



Singapore Healthcare
Management 2019

Lean Transformation and its Impact on Patient Flow Management at Echocardiography (ECHO) Laboratory

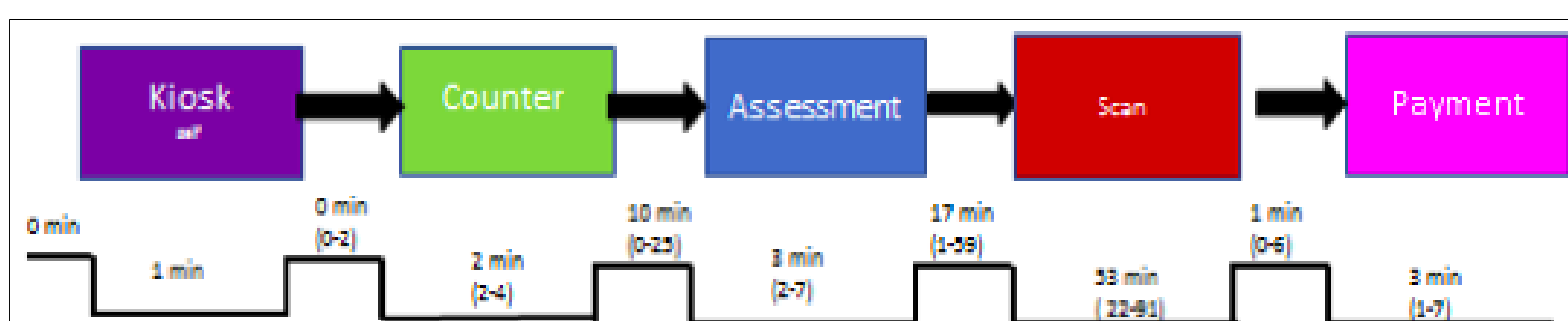
Chiong Siau Chien, Patricia Goh L. K., Neo Poh Yee,
Ewe See Hooi, Lay Sock Yee, Jacqueline Huo



National Heart
Centre Singapore
SingHealth

BACKGROUND

Echocardiogram is a specialised ultrasound imaging performed for the diagnosis of structural or functional heart disease, approximately 130 scans are performed daily at the outpatient cardiac laboratory.



Initial VSM of a typical Patient Journey

Median Lead Time = 90min

Median Process Time = 62 min

Median Wait Time = 28 min

Aim: To improve the order to scan time for Echo appointment.

METHODOLOGY

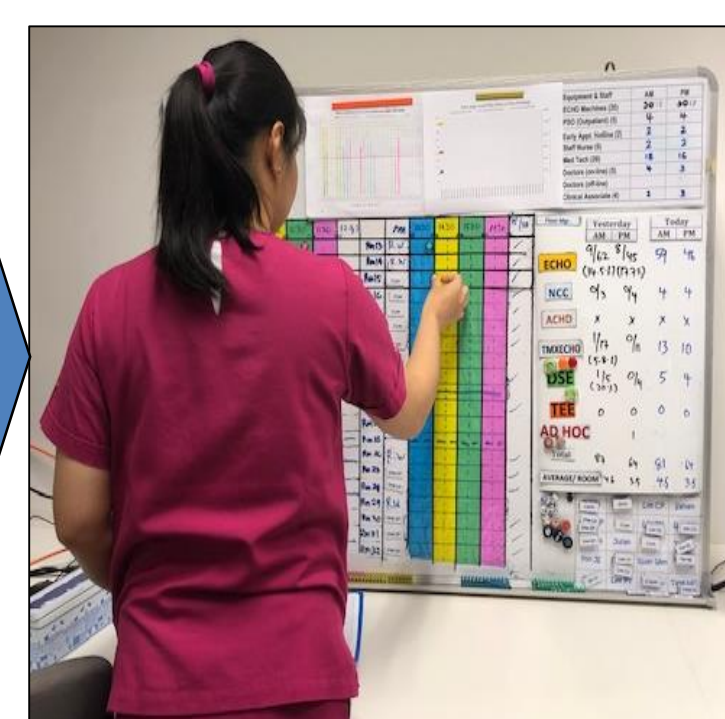
a. Daily morning huddle

- reflect on previous day work
- recognise outstanding colleague
- address quick fixes and any deviation of standard work
- communicate scheduled workload
- group stretching exercise



b. Floor manager

- lead morning huddle
- manage patient flow
- consolidate visual board and workload data



c. Visual board

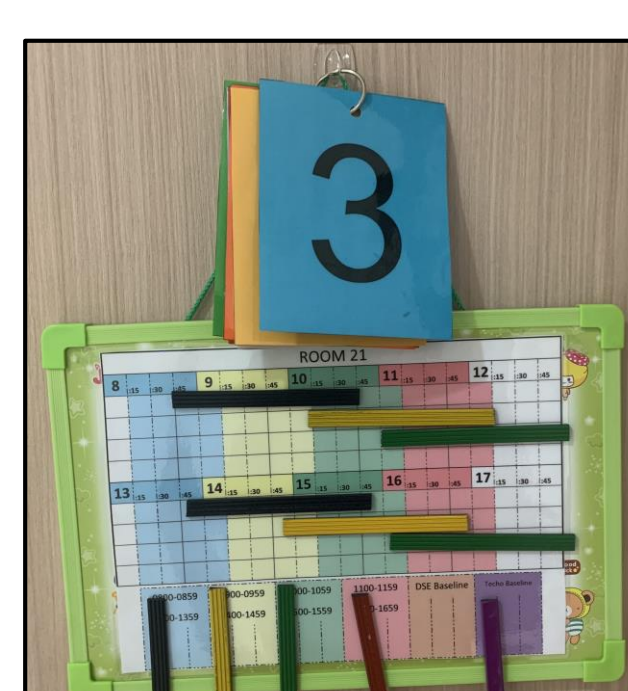
- Records the following info:
 - number of ECHO performed
 - number of doctors on duty
 - number of patients for the day
 - number of medical technician on duty
- Used to communicate workload & schedule



d. Room board

Records the following information:

- number of scans performed
- start & end time of scan done in each room

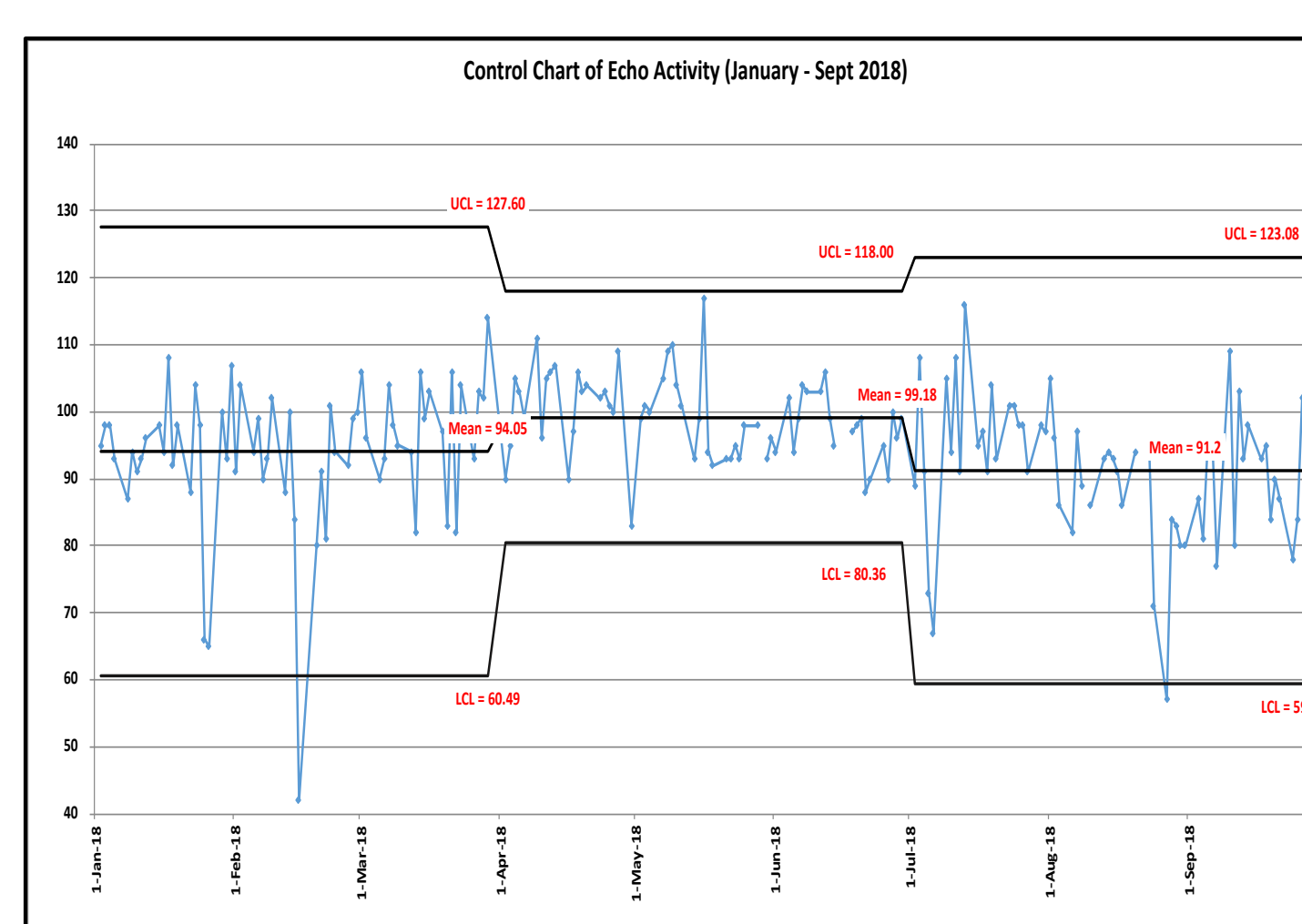


RESULTS

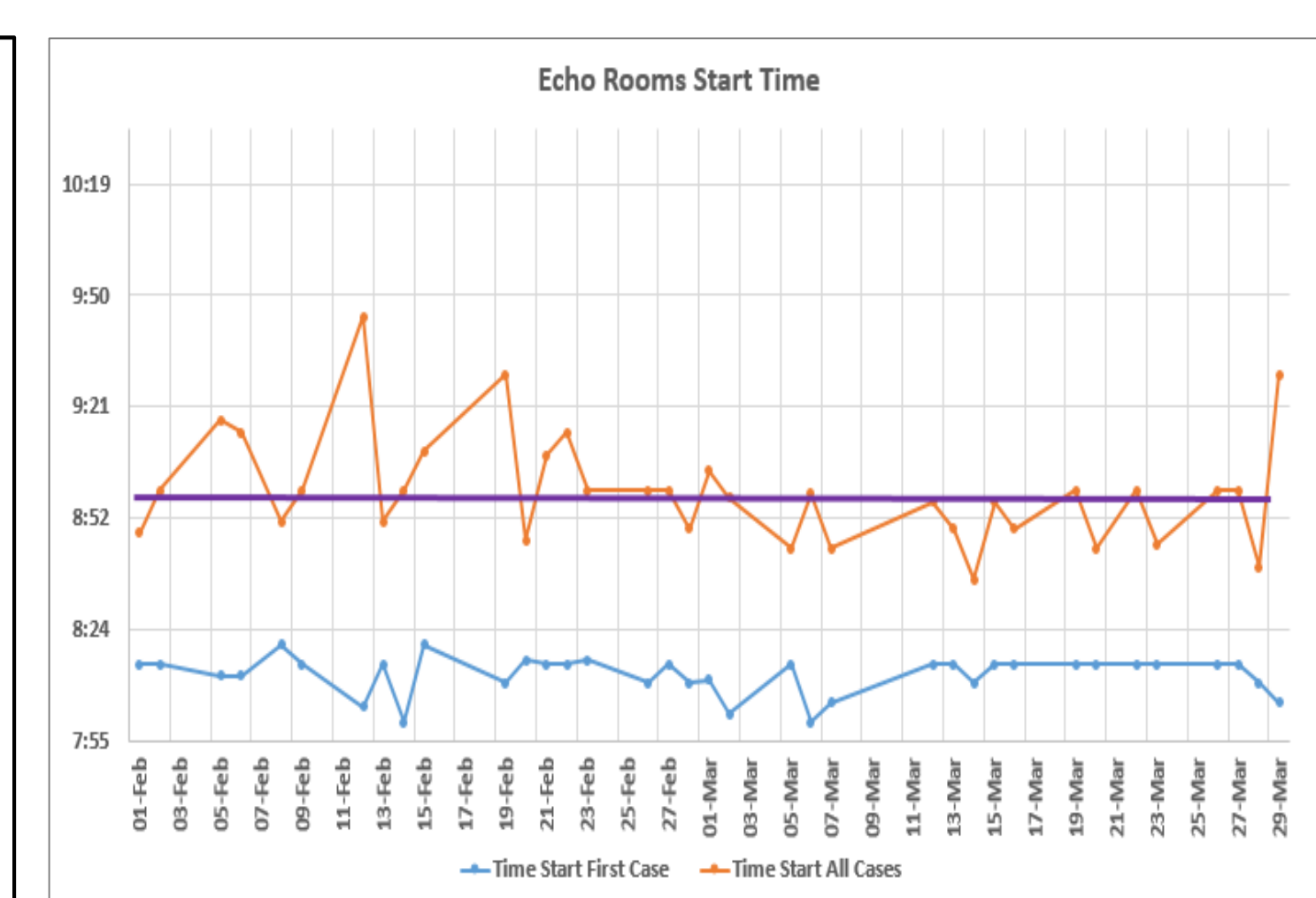
After implementation, there is an average reduction of 13 min journey time per patient!

28 min → **12 min**

Wait time reduced from the initial 28 to 12 mins, with the addition of a Floor Manager to monitor and manage patient flow in the waiting room.



Decrease in fluctuation in daily scans performed
(Mean scan from 94+67 to 99+38).



Scans starting on time.
Decrease in fluctuation for Echo scans start time after 9am.

INTANGIBLE BENEFITS

- ☐ Improved efficiency
- ☐ Improved staff morale
- ☐ Reduced unnecessary complaints
- ☐ Improved waiting time for test in the Lab
- ☐ Maintain professional image of hospital
- ☐ Improved patient and caregiver experience
- ☐ Enhanced teamwork for holistic patient care



CONCLUSION

The changes applied from the lean tool and thinking has led to a decrease in fluctuation in daily scans performed. Visualization of flow together with daily reflection has enabled greater stability on work flow in the lab and an opportunity to increase in the number of patient scheduled. This stability has led to an increase in productivity, without an increase in resources. In addition, waiting room experience also improved, in-office wait time reduced from the initial 28 to 12 mins, with the addition of a Floor Manager to monitor and manage patient flow in the waiting room. This change has helped in optimization of our current resources within the lab and greater patient satisfaction.