

Supplemental Online Content

Tai-Seale M, Baxter SL, Vaida F, et al. AI-generated draft replies integrated into health records and physicians' electronic communication. *JAMA Netw Open*. 2024;7(4):e246565. doi:10.1001/jamanetworkopen.2024.6565

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This supplemental material has been provided by the authors to give readers additional information about their work.

eFigure1. Tip Sheet Used for Training

Tip Sheet

Start with a Generated Draft Reply

To give you a head start when responding to patient medical advice messages, In Basket now shows a Generated Draft Reply. Draft Replies are generated by a machine learning model that reviews the latest message sent by your patient and relevant patient details to predict how you might respond.

Draft Replies now appear for use in your Patient Medical Advice messages in In Basket. They are meant as a starting point for replies to your patients.

How are Draft Replies intended to be used?

- The drafted reply might not always provide appropriate advice and must not replace your clinical judgement. You must review all messages to verify that clinical advice and information is clinically appropriate for the patient and properly addresses their message.
- The model that generates the response is not intended to diagnose, prescribe treatment, or serve as a substitute for clinical judgment.
- It may not give full responses to patient messages which contain multiple questions or contain information that is not in patient's chart.
- Using the drafted text does not complete any other actions in the system. For example, you might need to reorder a medication for your patient.

Use a Generated Draft Reply to Respond to Messages

1. Open In Basket and select the Pt Advice Request folder. Open a message.
2. Review the message your patient has sent and the reply the model has drafted in the **Generated Draft Reply** section below the message.
3. Use the **Meds/Problems** and **Vitals/Labs** message report tabs to help you efficiently review the clinical accuracy of the draft reply.



4. If you want to use the provided text in your response, click **Start with Draft**. This opens the normal reply window where you can edit the drafted reply to add more details or make it sound a bit more like you before sending the message.

- If you don't like the provided text, you can click **Start Blank Reply**, use a QuickAction, or any other methods that you typically use to respond to the message.

The screenshot shows a messaging interface for a patient named 'rash'. The patient's message reads: "Hi, I have a rash that has been spreading on my arm for the last week. It's itchy and I'm getting concerned that it's not going away. What do I do?". Below the message is a "Generated Draft Reply" section, labeled as a "Pioneering Feature". The draft reply text is: "Hello Hallie, It is important to be aware of any changes in your skin, especially if it is itchy and spreading. We recommend that you call our office to schedule an appointment so that we can assess the rash and determine the best course of action. If you have any other questions or concerns, please do not hesitate to contact us. Sincerely, Maguire, May, MD". At the bottom of the draft reply, there are two buttons: "Start with Draft" and "Start Blank Reply". Below these buttons is a feedback section titled "Did you find the draft reply helpful?" with two options: "This was helpful" (with a thumbs up icon) and "This was not helpful" (with a thumbs down icon). A "Learn more" link is also present.

How is a Draft Reply Created?

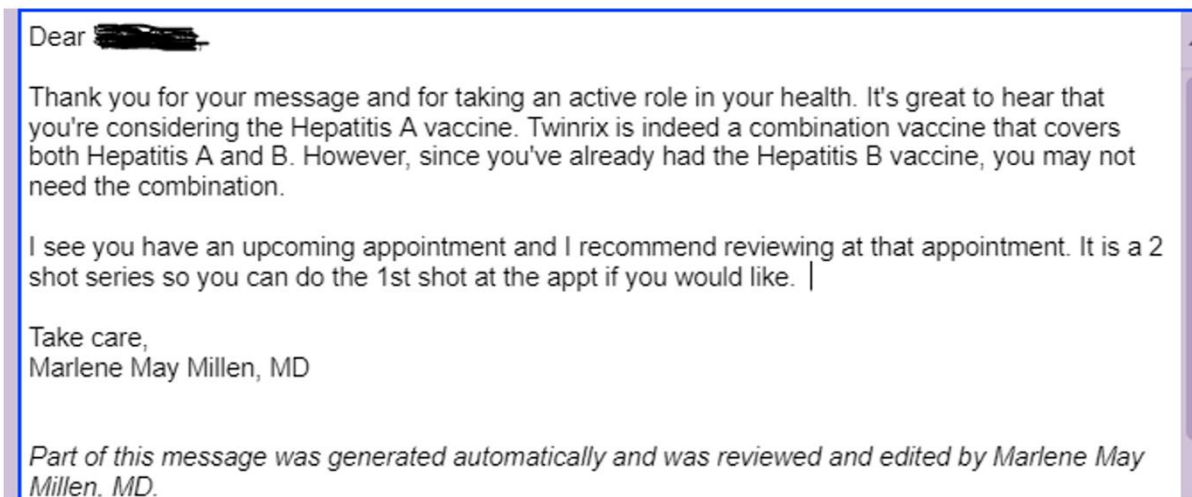
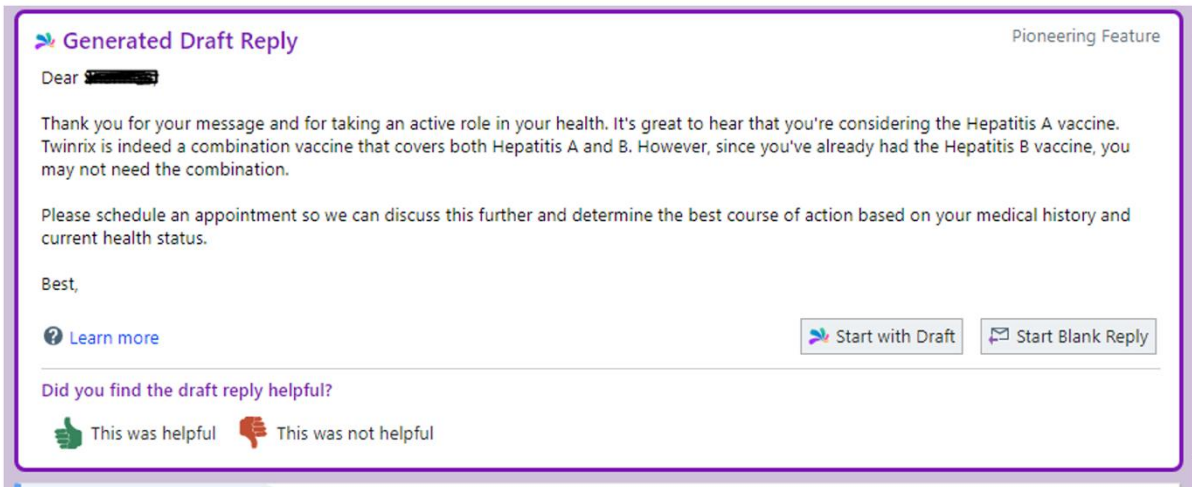
In Basket uses a machine learning model to process a patient's message and generate text that might be appropriate as a response. In Basket sends the patient's message and relevant details as a prompt to the model and asks it to suggest a natural language response based on the information provided. Note that not all patient messages will have a generated draft reply. For example, given that not all messages make sense to reply to, the model might be unable to determine a useful response.

Learn More and Provide Feedback to Improve this Feature

- Click **Learn more** if you want to see a high-level overview of what a generated draft reply is and how they are created.
- Help Epic improve the model by providing feedback on whether a draft reply was helpful.
- If the draft was not helpful, let Epic know why.

The screenshot shows the feedback form for the draft reply. It is titled "Did you find the draft reply helpful?" and has two options: "This was helpful" (with a thumbs up icon) and "This was not helpful" (with a thumbs down icon). The "This was not helpful" option is selected, and an arrow points to a "Learn more" link. Below the "Learn more" link, there is a section titled "Thank you for your feedback!" and "What could have been improved about this draft reply?". There are three checkboxes: "Factual Accuracy", "Relevance", and "Style/Tone". There is also a checkbox for "Remove Clinical Decision-Making".

eFigure2. Screen Shots of a Generated Draft Reply and the Physician’s Reply



eMethods. Survey Questions in Post-Entry Survey

1. How likely are you to recommend using auto-generated draft replies to respond to patient messages to a colleague?

Not at all likely											Extremely likely
0	1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Explain the reason for your recommendation score.

eTable. Demographic Characteristics of Participants

	Immediate Arm	Delayed Arm	P-value ^a
Sex			0.56
- Female	18 (72.0)	17 (63.0)	
- Male	7 (28.0)	10 (37.0)	
Age (years)			0.52
- 25-34	8 (32.0)	4 (14.8)	
- 35-44	8 (32.0)	9 (33.3)	
- 45-54	4 (16.0)	9 (33.3)	
- 55-64	4 (16.0)	4 (14.8)	
- 65-74	1 (4.0)	1 (3.7)	
Employment Length (years)			0.37
- 1-5	9 (36.0)	6 (22.2)	
- 6-10	4 (16.0)	2 (7.4)	
- 11-15	3 (12.0)	9 (33.3)	
- 16-20	1 (4.0)	3 (11.1)	
- >20	6 (24.0)	6 (22.2)	
- N/A ^b	2 (8.0)	1 (3.7)	
Race/Ethnicity ^c			0.59
- Asian	7 (28.0)	7 (25.9)	
- Hispanic	0 (0.0)	1 (3.7)	
- White	16 (64.0)	14 (51.9)	
- Other	2 (8.0)	5 (18.5)	

Notes:

^a P-values are from Fisher's exact test

^b Declined to report

^c "Other" includes "2 or more races" (n=4), "Prefer not to answer" (n=3)