Project Title

Expediting Hip Fracture Surgery in COVID Surveillance Patients

Project Lead and Members

Project lead: Dr Amritpal Singh

Project members: Dr Ashish R. Satapathy, Dr Surinder Kaur Pada, Dr Lydia Au, Dr Chen Yongsheng, Wong Tze Chin, Fione Gun, Zarina Ahmad, Joyce Ong

Organisation(s) Involved

Ng Teng Fong General Hospital

Healthcare Family Group Involved in this Project

Medical, Nursing, Healthcare Administration

Applicable Specialty or Discipline

Orthopaedic, Surgery

Aims

The aim is to compare the number of patients undergoing hip fracture surgery within 48 hours upon ED presentation despite undergoing COVID surveillance before and after implementation of protocol.

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

- Early and expeditious implementation of protocol can be seen to bring benefits to patients over the year long period of implementation.
- Despite patients requiring COVID Surveillance, improvements in ALOS and early operation rates were seen.
- Strong support from the multidisciplinary team is essential to the smooth and continued functioning of the hip fracture clinical pathway.

Conclusion

See poster appended/ below

Additional Information

This project is related to a 2020 project of same title.

Project Category

Care Continuum, Acute Care, Crisis Care

Care & Process Redesign, Quality Improvement, Workflow Redesign

Keywords

Expediting Hip Fracture Surgery, COVID surveillance

Name and Email of Project Contact Person(s)

Name: Fione Gun

Email: Fione_Gun@nuhs.edu.sg

EXPEDITING HIP FRACTURE SURGERY IN COVID SURVEILLANCE PATIENTS

DR AMRITPAL SINGH (CLINICIAN LEAD), DR ASHISH R. SATAPATHY, DR SURINDER KAUR PADA, DR LYDIA AU, DR CHEN YONGSHENG, WONG TZE CHIN, FIONE GUN, ZARINA AHMAD, JOYCE ONG, A/PROF FAREED KAGDA (SPONSOR)

- ☑ SAFETY
- ☑ QUALITY
- ☑ PATIENT EXPERIENCE
- ☑ COST

Define Problem, Set Aim

Problem/Opportunity for Improvement

COVID surveillance is conducted on hip fracture patients prior to operation due to the on-going COVID community spread. The surveillance would inadvertently create unintended delays in getting hip fracture patients to the Operating Theatre (OT) within 48 hours upon Emergency Department (ED) presentation, potentially resulting in poorer outcomes as these are emergency cases which will normally benefit from expedited care.

Aim

The aim is to compare the number of patients undergoing hip fracture surgery within 48 hours upon ED presentation despite undergoing COVID surveillance before and after implementation of protocol.

Establish Measures

Methodology

1. All operated hip fracture patients aged 60 and above were included.
2. % of hip fracture patients who were operated ≤ 48 hours upon ED presentation.
3. Average Length of Stay (ALOS) at NTFGH ≤ 10 days.

Patient Cohort

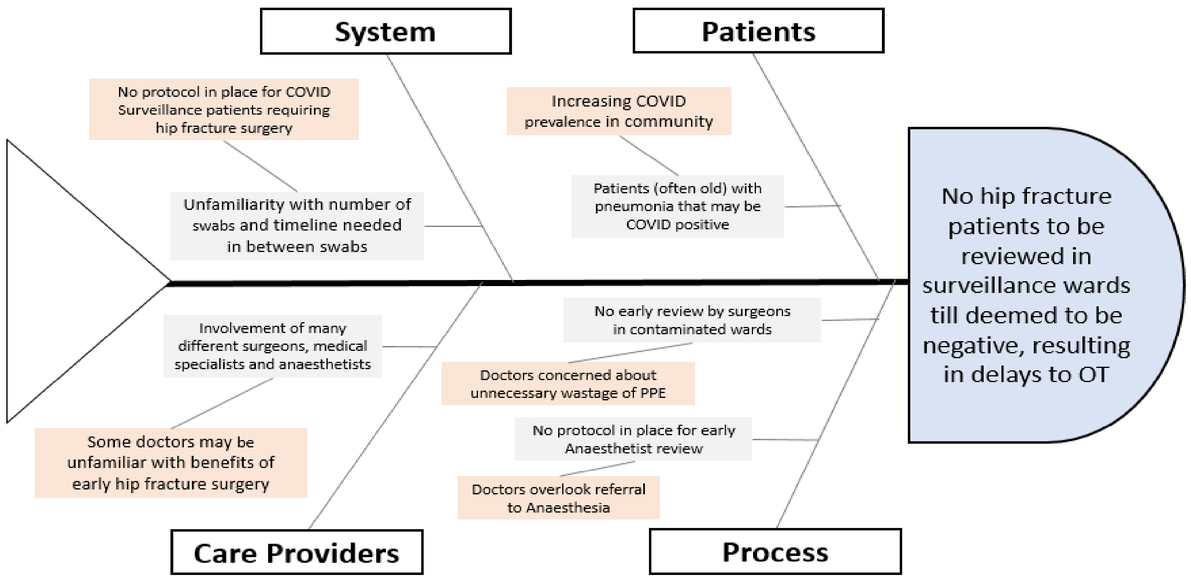
The patient cohort comprised of 300 patients within the selected criteria from March 2020 to March 2021.

Cohort Size	**300**	**Gender**	Males **88**	**Surveillance Testing**	Y	**155**
Mean Age	**79 ± 8.5**		Females **212**		N	**145**

Analyse Problem

Root Cause Analysis

Targeted areas of improvement were:



Select Changes

Probable Solutions

Root Cause	Potential Solutions
No early review by Orthopaedic Surgery surgeons and Anaesthetists in contaminated wards.	1. All hip fracture patients admitted to COVID Surveillance Wards were started on the hip fracture pathway and reviewed within 24 hours by the Orthopaedic Surgery team. 2. Patients were reviewed by Anaesthesia team early once decision for surgery was reached.
No protocol in place for COVID Surveillance patients requiring hip fracture surgery.	1. All patients had COVID swabs done at 18 hours interval to meet 48 hours timeline. 2. Patients were kept fasted pending results of 2nd swab and listed for operation as soon as swabs results were out. 3. Patients were operated within the day of listing, keeping within the 48 hours window.

Acknowledgements

The authors would like to thank the contributions of the multidisciplinary team towards the success of the project, without whom this would not have been possible.

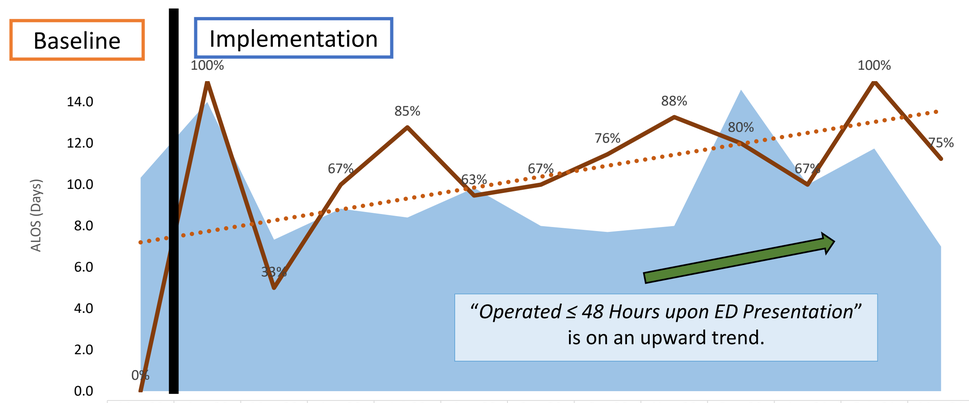
Ng Teng Fong General Hospital

Jurong Community Hospital

Test & Implement Changes

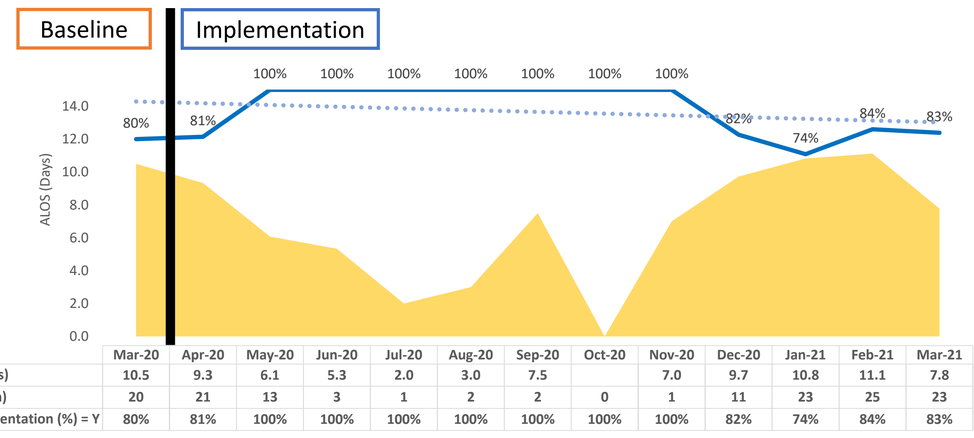
CYCLE	PLAN	DO	STUDY	ACT
1	Compare % of patients operated within 48 hours in COVID surveillance to non-COVID Surveillance group	Protocol implemented April 2020	Improvement in performance	Continue protocol for COVID Surveillance Patients
2	Compare ALOS of COVID Surveillance hip fracture patients to non-COVID Surveillance group	Protocol implemented April 2020	ALOS Comparison between 2 groups	Continue protocol for COVID Surveillance Patients

Trend of COVID Surveillance Patient in OT ≤ 48Hrs (Mar20 to Mar21)



	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
Avg LOS (Days)	10.3	14.0	7.3	8.8	8.4	9.8	8.0	7.7	8.0	14.6	10.0	11.8	7.0
Cohort Size (n)	3	2	3	18	27	19	24	17	26	5	3	4	4
Upon ED Presentation (%) = Y	0%	100%	33%	67%	85%	63%	67%	76%	88%	80%	67%	100%	75%

Trend of Non-COVID Surveillance Patient in OT ≤ 48Hrs (Mar20 to Mar21)

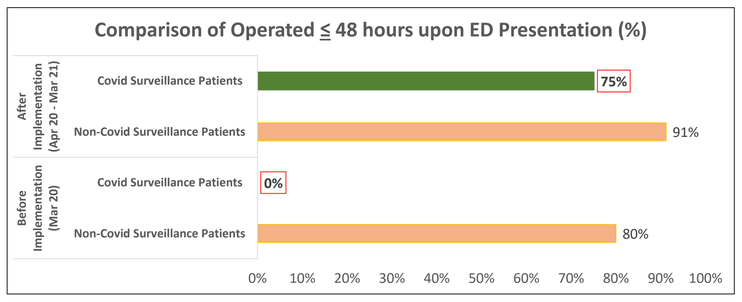


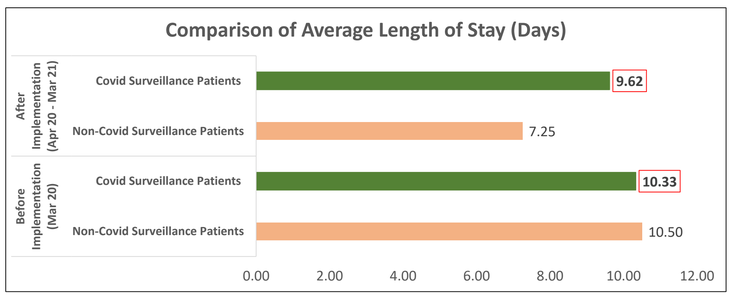
	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
Avg LOS (Days)	10.5	9.3	6.1	5.3	2.0	3.0	7.5		7.0	9.7	10.8	11.1	7.8
Cohort Size (n)	20	21	13	3	1	2	2	0	1	11	23	25	23
Upon ED Presentation (%) = Y	80%	81%	100%	100%	100%	100%	100%	100%	100%	82%	74%	84%	83%

Comparison of Results (Pre and Post):

The COVID Surveillance Protocol has **improved patient outcomes**, **reduced ALOS** and **costs**, as well as help our hospital to **better manage bed availability** and **increase productivity**.

75% improvement on "Operated within 48 hours upon ED Presentation" indicator for COVID surveillance patients.





ALOS has decreased from **10.3 days to 9.6 days** despite the surveillance period (COVID surveillance patients had to stay an additional 2 days).

Spread Changes, Learning Points

Spread Changes

- Expediting COVID surveillance swabs can expedite time to surgery and potentially improve hip fracture surgery outcomes.
- Delays can be significantly reduced by standardising care protocols.
- Educating and familiarizing doctors with the benefits of early definitive hip fracture surgery within 48 hours of ED Admission Order.

Learning Points

- Early and expeditious implementation of protocol can be seen to bring benefits to patients over the year long period of implementation.
- Despite patients requiring COVID Surveillance, improvements in ALOS and early operation rates were seen.
- Strong support from the multidisciplinary team is essential to the smooth and continued functioning of the hip fracture clinical pathway.