

## Letter

# Virtual care nurse triage protocols cost-effectively reduce dermatologist burnout

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### To the Editor

Dermatologists face increasing challenges related to electronic health record (EHR) workloads, contributing significantly to physician burnout. We implemented a virtual care nurse triage protocol in an academic dermatology clinic, leveraging registered nurses (RNs) to streamline patient advice requests (PARs). This study demonstrates the protocol's success in reducing dermatologist burnout and supporting a cost-effective clinical workflow.

Our single-institution study evaluated the implementation of a virtual care system in March 2023. Survey results indicated a reduction in time spent on PARs, with 100% of clinicians reporting decreased burnout and 75% expressing satisfaction with the system. Financial analysis showed the protocol's cost-effectiveness, with revenue surpassing the RN salary. Although limitations include generalizability and small sample size, our findings suggest that virtual care protocols can be adapted broadly to reduce burnout in dermatology and potentially other specialties.

Previous studies demonstrated that the EHR plays a fundamental role in physician burnout, with some studies using macabre titles such as "Death by Patient Portal," which inspired this work.<sup>1-4</sup> Dermatologists are disproportionately impacted with high volumes of patient messages, including photographs with little to no diagnostic use.<sup>5,6</sup> Given the dire consequences of physician burnout, it is imperative to study systematic measures to reduce the burden of EHR tasks on dermatology clinicians, including physicians and advanced practice providers.<sup>7-10</sup>

In this single-institution study, we describe the implementation of virtual care in an academic dermatology

clinic (**Figure 1**). This EHR nursing triage model leverages the medical experience of RNs to manage PARs.

The primary outcome of this study was to validate that virtual care protocols can be successfully adopted in a single academic dermatology clinic. Furthermore, given rising concerns about staffing costs, we discuss the financial success of the system.

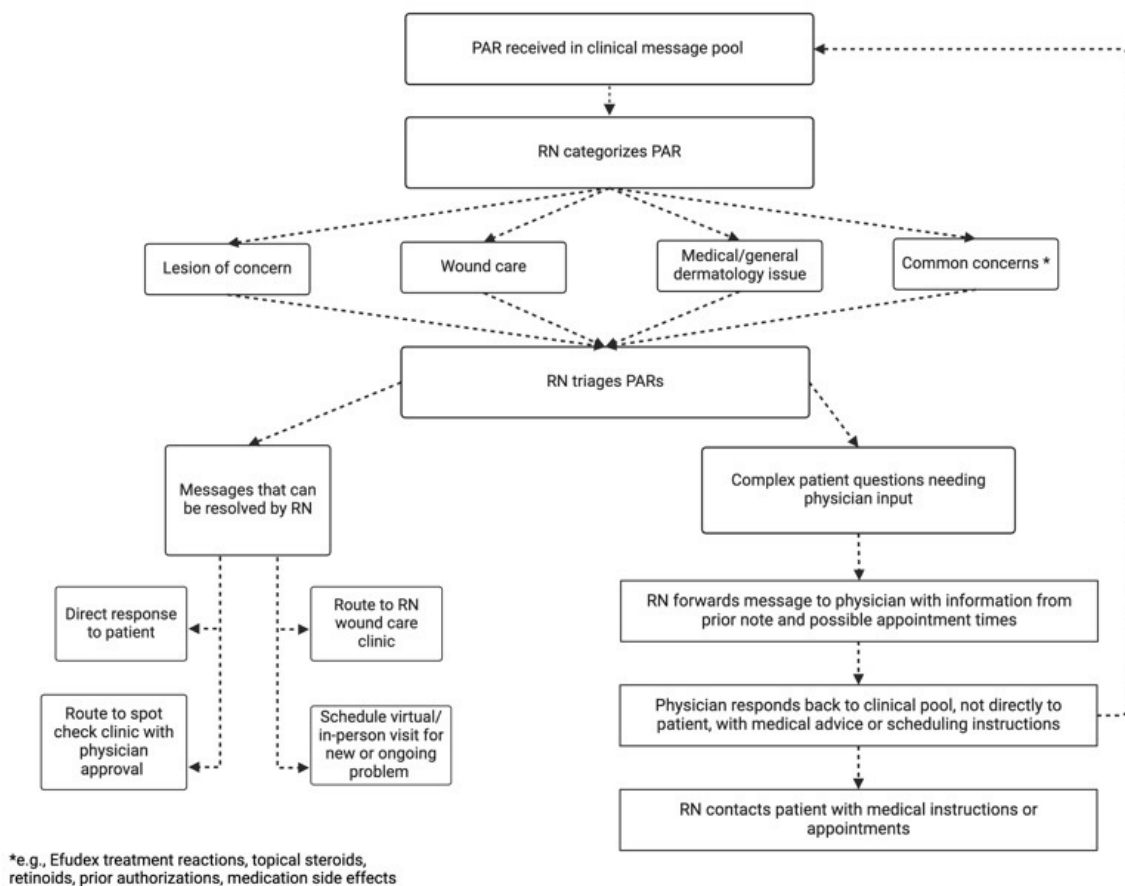
This is an implementation study of a virtual care nursing triage system. The general concept is that all PARs are routed to an RN-managed pool before being sent to clinicians. Clinicians respond back to the pool with medical advice or appointment approval rather than directly to patients (**Figure 1**). Using their clinical judgment, RNs sort PARs into categories: lesion of concern, wound care, medical/general dermatology issue, and common concerns. For complex patient questions requiring clinician input, the RN forwards the message to the clinician with relevant information from the patient's prior note. Possible appointment times are proposed, with the clinician responding to the RN-managed pool rather than the patient. Further details on individual protocols are provided in **Supplementary Figure 1**. Refill protocols were also optimized for automatic refills for low-risk medications to streamline physician workflow (**Supplementary Figure 2**).

We identified several key components essential for successful virtual care, including RN staffing, appropriate ratios of clinician inboxes included in the RN-managed pool, addition of spot check visit types to clinician templates, and clinician buy-in to the protocols. RNs are essential owing to licensing restrictions and the need for patient triage. Virtual care RNs do not participate in regular clinical duties during their assigned day. Medical assistants, who are not licensed to triage, are instead used for in-person clinic tasks such as rooming patients, biopsy assistance, and scribing. Message volumes were too high for more than 5 clinicians per RN, although this may vary

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**Figure 1.** Virtual care protocols flowchart workflow designed for inbox management of patient advice requests. Messages are triaged by the registered nurse using virtual care protocols.

depending on patient population. The additional RN cost is offset by revenue generated from spot check visits, which are billable, unlike clinician time spent answering PARs. To implement virtual care, clinicians need to add at least 2 spot check visits per week to supplement the cost.

Clinicians were coached on expectations for virtual care: buy-in from all clinicians is necessary, protocols are not customizable, and clinicians may opt out if desired and their PARs can be sent directly to them. Clinicians must have spot check availability that RNs can use appropriately. Virtual care was effectively implemented from March 2023 to present at a single Duke dermatology clinic, with plans for expansion to all Duke dermatology clinical locations owing to the program’s success.

Changes in clinician self-reported well-being, attitudes toward virtual care, and time spent managing EHR duties were measured using a qualitative multiple-choice survey before and 3 months after implementation. A total of 5 clinicians participated (Table 1 and Supplementary Figure 3). Prior to implementation, 80% of participants identified time spent on patient inbox management as a significant contributor to reduced clinical availability, job dissatisfaction, and burnout. Clinician comfort regarding nurse management of inbox messages varied by concern type; 80% were somewhat uncomfortable with nurses triaging general/medical dermatology concerns, but very

comfortable with surgical or wound concerns. Three months after implementation, 75% reported being somewhat to very comfortable with nurses triaging all patient concerns. All clinicians strongly agreed they felt less burned out, and 75% reported being very satisfied with virtual care. Participants reported a decrease in time spent managing inbox patient messages of 1 to 2 hours per week, primarily attributable to decreased time needed per forwarded request.

Based on our implementation experience and qualitative survey results, a PAR triage system leveraging RN triage experience can be implemented in dermatology clinics to cost-effectively reduce clinician burnout. Financial analysis, assuming a 1:5 RN to clinician ratio, showed that RN salary costs were more than covered by revenue generated from additional reimbursable encounters. Revenue from 10 additional spot check visits per week ( $\$129.88 \times 10 = \$1298.80$ ) plus revenue from biopsy or cryotherapy ( $\$100 \times 5 = \$500$ ) totalled  $\$1798.80$ . The average weekly cost of an RN salary in our region is  $\$1460$ . Therefore, the revenue generated more than covered the RN salary. Additional spot checks, video visits, and eVisits likely increase revenue further.

Limitations of this study include generalizability of virtual care to other clinical sites and specialties, small survey sample size, and reliance on subjective clinician-reported outcomes. Future studies should explore patient

**Table 1.** *Virtual Care Pre- and Post-Survey Clinician Responses.*

Questions	Pre-Implementation Survey Results (n = 5)		Three Months Post-Implementation Survey Results (n = 4)	
How many patient advice requests do you typically receive on an average weekday?	Less than 5	0%	Less than 5	0%
	5-10	60%	5-10	75%
	10-15	40%	10-15	25%
	15-20	0%	15-20	0%
	> 20	0%	> 20	0%
How much time per message do you typically spend on an average patient advice request?	Less than 2 minutes	20%	Less than 2 minutes	25%
	2-5 minutes	60%	2-5 minutes	75%
	5-10 minutes	20%	5-10 minutes	0%
	10-15 minutes	0%	10-15 minutes	0%
	15+ minutes	0%	15+ minutes	0%
How much time per week do you typically spend on the in-basket?	Less than 1 hour	0%	Less than 1 hour	0%
	1-2 hours	0%	1-2 hours	0%
	2-3 hours	20%	2-3 hours	50%
	3-4 hours	40%	3-4 hours	50%
	4+ hours (half day of clinic)	40%	4+ hours (half day of clinic)	0%
How much time per week do you typically spend on the patient advice requests specifically (excluding results, refills, etc.)?	Less than 1 hour	0%	Less than 1 hour	0%
	1-2 hours	20%	1-2 hours	75%
	2-3 hours	80%	2-3 hours	25%
	3-4 hours	0%	3-4 hours	0%
	4+ hours (half day of clinic)	0%	4+ hours (half day of clinic)	0%
How often do you feel that a patient request is inappropriate or makes you uncomfortable in terms of medical decision-making without seeing the patient in person?	Rarely	0%	Rarely	0%
	Somewhat rarely	20%	Somewhat rarely	0%
	Sometimes	0%	Sometimes	25%
	Somewhat often	80%	Somewhat often	75%
	Often	0%	Often	0%
How often do you feel that a patient photo is usable to make appropriate medical decisions?	Never	0%	Never	0%
	Somewhat rarely	0%	Somewhat rarely	0%
	Sometimes	80%	Sometimes	75%
	Somewhat often	20%	Somewhat often	25%
	Often	0%	Often	0%
How much does the time in the in-basket impact your ability to see more patients?	Very little impact	0%	Very little impact	0%
	Somewhat little impact	0%	Somewhat little impact	0%
	Sometimes	20%	Sometimes	25%
	Somewhat big impact	40%	Somewhat big impact	50%
	Very big impact	40%	Very big impact	25%
How often do you check your in-basket when away from the office including evenings and vacations?	Rarely	0%	Rarely	0%

Questions	Pre-Implementation Survey Results (n = 5)		Three Months Post-Implementation Survey Results (n = 4)	
	Somewhat rarely	0%	Somewhat rarely	25%
	Sometimes	20%	Sometimes	25%
	Somewhat often	40%	Somewhat often	25%
	Often	40%	Often	25%
How comfortable are you with nurse triage of patients needing to be seen in clinic for lesions of concern?	Very uncomfortable	0%	Very uncomfortable	0%
	Somewhat uncomfortable	20%	Somewhat uncomfortable	0%
	Neutral	0%	Neutral	0%
	Somewhat comfortable	40%	Somewhat comfortable	25%
	Very comfortable	40%	Very comfortable	75%
How comfortable are you with nurse triage of patients needing to be seen in clinic for general or medical dermatology issues?	Very uncomfortable	0%	Very uncomfortable	0%
	Somewhat uncomfortable	0%	Somewhat uncomfortable	0%
	Neutral	0%	Neutral	25%
	Somewhat comfortable	80%	Somewhat comfortable	25%
	Very comfortable	20%	Very comfortable	50%
How comfortable are you with communicating directions back to nurses to communicate to the patient instead of you responding directly to the patient?	Very uncomfortable	0%	Very uncomfortable	0%
	Somewhat uncomfortable	0%	Somewhat uncomfortable	0%
	Neutral	0%	Neutral	0%
	Somewhat comfortable	40%	Somewhat comfortable	25%
	Very comfortable	60%	Very comfortable	75%
Are you satisfied with virtual care?	N/A		Very unsatisfied	0%
			Somewhat unsatisfied	0%
			Neutral	0%
			Somewhat satisfied	25%
			Very satisfied	75%
Do you feel less burned out since starting virtual care?	N/A		Strong disagree	0%
			Disagree	0%
			Neutral	0%
			Agree	0%
			Strongly agree	100%

outcomes, off-site RN implementation, and objective measures of clinician burnout and EHR workload.<sup>10</sup> Despite these limitations, this study provides a valuable resource for dermatology colleagues to improve clinician well-being and patient care. Virtual care nurse triage protocols present a viable solution to reduce clinician

burnout and improve workflow efficiency in dermatology clinics. Future studies should explore patient outcomes and objective metrics for clinician well-being.

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**Potential conflicts of interest**

a principal investigator for Biogen, Bristol Myers Squibb, Priovant, and Immunovant.

The authors declare the following potential conflicts:  
Anne L. Marano, MD, is a consultant for Immunovant and

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## Supplementary Materials

### Supplementary Figure 1.

Download: [https://doj.scholasticahq.com/article/146439-virtual-care-nurse-triage-protocols-cost-effectively-reduce-dermatologist-burnout/attachment/308418.docx?auth\\_token=uQY4\\_8GUbmu-w90nIH6g](https://doj.scholasticahq.com/article/146439-virtual-care-nurse-triage-protocols-cost-effectively-reduce-dermatologist-burnout/attachment/308418.docx?auth_token=uQY4_8GUbmu-w90nIH6g)

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### Supplementary Figure 2.

Download: [https://doj.scholasticahq.com/article/146439-virtual-care-nurse-triage-protocols-cost-effectively-reduce-dermatologist-burnout/attachment/308420.docx?auth\\_token=uQY4\\_8GUbmu-w90nIH6g](https://doj.scholasticahq.com/article/146439-virtual-care-nurse-triage-protocols-cost-effectively-reduce-dermatologist-burnout/attachment/308420.docx?auth_token=uQY4_8GUbmu-w90nIH6g)

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### Supplementary Figure 3.

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