VANDERBILT HEALTH | Specialty Pharmacy

AI Supported Prior Authorizations in Health System Specialty Pharmacy: Operational Metrics and Staff Perception

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PURPOSE

To evaluate operational metrics and staff perception of the prior authorization (PA) process pre- and post-implementation of artificial intelligence (AI) assisted PAs.

STUDY POPULATION

Inclusion criteria:
All PA claims created using AI software
All anonymous staff surveys
Exclusion criteria:
Incomplete survey sections

STUDY DESIGN

Single-center, quality improvement (QI) project at a Health System Specialty Pharmacy (HSSP) where an AI supported PA process was implemented in October 2025.
PA metrics provided by the AI software company from 11/1/2025 to 1/31/2026 and pre- and post-implementation anonymous staff surveys were analyzed descriptively.

OUTCOMES

Claims data
- PA volume
- PA approval rate
- Time from claim creation to submission

Staff surveys
- Staff perception of time to complete an average PA
- Workload using questions from the NASA Task Load (TLX)
- System usability using questions from the System Usability Scale (SUS)
- Trust in AI using questions from the Short Trust in Automation Scale (S-TIAS)

Table 1. Survey Instruments

	Workload	Usability	Trust in AI
Instrument	NASA Task Load (TLX)	System Usability Score (SUS)	Short Trust in Automation Scale (S-TIAS)
Number of questions	6	10	3
Scoring	0-100 Scale 100=Most burdensome	0-100 Scale Benchmark: 68 = Average	Score 1-7 7 = Most trust

Hart SG, & Staveland LE (1988). Development of NASA-TLX (Task Load Index): Results of Empirical and Theoretical Research. In Advances in Psychology (Vol. 52, pp. 139–183). Elsevier. 10.1016/S0166-4115(08)62386-9
Brooke, J. (1996). SUS: A 'quick and dirty' usability scale. In P. W. Jordan, B. Thomas, A. S. McClelland, & B. Weerdmeester (Eds.), Usability Evaluation in Industry (pp. 189–194). Taylor & Francis.
McGrath MJ, Lack O, Tisch J, Duenser A. Measuring trust in artificial intelligence: validation of an established scale and its short form. Front Artif Intell. 2025 May 9;8:1582880.

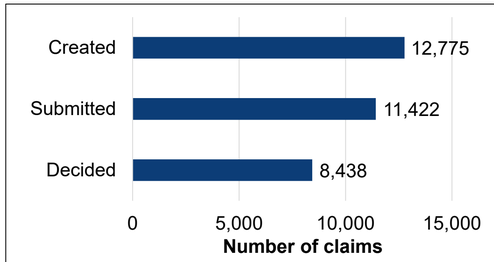
Figure 1. Survey Timeline

CONCLUSION

Staff uptake of the system was good. A downward shift was seen in staff-estimated time to complete an average PA with AI. Staff perception of workload, system usability, and trust in AI was largely unchanged post-implementation.

Results

Figure 2. PA Cascade



89% of created claims were submitted

74% of submitted claims were decided

Figure 3. PA Approval Rate*

84% of decided claims were approved

*approval rate does not include denied claims that were appealed

Figure 4. Time to Submit PAs

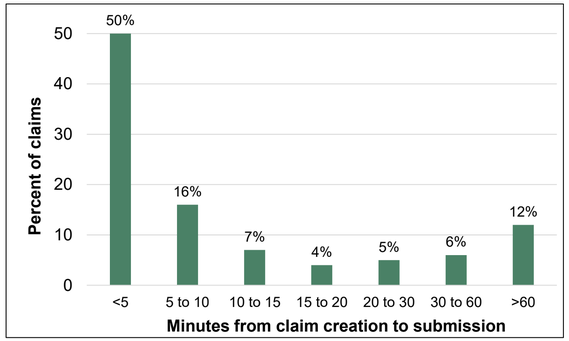


Table 2. Survey Respondent Characteristics

	Pre-implementation N=76	2 weeks post-implementation N=44	2 months post-implementation N=26
Role			
Pharmacist	46 (61%)	25 (57%)	18 (69%)
Pharmacy Technician	27 (36%)	19 (43%)	7 (27%)
Other	3 (4%)	0	1 (4%)
Years of experience managing PAs			
≤2 years	15 (20%)	9 (20%)	4 (15%)
3-5 years	18 (24%)	14 (32%)	7 (27%)
6-10 years	27 (36%)	13 (30%)	6 (23%)
>10 years	16 (21%)	8 (18%)	9 (35%)

Figure 5. Survey Respondents' Perception of Time to Submit PAs

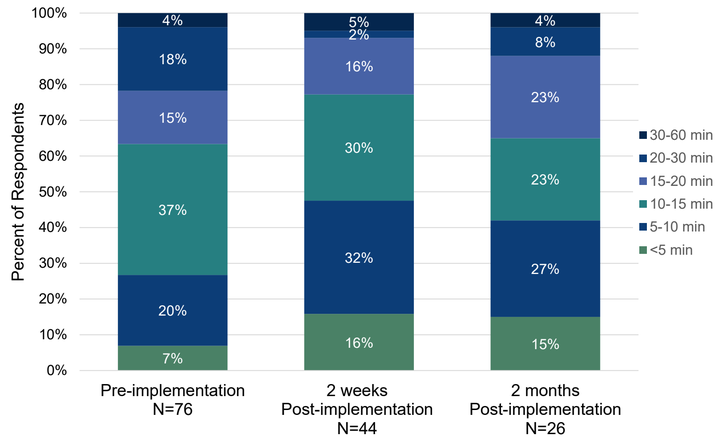
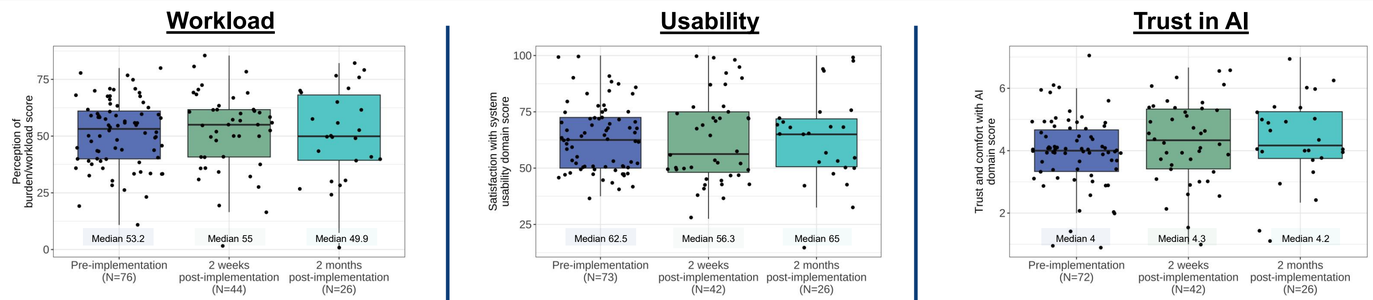



Figure 6. Survey Results by Domain