

# Development of Productivity Standards for Ambulatory Infusion Suite Nurses within a Multi-Entity Health System



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## Introduction

**Current state:** Infusion sites use **chair capacity** as a metric to gauge the productivity of their operations.

- Direct reflection of physical chair utilization
- Based on inputs of total time patients occupy chairs and total time the chair is available
- Simple to calculate: *Hours of operation* × *Chair count*

**Information gap:** Chair capacity is a continent metric but its ability to provide insight is limited.

- Need for metrics that can track productivity and staffing needs with an **actionable level of detail**
- These metrics should reflect the tasks which infusion nurses spend their time on each day.
- Minimal literature describes specific methods to obtain more accurate **clinician-focused capacity**.

## Purpose

- (1) Identify a **standardized set of tasks** that account for clinician-focused capacity.
- (2) Create an **operational tool** that ambulatory infusion suites (AIS) can use to inform productivity and business standards.

## Methods

Two time studies were conducted across 3 AIS locations within our organization:

- (1) **In-person time study:** 7 infusion nurses' workflow was observed over approx. 52 hours, logging time spent on actions in clinical and non-clinical care. Observations were aggregated into distinct tasks.
- (2) **Electronic time study:** Epic EHR appointment reports over 1 month (n=408) were analyzed. Appointment length, patient check-in time, and discharge time were grouped by 34 different infusion therapies.

Results were used to develop and validate metrics for an **infusion nurse productivity scorecard**.

## References

(1) Kloos E and Guidi TU. How does your infusion center measure up? Results of the 2014 National Hospital Oncology Benchmark for Infusion. Oncology Issues. Nov-Dec 2015. www.accc-cancer.org. Accessed Nov 8, 2022.

## Part I: In-Person Time Study

50 distinct tasks were identified, grouped, and measured. Times given in parentheses are averages for an 8.5-hour workday.

Direct Patient Care (81.6 min)		Documentation (86.7 min)	
1. Take vitals (15.3 min)	2. Conduct pre-infusion assessments (10.2 min)	1. Document vitals (20.4 min)	2. Document pre-infusion assessments (5.1 min)
3. Insert IV or access port (25.5 min)	4. Draw labs (5.1 min)	3. Complete labs paperwork (5.1 min)	4. Update MAR (15.3 min)
5. Check in on patient (15.3 min)	6. Patient med reaction (0.0 min)	5. Write patient note (25.5 min)	6. Document IV assessment (10.2 min)
7. Patient observation/monitoring (5.1 min)	8. De-access IV (5.1 min)	7. Fill out patient wrap-up (5.1 min)	8. Document ADR (0.0 min)
9. Patient teaching/education/AVS (5.1 min)		9. Update REMS program (0.0 min)	
Meds (56.1 min)		Communications (76.5 min)	
1. Prep premeds (5.1 min)	2. Administer premeds (5.1 min)	1. Talk with another nurse (25.5 min)	2. Talk with doctor (5.1 min)
3. Prep infusion (25.5 min)	4. Administer infusion (10.2 min)	3. Talk with pharmacy (0.0 min)	4. Talk with supervisor (5.1 min)
5. Prep hydration (5.1 min)	6. Administer hydration (5.1 min)	5. Talk with another team member (20.4 min)	6. Check email (10.2 min)
7. Prep injection (0.0 min)	8. Administer injection (0.0 min)	7. Answer phone call (5.1 min)	
Operations (81.6 min)		Indirect Patient Care (96.9 min)	
1. Opening (20.4 min)	2. Patient admission (10.2 min)	1. Release orders (5.1 min)	2. Call patient (5.1 min)
3. Clean patient area (15.3 min)	4. Restock supplies (5.1 min)	3. Scheduling (35.7 min)	4. Review patient chart (40.8 min)
5. Organize meds/supplies delivery (15.3 min)	6. Order supplies (0.0 min)	5. Patient troubleshooting (5.1 min)	
7. Closing (5.1 min)	8. Drop off tubes at lab (5.1 min)	Other (35.7 min)	
		1. Take lunch (10.2 min)	3. Use bathroom (5.1 min)
		2. Take break (15.3 min)	4. Attend meeting (0.0 min)

- Nurses spent the most time on chart checks and scheduling.
- Similar time was spent in Communications (76.5 min), Direct Patient Care (81.6 min), Documentation (86.7 min), and Indirect Patient Care (96.9 min) groups.

## Part II: Electronic Time Study

Analysis of patient appointments in the EHR informed proposals to shorten, extend, or make no change to appointment lengths for different therapies (appointment lengths and proposed lengths include 30-minute buffer time scheduled in EHR).

Therapy	Appointment Lengths (min)	Averaged Actual Length (min)	Proposed Length (min)
Natalizumab	90, 120, 150, 180	134	150 (180 with premeds)
Ocrelizumab	150, 360, 480	368	390
Patisiran	210, 240	199	210
Rituximab	480	291	300 [decrease length]
Zoledronic acid	90	112	150 [increase length]

Five therapies given as examples. Full therapy list can be provided upon request.

## Part III: Proposed Productivity Scorecard

- Non-therapy tasks from the in-person time study were selected and synthesized into a list of auxiliary tasks in discussion with nurses.
- For therapy tasks, 1 point was awarded per hour. For auxiliary tasks, points were awarded based on magnitude of impact on AIS operations and patient care.
- Retrospective grading of in-person time studies in consultation with the AIS sites determined **15 points** was the threshold to be considered **"productive."**

Therapy	Proposed Scheduling Length (min)	Points (per appt)
Natalizumab	150	2.5
Ocrelizumab	390	5
...	...	...
Auxiliary Tasks	Description	Points
Labs + paperwork	Drawing labs & completing paperwork	0.25 (per pt)
Labs drop off	Delivering lab samples to internal and/or external lab	0.25 (per run)
Mix med	Reconstitute & dilute medication for infusion/injection	0.5 (per pt)
Organize delivery	Receiving & organizing medications for patient	0.5 (per day)
Scheduling	Scheduling patient appointments & emailing intake	0.25 (per pt)
Call patient (e.g., conduct COVID-19 screen)	Calling patient to confirm appt & screening for COVID-19	0.5 (per day)
Chart checks (e.g., assess appts 1-2 weeks out)	Reviewing patient chart for future orders and labs	0.5 (per day)
Patient teaching/education	Counsel patient on treatment/line care	0.5 (per pt)
Help another nurse's patient	Help nurse to e.g., insert IV, take vitals for another patient	0.25 (per pt)
Patient med reaction + documentation	Stop infusion & administer rescue meds/interventions	1 (per pt)
Patient troubleshooting	E.g., patient shows up but not on schedule	1 (per pt)
<b>TOTAL SCORE (GOAL 15 POINTS)</b>		

## Conclusion

- (1) Time studies **highlighted trends and potential areas of improvement** in AIS nurse workflow, scheduling, and resources.
- (2) Creation of operational scorecard will allow AIS management to **better evaluate productivity** during business performance reviews.

## Next Steps

- (1) Adoption across all AIS sites within our organization. Operational differences at non-studied AIS sites may warrant further tuning prior to universal adoption.
- (2) Further research is needed to identify comprehensive productivity metrics for other AIS personnel (e.g., pharmacists, medical assistants).

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