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Mind the gap: Optimizing neuro patient journeys - by Cathleen Lange and Scott Mueller

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The neurosciences represent one of the few clinical areas where both inpatient and outpatient activity are expected to grow significantly over the next ten years. Broad market research points to the following: neurosurgery (14%) and acute rehabilitation (21%) are two of the fastest growing inpatient service lines. Simultaneously, workforce shortages make it critical to centralize resources — 32% of neurologists are nearing retirement, and most job listings go unfilled.

Against this backdrop, Yale New Haven Health (YNNH) is undertaking the largest healthcare construction project in Connecticut's history with the Adams Neurosciences Center at Yale New Haven Hospital's Saint Raphael Campus. This landmark initiative integrates three interconnected projects to revolutionize neurological care delivery.

Rendering by Shepley Bulfinch

A Unified Vision for Neurological Excellence

The Adams Neurosciences Center will be the hub of three strategically interwoven components: the

Neurosciences Center including the inpatient bed towers, the Emergency Department renovation and expansion, and the Heart and Vascular Center expansion. Together, these elements create a seamless continuum of neurosciences care addressing growing demand while maximizing efficiency of limited specialist resources. Building on a thirty-year collaboration with YNHH, Shepley Bulfinch's design spans 625,000 s/f and represents a fundamental reimagining of neurological care delivery for time-sensitive emergencies like stroke.

The center integrates specialized operating rooms, advanced imaging including MR/OR facilities, and dedicated neurotherapy spaces. This concentration ensures immediate access to the full spectrum of care while allowing specialists to work more efficiently. The bed towers include 202 acuity-adaptable patient rooms designed for complex neurological needs.

Emergency Dept. Expansion: Rapid Response Capabilities

The ED will expand from 49 to 91 treatment spaces using an innovative pod design that aligns with a multi-phased construction approach that allows for the department to minimize disruption while continuing to serve patients. The enhanced ED features 22 low-acuity patient cubicles and dedicated neuro-trauma capabilities with specialized exam rooms positioned along critical patient pathways. The expansion also includes a 12-bed Behavioral Health Crisis Unit and a 6-bed Flex Secure pod, while incorporating pandemic preparedness through the inclusion of a robust decontamination suite and an ED pod that can change the corridor to exam rooms relationship from positive to negative pressure.

Heart and Vascular Center: Critical Stroke Intervention

The expanded center includes two specialized neuro interventional radiology procedure rooms positioned directly along the stroke patient pathways from emergency arrival to definitive care.

The Stroke Patient Journey: Where Integration Saves Lives

The true innovation lies in optimizing care for stroke patients, where every minute can mean the difference between recovery and permanent disability. The design centers around creating the most efficient pathway from ambulance arrival to specialized treatment.

When stroke patients arrive via ambulance, a designated resuscitation room features a mobile MRI positioned directly adjacent to it, eliminating transport time for initial imaging. A dedicated stroke staff workspace ensures specialized expertise is immediately available.

As patients move toward specialized care, they pass directly by interventional laboratories within the Heart and Vascular Center, recognizing that many of them require immediate procedures like thrombectomy. Continuing the pathway, stroke patients have access to two fixed MRI Rooms and then two new elevators that will transport stabilized patients to the second floor of the Adams Neurosciences Center, leading to dedicated procedure rooms on that floor and specialized inpatient beds in the towers above.

A Model for Integrated Healthcare Design

The Adams Neurosciences Center demonstrates how thoughtful integration creates outcomes greater than the sum of their parts. By designing components as interconnected elements of a single patient journey, Yale New Haven Health creates a model for facilities designed around patient needs rather than departmental boundaries. This approach recognizes that neurological emergencies require immediate access to emergency medicine, interventional cardiology, neurosurgery, advanced imaging, and specialized nursing care. By optimizing physical pathways and environments that enhance specialist efficiency in an era of high demand, the Adams Neurosciences Center sets new standards for neurological care delivery in an era of growing demand and workforce constraints.

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