

Joint Event
7th International Conference on
Global Healthcare
&
4th International Conference on
Addiction Research and Therapy
October 08, 2021 | Webinar

Systems engineering case study: Improving patient safety by reducing lead-times for blood tests

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A systems engineering approach was taken at South Warwickshire NHS Foundation Trust to map and measure the flow of emergency patients from presentation at Accident and Emergency to discharge back home or to social care. One of the constraints, highlighted by a patient's report, was the delays in receiving and acting on the results of blood tests. The batching and prioritisation policies in the phlebotomy, portering and laboratory services were removed (which cost nothing) and the demand and activity these services synchronized so that the lead-times for emergency inpatient blood tests reduced from av. 1h 58 min to 1 h 29 min with improved predictability. These changes did not compromise the laboratory service for

accident and emergency, general practice or outpatient care. Having the impatient results available by 10:30 am rather than 12:00, ensured that clinical decisions were made based on 'today's blood test'. The overall impact of the improved timeliness of emergency care was reflected in the hospital's rate adjusted mortality index.

Early in my clinical career I recognized that patients were being harmed by delays that wouldn't be solved just by 'more' or 'better' care – we needed to sort out our 'production system'.

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