

Measuring Scheduling: A Novel Approach to Assess Scheduling Timeliness for Hospital at Home Operations

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INTRODUCTION

In early 2025 a team at DispatchHealth[†] designed and piloted a novel measurement system that quantifies the speed and responsiveness of centralized scheduling operations of multiple Hospital at Home (HaH) programs across the United States. The measurement system integrates time-stamped data capture to evaluate “On Time” vs. “Late” appointment scheduling, also referred to as “responsiveness”—normalized across all U.S. time zones. Its design supports metric definition for the scheduling function performed by the DispatchHealth Fulfillment team, factoring in the complex logistics of order flow in a high-volume, geographically distributed in-home care delivery model (Figure 1).

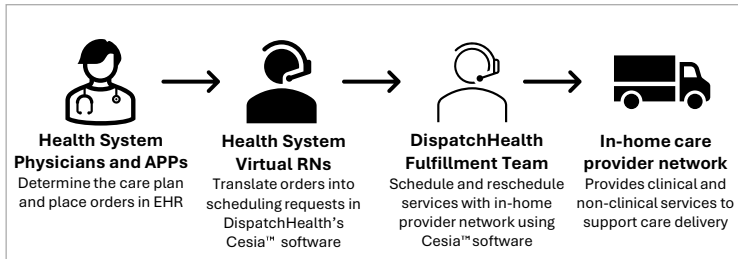


Figure 1: DispatchHealth HaH Order Flow Model

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PROBLEM STATEMENT

Standard brick-and-mortar hospital order prioritization consists of STAT, Timed, and Routine designations that inform the timing of care delivery in a centralized facility, as determined by the ordering provider. However, these categories do not provide the precision needed to define just-in-time requirements for the *scheduling* of home-based services in a decentralized Hospital at Home model.

Service scheduling relies on two principles of DispatchHealth’s order flow model:

- Care planning parameters** are set by the virtual RN and include visit timing, duration, and other clinical attributes, which provides required context to the order details to appropriately schedule the service.
- Timing of service scheduling** by the Fulfillment team is based on the care plan parameters and is independent from the timing of when a virtual RN delegates a scheduling request.

The DispatchHealth HaH model requires measurement across the whole order flow process. This work is focused exclusively on timely scheduling of services.

METHOD

Novel Prioritization Categories for Scheduling Responsiveness

A new prioritization process was developed using three distinct data elements captured in DispatchHealth’s Cesia™ software (Table 1):

- The date and time a scheduling request was delegated by a virtual RN (Figure 1)
- The date and time the virtual RN requested the service to occur based on care planning parameters
- The type of provider required to perform the requested service (RN, Paramedic, or other)

New “On-Time” Service Level Agreements (SLAs) for Scheduling Responsiveness

A unique formula was designed to determine whether the scheduling of a service was within (“on-time”), or outside of (“late”) the SLA based on its prioritization category. These SLAs are between DispatchHealth and its provider system partners to establish performance expectations.

Data Methodology

- Audit Capture:** Event-tracking to log interactions in the Cesia™ software interface
- Data Transformation:** Unpacking of raw audit into a Snowflake data warehouse
- Semantic Modeling:** Structuring the data into well-defined facts and dimensions
- Relational Data Integration:** Joining disparate data sources for a full view of scheduling workflows
- Automated Heuristics for Prioritization and SLA Coding:** Classifying scheduling request categories

DispatchHealth Responsiveness Framework		
Category	Description	Example
Immediate Response (IR)	A service that needs to happen in the home immediately	Patient requires an EKG
Same-day non-IR	A service that needs to happen today but not immediately	A new time-sensitive medication is needed for an emerging infection
Next Day	A service that needs to happen a day after the request is sent	A patient requires a new DME walker
Next Day Batch*	A set of services across a pool of providers in a given day	Timed IV medication infusions for 7 different patients distributed across 4 providers
Beyond 2+ Days	A service that is request more than 2 days in advance	Patient needs physical therapy during their stay
Medication Delivery*	Batched distribution of medication	Multiple patients require medication deliveries on the same day

* Potential for greater geographical efficiencies when scheduled together as a batch

Table 1: DispatchHealth Responsiveness Framework

RESULTS

Performance Measurement Tools

A cloud-based dashboard was created which displays all prioritization categories and their respective on-time SLA performance, providing drilldowns across key program attributes including service request category, in-home provider vendor, and others.

Program Improvement Enablement

Insights have guided the DispatchHealth Fulfillment team to identify specific improvement opportunities in the order flow model. These have included:

- Non-standard internal workflows that have a larger impact on on-time responsiveness
- In-home provider groups where appointment confirmation turnaround time improves performance
- Virtual RN teams where faster order delegation will improve scheduling timeliness

% On Time Responsiveness by Request Type

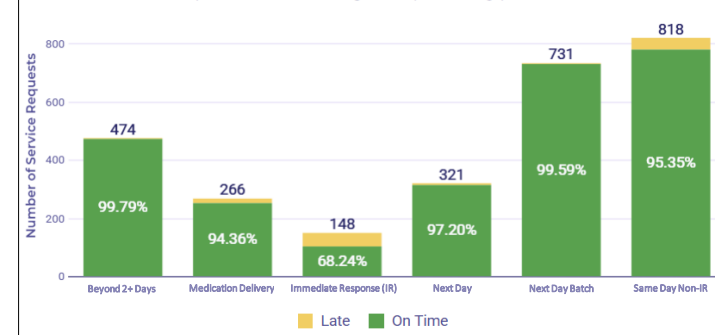


Figure 2: Program-level responsiveness measurement

Key Insights to Inform Strategic Focus

- The process for rapid scheduling of services in the immediate response prioritization category should be examined to identify improvement opportunities (Figure 2)
- A high volume of scheduling requests for same day services are concentrated during daytime operations in parallel with high volume of other operational work demand, and offers opportunity for more next-day care planning upstream (Figure 3)

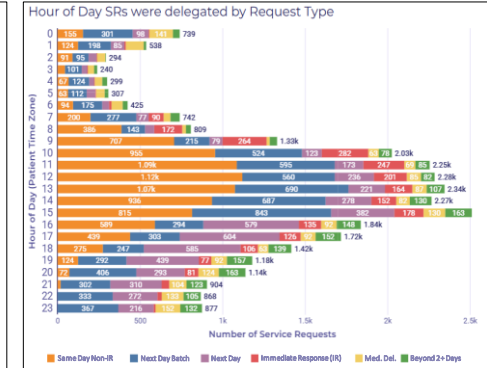


Figure 3: Cross-program time of day analysis of scheduling requests by prioritization category