

Supplementary Table 1. Maximum Allowable Concurrent Absences Before Backlog or TAT Violation in Baseline and Stress-Test Scenarios (+20% MRI, CT, US Demand)

Modality	Baseline daily capacity	Baseline daily demand	Max allowable concurrent absences, baseline	Max allowable concurrent absences, stress test	Notes
MRI	60 exams (1 scanner, 3 technologists)	60 exams	1 technologist	0 technologists	Single-scanner dependency makes MRI highly vulnerable; even one absence during stress conditions produced backlog within 2 days.
CT	50 exams	50 exams	2 technologists	1 technologist	Emergency CT prioritized; stress conditions reduced allowable absences due to tighter scheduling.
Ultrasound	~200 exams (5 radiologists × 40/ day)	200 exams	1 radiologist	0 radiologist	On-call coverage prevents backlog for emergencies, but elective cases face prolonged delays under stress.
Radiography	Device-limited, 24 h coverage	Demand-matched	3 technologists	3 technologists	Continuous shift coverage maintains throughput; minimal impact of stress scenario.
Mammography	Device-limited, 24 h coverage	Demand-matched	2 technologists	2 technologists	Screening workflow allows limited buffer; stable under stress.
Fluoroscopy	Device-limited, immediate cases	Demand-matched	1 technologist	1 technologist	Almost exclusively urgent studies; minimal staffing buffer but stable under stress.