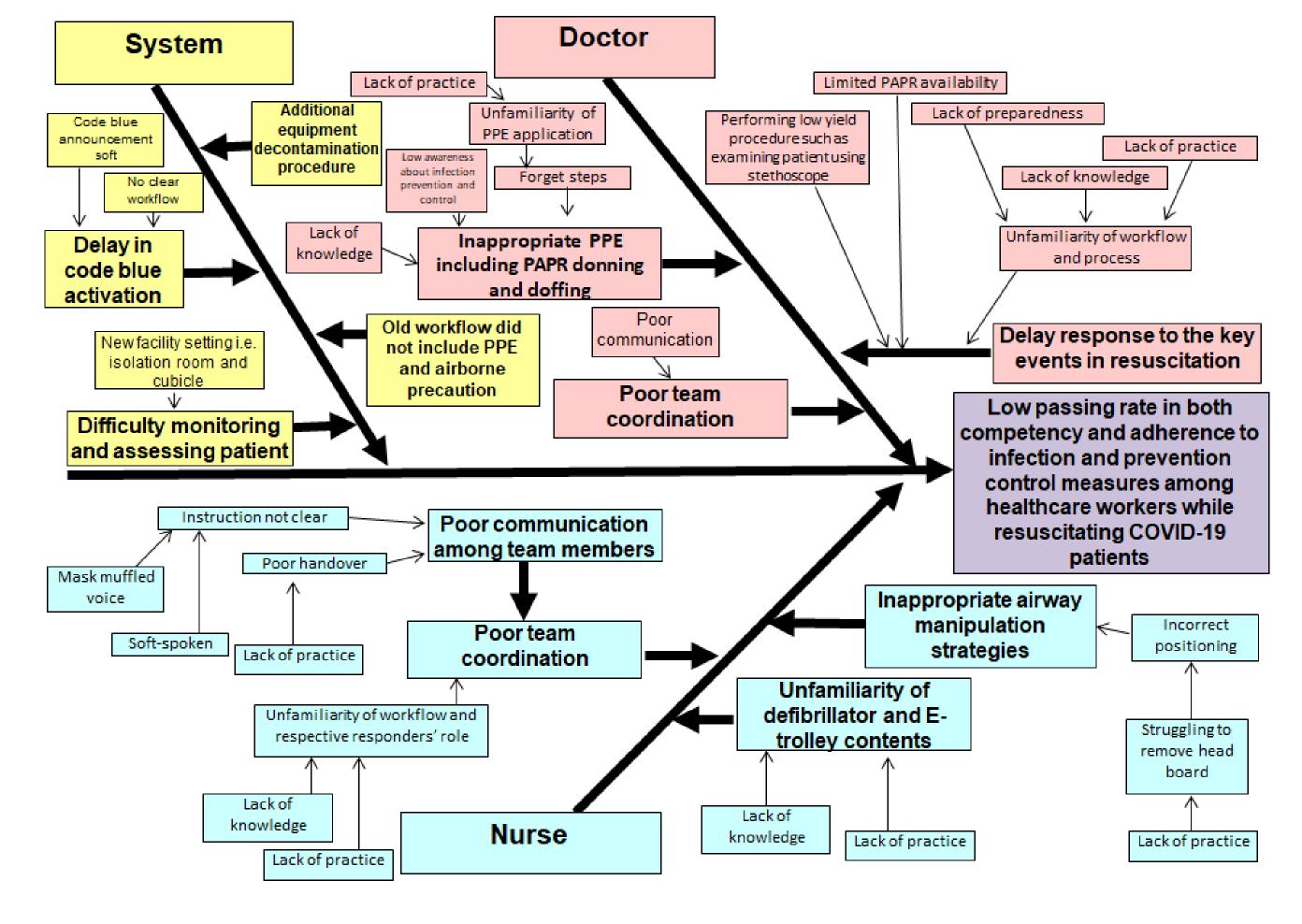
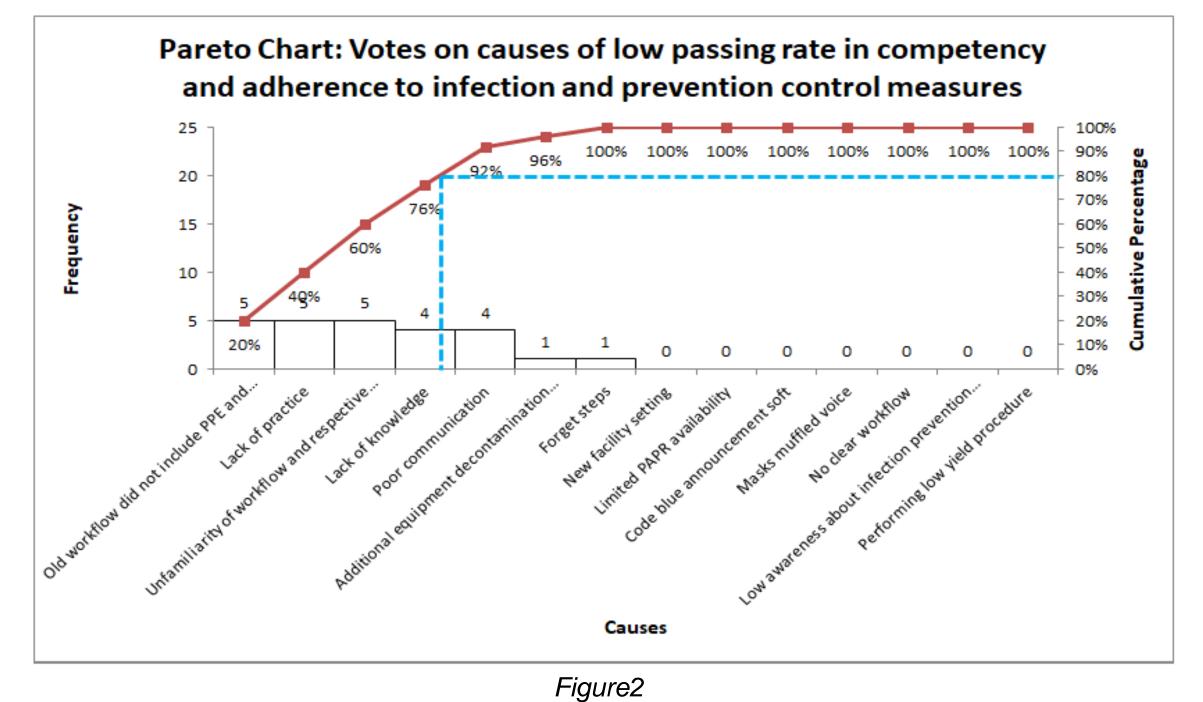


Figure 1

Pre-intervention weighted voting was conducted with Pareto Chart to elucidate the top contributory causes (Figure 2).



Top-ranked factors for low passing rate were: old workflow did not include PPE and airborne precaution, lack of practice, unfamiliarity of workflow and respective responder's role and lack of knowledge.

#### Interventions PDSA 1 Figure 3 In the Event of Medical Emergency "CODE BLUE! CODE BLUE! \_\_\_\_ Ward, Bed \_\_\_, Level \_\_\_" [PA system Announcement by Operator/Security] Airborne precaution, PPE, and • To revise old workflow and respective responder's role familiarize staff with the new were included in the new DON Full PPE before THE ACTION! workflow workflow (Figure 3) • Briefing session was carried out to familiarize staff with the new Doctor / Nurse - Action workflow Faith ward Study Act • The new workflow was printed • During stimulation sessions, out and placed at visible, easily we observed: accessible area i.e. doctors ✓ HCWs responded promptly room, nursing station and Eto the key events in trolley resuscitation ✓ Better team coordination Components of the new workflow were included in the and adherence to IPC resuscitation competency measures Responder 6 (inside) :Recorder and inside runner checklist Backup Team Compassion ward (2 RN Level 4 Peace Hope Ward (2RN)

Study

### PDSA 2

To provide more practice opportunities
To address knowledge deficits

Plan

Developed an educational programme incorporating the new pandemic-specific workflow
 This included audiovisual aids and in-person training

Figure 4: Standardised multi-rater assessment using checklist and video recording review



Figure 5: We innovatively modified equipment e.g. code blue shield and enhanced facilities to optimize resuscitation process and minimize transmission

Stimulation sessions were effective:

✓ Rapid cohort training with significant

improvement in the time to key events

in resuscitation and team competency

✓ Allowed testing and improvement of

processes and training of staff through

prompt sharing of lessons learnt from

in each subsequent session

previous sessions to all staff

## Results / Impact

Educational

100%

to achieve a

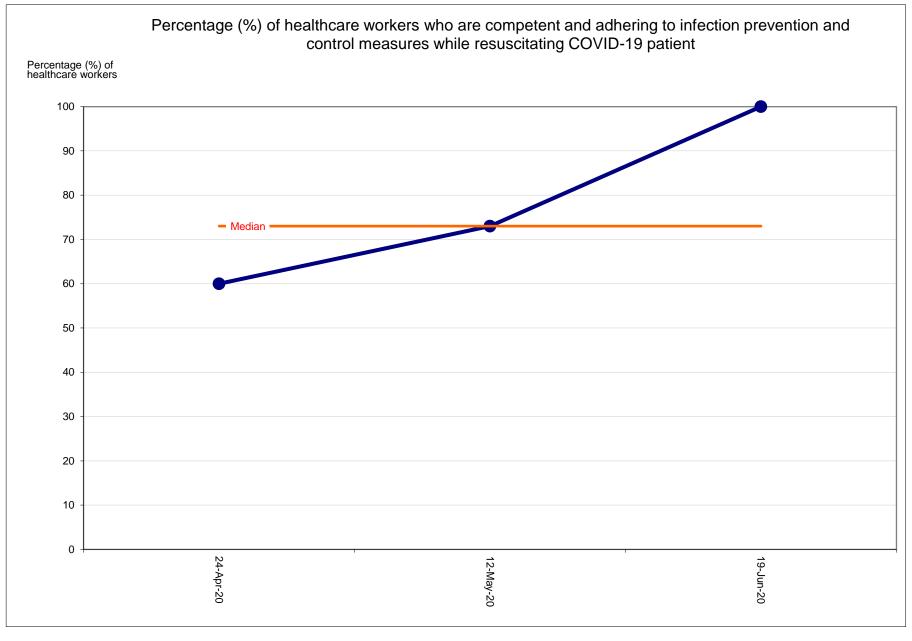
programme was

passing rate of

conducted regularly

Over 3 months, 100% of healthcare workers were found by our ICN to be competent and adhering to infection prevention and control measures while resuscitating COVID-19 patient (Figure 6). However, more data points will be needed to monitor sustainability of results.

There was zero COVID-19 infection transmission from resuscitations among healthcare workers.



## **Spread and Sustainability Plans**

Continuous education is crucial. The new educational programme including simulation sessions, was effective at improving healthcare workers' competency and adherence to infection prevention and control measures. This will be sustained with regular conduct every 3 months, and at shorter intervals when there are new staff.

Figure 6

We will continue our current practice when we revert to business as usual, as it is applicable to our own setting for isolated patients in negative pressure rooms. We have shared our new workflow and educational programme with our two sister community hospitals to spread the benefits, as there is applicability to their peacetime resuscitation as well.

We conclude that the high-value sustainable and spreadable intervention of conducting stimulation sessions for HCWs with regard to pandemic-specific resuscitation results in increased competency of HCWs in infection prevention, maintaining this vital human resource for pandemic clinical operations.