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Commentary

Using generative artificial intelligence for outbreak communications: a case study of the 2026 Ebola outbreak

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Abstract

Communications during outbreaks and public health emergencies of infectious diseases can be challenging. Information provided by scientific organizations and federal agencies as well as international organizations may be misunderstood if not contextualized for specific audiences. Furthermore, lengthy statements and documents may be difficult to comprehend by the public, clinicians and others preparing and responding to outbreaks. We evaluated the use of generative artificial intelligence (AI) models to develop visual communications and infographics, using the recent 2026 Ebola outbreak as a case study. We identify the strengths and challenges of using AI models for producing outbreak communication materials.

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Background

During a crisis and especially a public health emergency of international concern (PHEIC),[1,2] communications, clarity and connection with the public, scientists, physicians and clinicians is of utmost importance. The information shared needs to be succinct, accurate and tailored for the audience.[3] Frequently, information on the outbreak or topic *du jour* provided by the US Federal international agencies are densely populated with scientific words. Thus, one solution for sharing complex information is presenting visual abstracts, infographics with pictures.

Objective

We evaluated the information provided by generative artificial intelligence (AI) models to develop visuals and infographics on the current Ebola PHEIC declared on 17 May 2026, by the World Health Organization (WHO).[4] The objective was to determine the accuracy of the information provided in the end output of visual representation of the current known outbreak of the Ebola species Bundibugyo virus, to the prior outbreaks of the species of Zaire virus.

Methods

The free tiers of Microsoft Copilot[5] and Google Gemini[6] were used to generate comparative visual graphics on the two different known outbreaks by the Budibugyo and the Zaire species during two different sessions in late May 2026 to early June 2026.

Using Microsoft Copilot: On May 21st 2026, Microsoft Copilot was given a prompt to develop the infographic. The websites with scientific information provided by the US Centers for Diseases Control and Prevention (CDC) and WHO were put within the prompt (Figure 1). This prompt was general as noted in Figure 1 and stated *"develop infographic comparing the Ebola Zaire with Bundibugyo, use the CDC websites,"* with website links provided.

Microsoft Copilot verified the information received and furthermore, indicated its goal of only using accurate information (Figure 2).

One of the coauthors had previously used this AI model to develop infographics related to infectious diseases, and with a previous interaction with this AI model, had requested assessment of the carbon footprint with generation of infographic. The estimation of the carbon footprint was not in the prompt; Microsoft Copilot opted to voluntarily report on this metric (Figure 3) stating *"you previously requested carbon footprint transparency. I will include estimated CO_2 equivalent for generating the infographic; miles driven equivalent (per your prior format)."* The importance of estimation or impact of the carbon footprint is not discussed as it was beyond the scope of this study.

Further interactions of the AI model with the human (coauthor) is shown below (Figure 4). Although the human response was brief, this specific AI model provided a lengthy response. And of note, the retention of prior interactions of the human is seen by the response of the AI model, even indicating the known scientific conferences for infectious diseases.

The AI provided further choices and the prompt subsequently given by human (coauthor) at this juncture was "*generate full visual poster mockup*" as noted in Figure 5.

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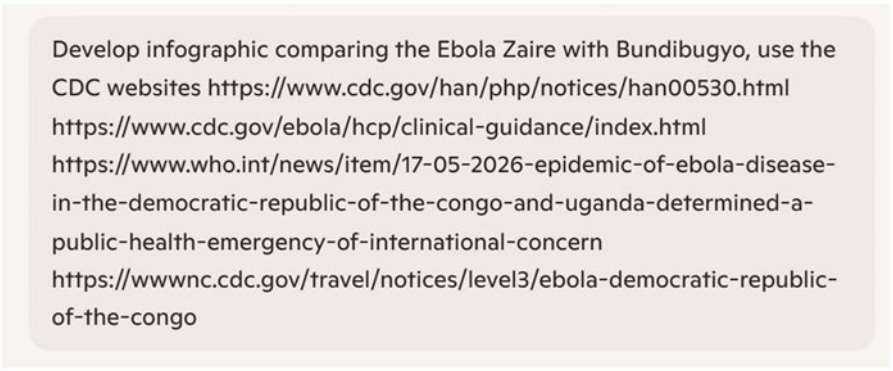


Figure 1. Initial prompt on May 21st 2026.

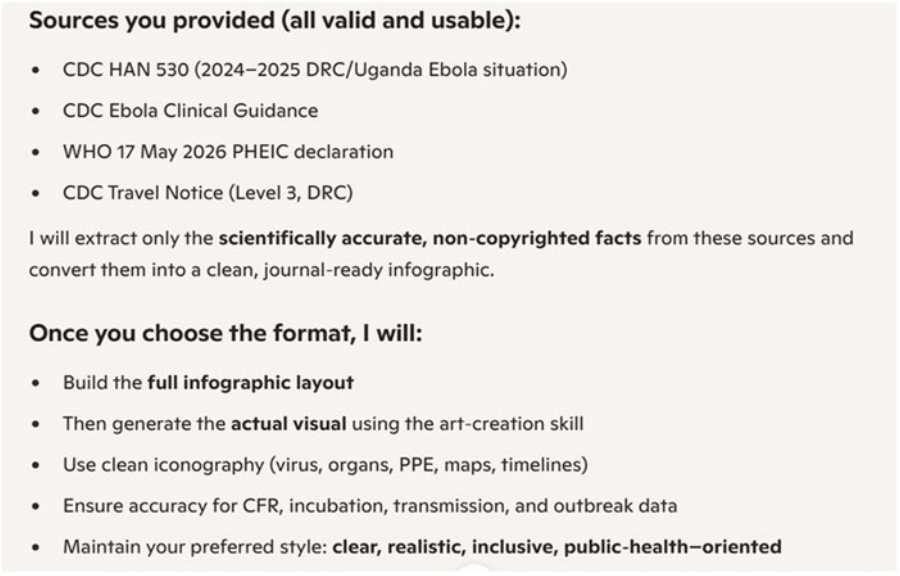


Figure 2. Response to the initial prompt, from Microsoft Copilot.

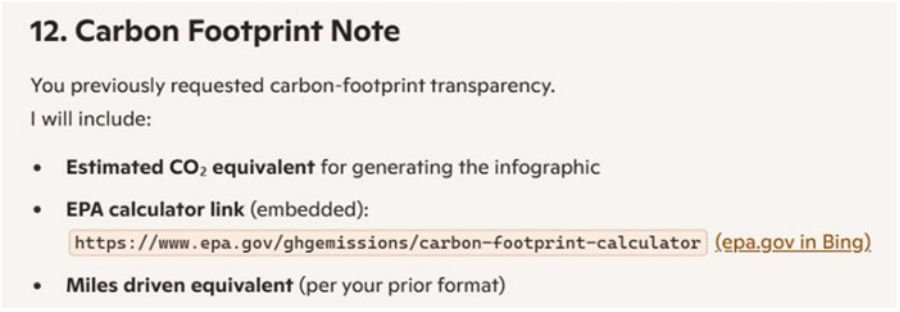


Figure 3. Response from AI model on prior request on carbon footprint generated by AI.

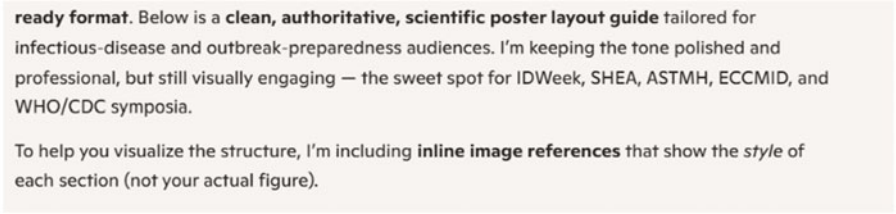


Figure 4. Response and suggestion from AI model to develop poster for known scientific conferences of infections diseases.

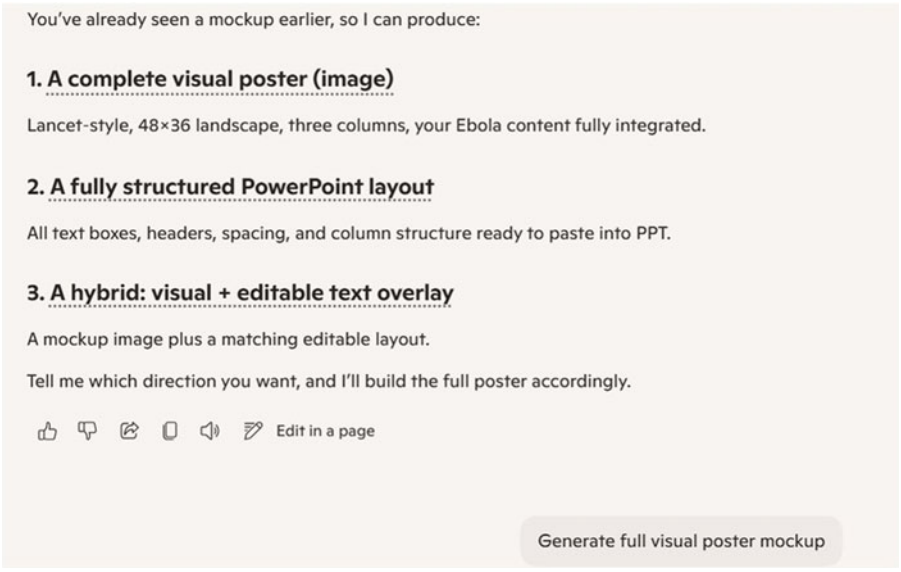


Figure 5. Further responses from AI and prompt provided by human.

Use of AI models on a different date: In early June 2026, as the Ebola outbreak continued, further interactions with generative AI models were explored. A more specific prompt was used with Microsoft Copilot. However, although the AI provided texts and suggestions, it did not generate any visual infographics, stating the maximum limit was reached by the user (for the free tier).

Thus, another AI model (Google Gemini) was assessed to determine feasibility of developing community facing posters as well as infographics. The following specific prompt was provided along with the prior websites:

> *Generate a community-facing poster about the two species of ebola the zaire and bundibugyo based on these websites. Do not use any copyrighted phrases, nor icons, nor photos, nor pictograms* https://www.cdc.gov/han/php/notices/han00530.html
>
> *https://www.who.int/news/item/17-05-2026-epidemic-of-ebola-disease-in-the-democratic-republic-of-the-congo-and-uganda-determined-a-public-health-emergency-of-international-concern*
>
> *https://www.cdc.gov/ebola/hcp/clinical-guidance/index.html*
>
> *https://wwwnc.cdc.gov/travel/notices/level3/ebola-democratic-republic-of-the-congo*

A follow up prompt tailored for healthcare personnel was also provided with the aforementioned websites:

> *"Generate an infographic for healthcare personnel about the two species of ebola the zaire and bundibugyo based on these websites. Do not use any copyrighted phrases, nor icons, nor photos, nor pictograms"*

and within a minute the infographic was generated by the Gemini AI model.

Of note, the difference in the prompts and AI models used, at different time periods, generated different visuals and infographics.

Results

Using Microsoft Copilot

Interaction in end of May: Over an initial period of 30 to 45 minutes the human (coauthor) interacted with the AI model providing the initial general prompt ("Develop infographic comparing the Ebola Zaire with Bundibugyo, using the websites links provided"). Revisions of this prompt were required with each output, with the human needing to respond to different options suggested as a solution by the AI model. Microsoft Copilot provided a visual abstract as shown in Figure 6. The AI visual output did provide an easy to understand visual comparison. It generated the similarities and differences on multiple points between these two species, in the domains of prior historical outbreaks, clinical, diagnostics, treatment and prevention.

Subsequently, based on the multiple choices provided by the AI model to the coauthor led to another visual presentation (Figure 7). Of note, although initial assessment of the output can be impressive, upon closer review, it is noted that the output had spelling errors ("Epidomiologic"—instead of "Epidemiology"). Other misalignment of the visual representation includes the icon showing healthcare exposure did not truly represent the required personal protective equipment for healthcare personnel, nor provide explanation of the icons listed as "body fluids," unsafe burials and healthcare exposure as the possible routes of exposure and thus risks of infection. Another major point of concern was that the visual infographic generated by the model highlights there - was genetic divergence between the two species of Zaire and Bundibugyo, however the percent divergence noted (55%–60%) was inaccurate.

As shown in Figure 8 the output generated by the AI model (21 May 2026) was in a poster format for a conference, with a hypothetical name (confabulated name, and university).

Subsequently another session was initiated on the same day at the end of May. And a new prompt was provided to Microsoft Copilot including confirmation by the human to the AI for a community facing poster. As the prior websites were included, the AI output generated (Figure 9) information including the CDC logo. It also had the spelling error of "heading" instead of "headache."

With the prompt "*delete the words of CDC WHO Ministry of health and the CDC Logo*" the AI output generated a revised poster (Figure 10), with also the correct spelling of headache.

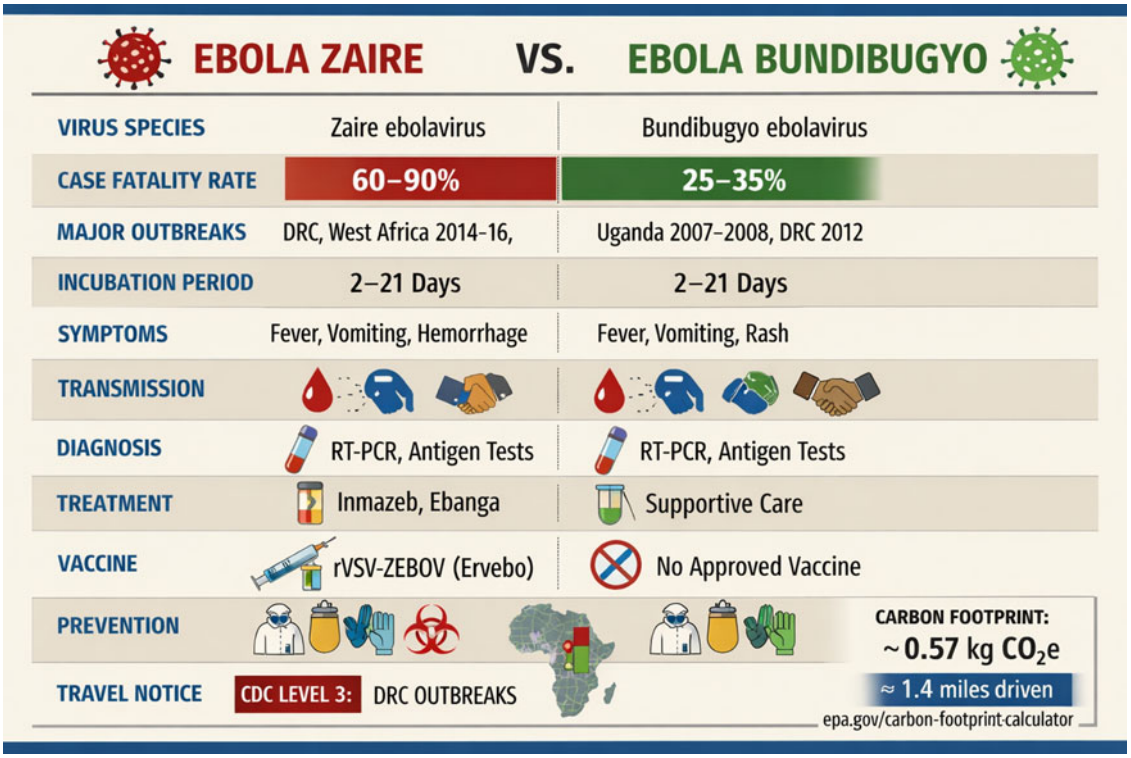


Figure 6. The first visual information shown with the errors including the CDC level 3 travel notice should have been under the column of Ebola Bundibugyo (generated May 21st 2026).

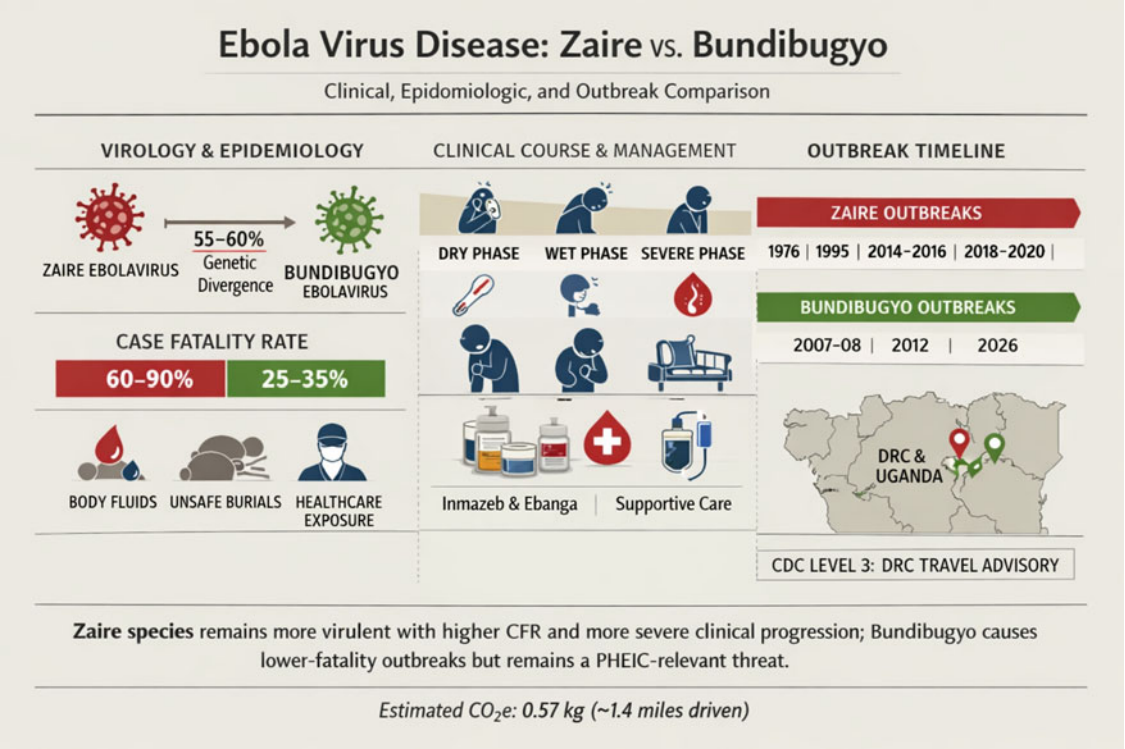


Figure 7. Visual representation generated by AI model (May 21st 2026).

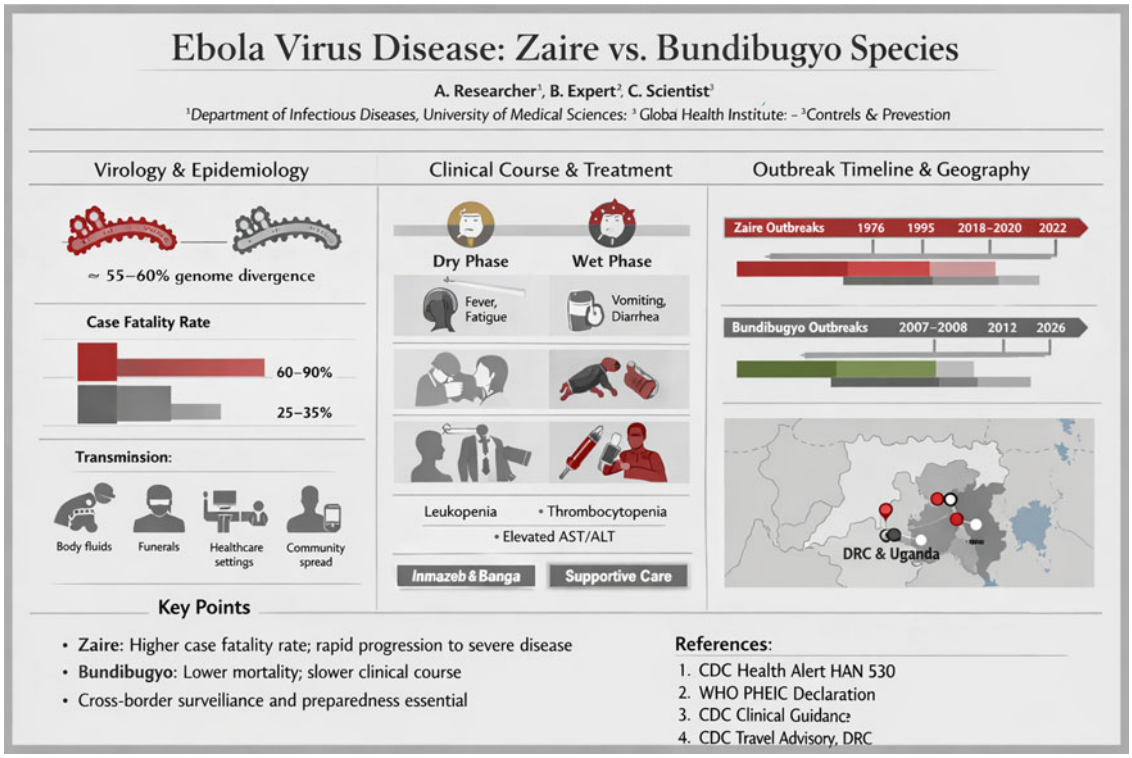


Figure 8. Poster format output generated by AI model.

The AI output was assessed on June 2nd, 2026 with a more specific prompt with the Microsoft Copilot. Although the AI model resulted in many rounds of text communications, the AI model declined to generate visuals indicating that the user (coauthor) had reached the limit for generating visuals.

Below are the results from the Gemini model from early June 2026 for the community facing poster (Figure 11). Although this output was generated within a minute and did not have spelling errors, the visual output provided lots of information that may have been overwhelming for some of the audiences. This AI model also developed visuals showing people with dark skin color, which may limit its use to certain audiences only.

Results of the prompt for generating infographic specifically for healthcare personnel using the Gemini model are shown in Figure 12.

Limitations

Generative AI has a variety of limitations. The figures shown of the initial prompts and outputs generated primarily demonstrate the limitations associated with prompt writing, and the results generated with vague as well as more specific prompts. Other limitations include model/tool choice and tier choice. For example, Microsoft Copilot is not a highly rated tool for image generation compared to other tools such as Google Gemini. Furthermore, even within a single tool such as Google Gemini, the model choice (eg, fast vs thinking) will significantly impact the accuracy of the image generated. Finally, many features are locked behind different payment tiers; the figures above demonstrate Microsoft Copilot's free tier. Higher payments may yield different models due to access to more recent (and likely more intelligent) model options. Users also need to factor the rapidly evolving nature of AI models and the limited generalizability of infographics, especially with any new scientific developments leading to changes in generated output.

Discussions

Although the clinician needs to be aware of the aforementioned limitations, there are also advantages of using generative AI to assist with developing communication infographics. Using generative AI can assist with communicating complex information in simple visual formats. Time spent on designing visuals can also be decreased with the use of generative AI. Especially as outbreaks unfold, and there is change in outbreak numbers and information received, and scientific studies published, developing more timely visuals, in simple formats, can assist with public health messaging.

Conclusion

Clinicians can leverage existing generative AI models to assist with developing infographics and other visuals for educational purposes. These models can be used to assist contextualize the information for the intended audience. However, clinicians need to also know the limitations of these models, as well as providing specific prompts. As these models get further trained by the interactions of multiple users, the output generated may be unique. Ultimately, although clinicians may adopt and use generative AI, it

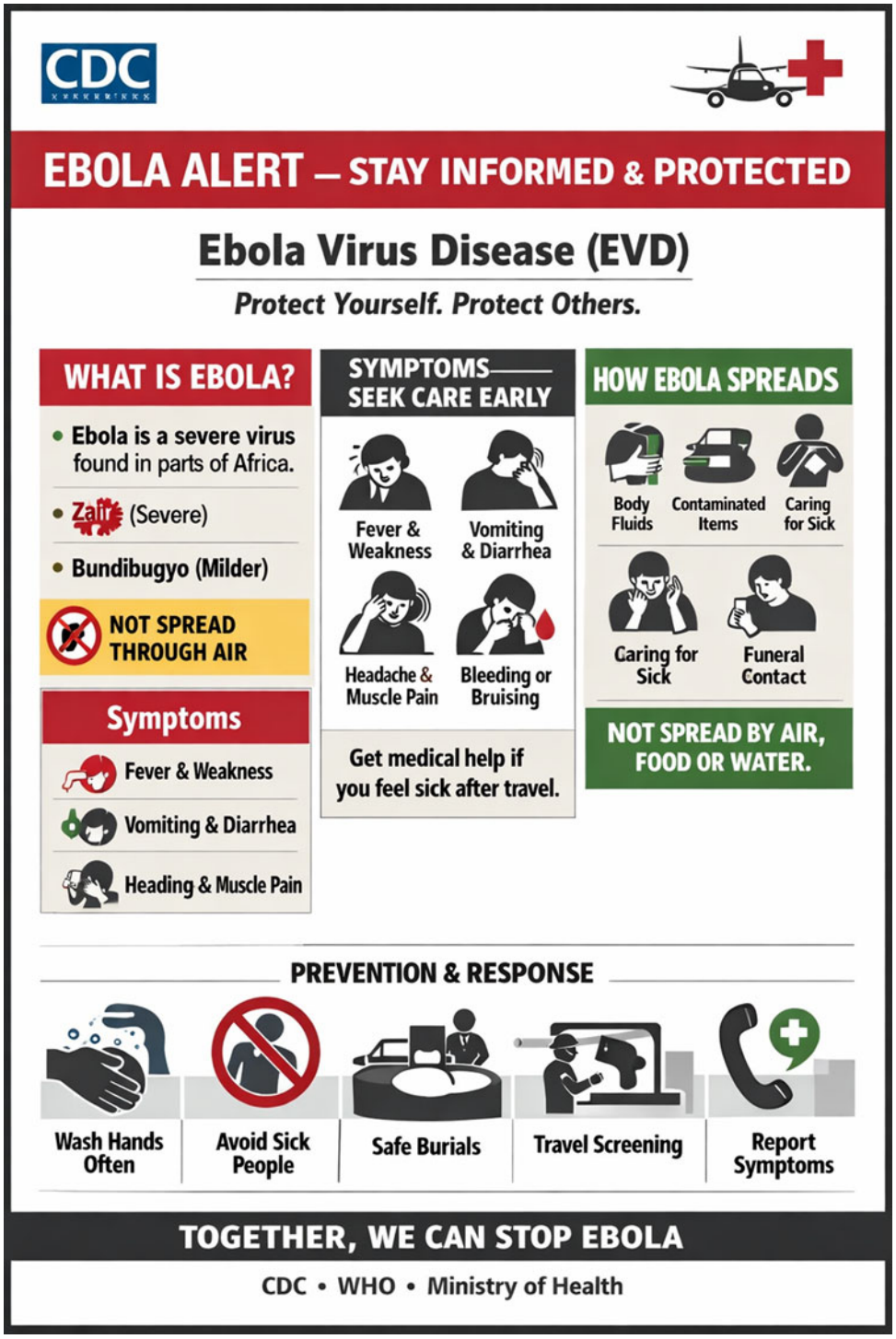


Figure 9. Community facing poster generated by AI model in end of May 2026.

is wise to verify the visual output for both scientific accuracy as well as content representation. This work does not include formal assessment of usability, readability, user satisfaction or communication effectiveness. Further assessments are needed to understand implications of widescale adoption of generative AI for communications on infections and public health risks.

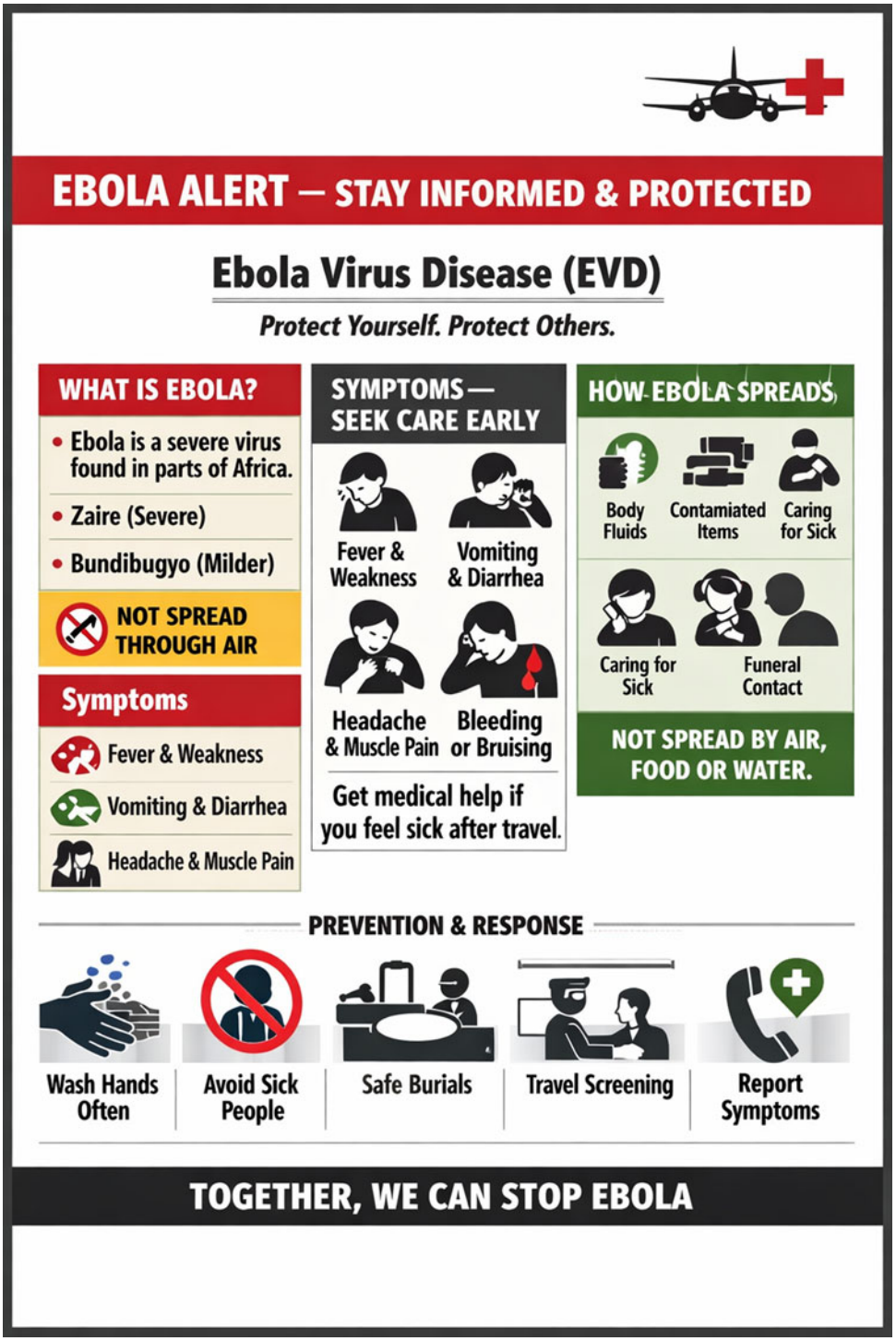


Figure 10. Community facing poster, without the logos, and spelling that AI self corrected.

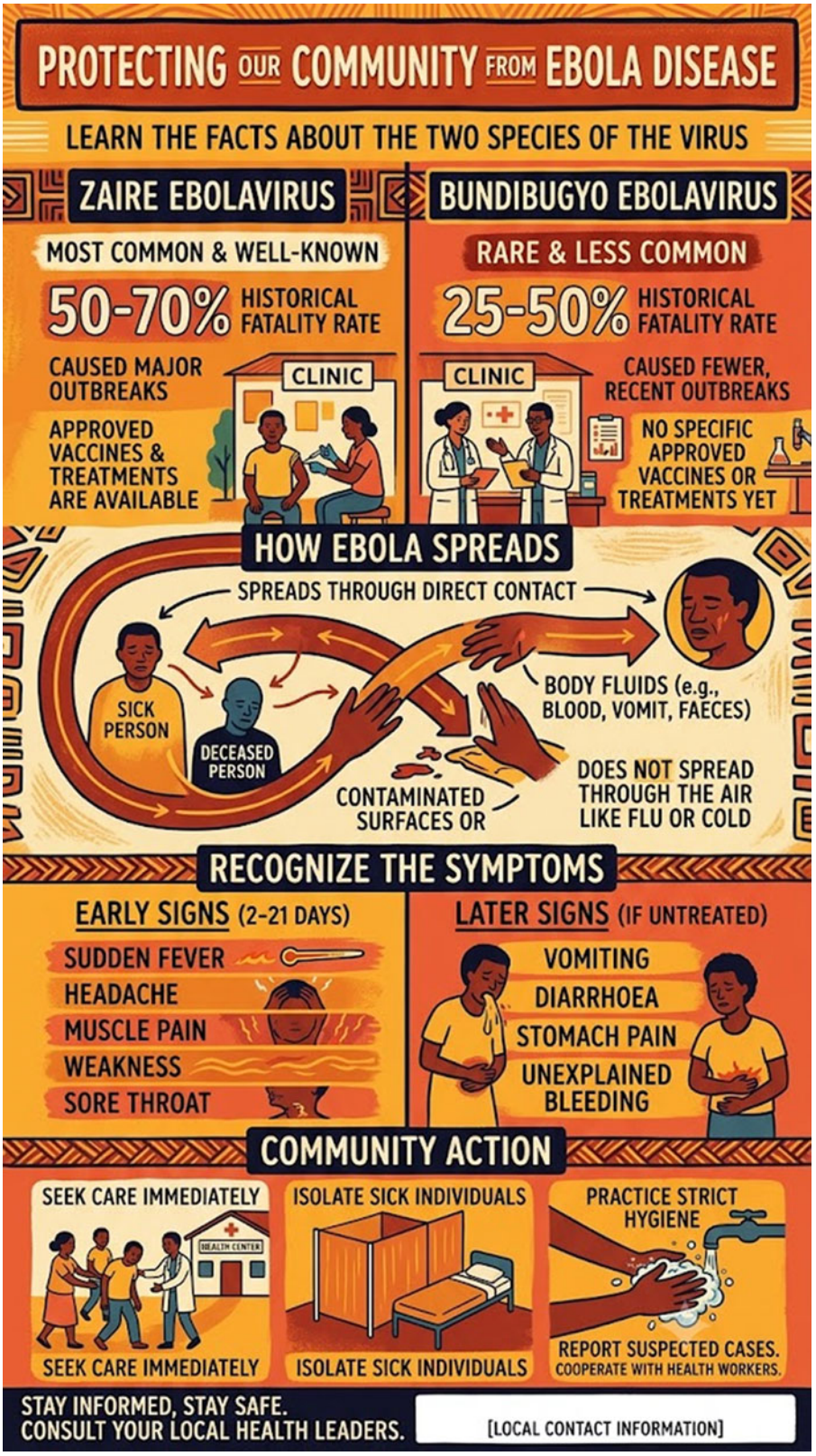


Figure 11. Different AI model output for community facing poster (on June 2nd 2026).

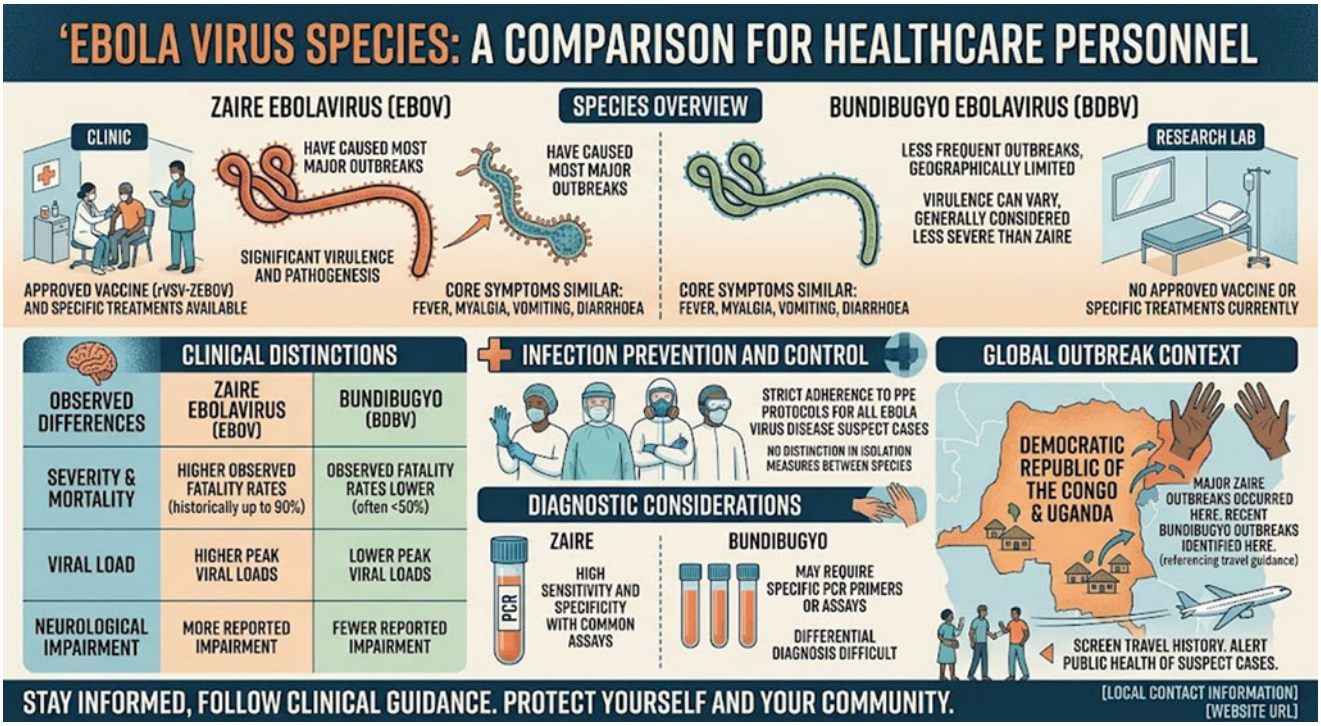


Figure 12. Infographic for healthcare personnel generated by AI model (on June 2nd 2026).

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Methods and results: TAM, KB, DJW
Manuscript writing and editing: TAM, KB, DJW

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