



Transforming the Healthcare Simulation Spectrum: Now, Next and Beyond

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A West Side Story: Using Translational Simulation for COVID-19 Readiness



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Background

COVID-19 has caused catastrophic disruptions to global healthcare services. Infrastructure and workflows redesign to provide care to COVID-19 patients, whilst also ensuring staff and patient safety has been paramount.

As part of a hospital COVID-19 Readiness Program, simulation-based clinical scenario testing (CST) was conducted.

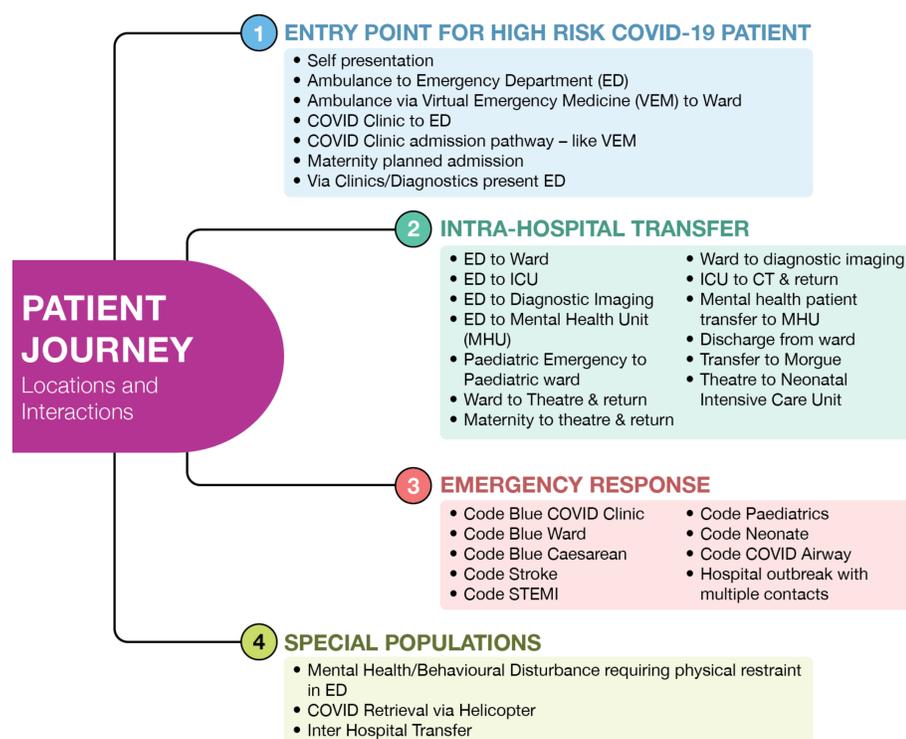
We describe the use of translational simulation to identify latent threats associated with major COVID-19 patient clinical journeys.

The STEPS (Simulation To Enhance Patient Safety) COVID-19 CST project structure was established from our existing translational simulation consultation service: STEPS and CST experience from hospital commissioning. The STEPS COVID-19 CST Team composed of eight simulation leads, drawn from medical and nursing backgrounds.

A multi-phase process of: table-top discussion, system walk through, multi-disciplinary simulation was championed.



The main hospital pathways were identified and targeted. See Figure 2 below. Commonalities between patient journeys were identified to rationalise scenario design and prevent duplication.



STEPS COVID-19 Clinical System Testing Scenarios

Between August 2021-April 2022: 22 complex, multi-disciplinary, multi-profession clinical system tests across two large health care institutions.

All CST scenarios were conducted in real time, during working hours.

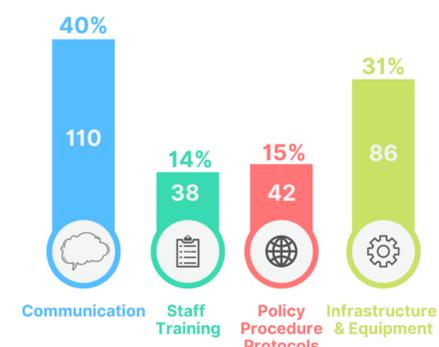
Details of the test can be found in Table 1.

Table 1: STEPS COVID-19 CST Scenarios

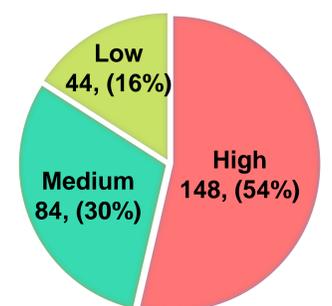
No	Code/Incident	Scenario Test	Extreme	High	Medium	Low
1	Code Blue Adult	FSH MET response to deteriorating COVID-19 patient in COVID Screening Clinic; transfer to ED	3	6	2	-
2	Code Blue Adult	MET response to Negative Pressure Isolation Room (NPIR)	3	4	-	1
3	Code Blue Paediatric	Code Blue Paediatric response to paediatric patient in NPIR	1	7	1	-
4	Code Blue Adult	Fremantle Hospital (FH) Code Blue response to Medical ward	1	1	4	-
5	Code Blue Adult	FH Code Blue response to ward Medical ward	-	1	4	1
6	Code Black	Code Black Mental Health Unit	-	4	1	-
7	Code Stroke	ED admission of COVID-19 patient with stroke requiring transfer to Neurological Intervention & Imaging Service of Western Australia (NIISWA)	2	5	6	5
8	Code STEMI	Code STEMI activation of patient in community & transfer to Lab 3, Angiography.	-	4	4	-
9	Transfer Paediatric Admission	Paediatric COVID-19 patient admitted & transferred ED to Paediatrics ward	-	5	6	-
10	Transfer COVID-19 ED-CT	Emergency transfer ED to CT scanner	-	2	6	3
11	Transfer COVID-19	Intensive Care Unit (ICU) - Mortuary transfer	1	7	3	4
12	Transfer COVID-19	Surgical transfer to theatre	-	11	9	-
13	Transfer Mental Health Unit	Mental Health Patient Admission Community to Mental Health Unit (MHU)	3	10	1	-
14	Transfer Royal Flying Doctors Service (RFDS) Helicopter COVID-19	Transfer Covid-19 patient via RFDS Helicopter to FSH Surgical Ward	-	-	5	6
15	Outbreak Management	FSH Outbreak Management	-	8	7	-
16	Outbreak Management	FH Outbreak Management	6	4	5	-
17	MFAU Covid-19 Maternity	Maternal Foetal Assessment Unit (MFAU) admission COVID-19 positive maternity patient	1	8	6	3
18	Admission ED-Medical ward pathway	COVID-19 patient requiring ambulance transfer to hospital: VEM assessment/ triage/ direct admission & transfer to Medical ward	-	1	4	7
19	Admission FH MHU Covid-19	Admission pathway of COVID-19 patient to MHU -FH	-	7	3	3
20	Trauma B	Activation trauma B; stabilisation & transfer to theatre	3	2	-	1
21	Ambulance External Triage	Testing of triage & workflow of ambulance presentations to ED ambulance area	3	8	1	-
22	FH Day Surgery Pathway	FH day surgery pathway COVID-19 patient	-	2	2	7

COVID-19 Clinical Scenario Testing Results

Over 6 months; 276 identified latent threats to service provision were identified. Chart 3 depicts the CST Latent Threat Category breakdown:



The breakdown of risk levels allocated to the CST issues is shown in below pie graph. Issues were categorised: High, Medium or Low risk levels – as per the Western Australian Health Risk Evaluation Criteria Consequences Assessment.



Following completion of the COVID-9 CST Programme, 414 actions were generated and allocated to named individuals as a means to address the barriers to effective service delivery. Examples are outlined in the below table.

Clinical scenario testing identified solutions utilising the CST identified latent threat

Communication	Infrastructure	Policy/Procedure
<ul style="list-style-type: none"> Hospital-wide communication solutions for NPIR / MET response: TBC Wall speaker phones for all Negative Pressure isolation rooms 2-way radios for High Risk Transfer Teams Local communications solutions hospital wide including NICU; MFAU; Paediatric Ward; Emergency Dept. Modifications to Helpdesk Processes relating to COVID MET calls & activation High Risk Transfer Team 	<ul style="list-style-type: none"> Hospital Contact Tracing command centre established Hospital wide location & position of hepa-filter units CST findings led to informed local COVID Response action Plans across hospital 	<ul style="list-style-type: none"> Change to Code Blue Caesarean process Change to High Risk Transfer Policy Change to MFAU presentation policy Change to Code STEMI process Change to Code Black process Evaluation and modification to Virtual Emergency Medicine process Creation of Emergency Dept. COVID-19 Triage Tent policy Change to Transfer of COVID-19 Deceased patient policy Helicopter transfer protocol revisions