



The role of plausibility and attribution shields in disease outbreak and risk communication: Navigating credibility and uncertainty

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ARTICLE INFO

Keywords:

Disease outbreak news
Plausibility shields
Attribution shields
Appeals
Credibility

ABSTRACT

Establishing credibility in risk communication is one of the effective mechanisms for securing public trust and cooperation, especially during times of disease outbreaks. While existing studies have highlighted the significance of credibility in risk and outbreak communication, there is limited research specifically examining how health institutions build credibility by using certain linguistic devices. This study investigates the role of plausibility and attribution shields, as credibility-enhancing tools, in Disease Outbreak News (DONs) published by the World Health Organisation (WHO). Shields are words or expressions that indicate the degree of responsibility a speaker or writer takes for the truthfulness of a statement. Special attention is given to the distribution of shields in these reports and the appeals embedded within them. A total of 111 DONs published by the WHO between 2023 and 2024 were analysed using a content-based analytic approach situated within the model of hedges proposed by Prince et al. (1982). The results showed similarities in the distribution of attribution and plausibility shields in DONs. Attribution shields were commonly associated with appeals to empirical evidence and institution/authority, whereas plausibility shields frequently involved appeals to limited knowledge, common reason, and circumstantial evidence. The patterns of shield usage in DONs reinforce the delicate balance between communicating uncertainty while striving to build credibility. The study holds significant implications for health risk communication and reasoning by providing insights into how organisations like the WHO navigate the challenges of maintaining credibility in public health messaging during crises. Implications for further research are also discussed.

1. Introduction

Disease outbreaks are significant health concerns that pose serious threats to public well-being (Gobena et al., 2025). Effective risk communication during an outbreak is an important response strategy for securing public trust and cooperation and for protecting the public from harm (Han et al., 2021; Zheng et al., 2025). Risk communication is very important because recipients of risk outbreak news often have little to no prior knowledge of the associated risks. Meanwhile, such information is critical to promoting preventive measures in high-stakes medical contexts (Albury et al., 2025). Thus, the primary goal of risk communication is to raise awareness, provide guidance and warning, and help the public assess the severity of the threat (Zheng et al., 2025). Phillips et al. (2021, p. 7) define risk communication as “the exchange of real-time information, advice, and opinions between experts and people facing threats to their health, economic, or social well-being.” It often involves the communication of comprehensive epidemiological and experimental information on the disease, its mode of transmission, and effective

mitigation strategies (Gui et al., 2018).

Significant concerns have been raised about how disease outbreaks are communicated to the public (Awagu, 2025). This is because risk and outbreak communication often fails to make the right appeal to the public and is frequently met with negative or inappropriate responses. This issue was particularly evident during the COVID-19 pandemic and the 2009 swine influenza outbreak, which affected approximately 214 countries and caused at least 18,449 deaths (WHO, 2010). In these cases, poor risk communication contributed to negative risk perceptions, leading to cross-infections among members of the public (Loch et al., 2021). Periods of disease outbreaks are often characterised by uncertainty, and failure to communicate this uncertainty effectively can lead to “ambiguity aversion”, a syndrome associated with negative psychological responses, including emotional distress, heightened risk perceptions, and decision avoidance (Han et al., 2021, p. 1).

The content and strategies used in risk communication are key determinants of public trust and the credibility of the information (Renn, 2020), and effective risk communication requires adopting diverse

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<https://doi.org/10.1016/j.ssmqr.2025.100633>

Received 5 June 2025; Received in revised form 4 September 2025; Accepted 8 September 2025

Available online 9 September 2025

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communication strategies and providing credible information. As Cairns et al. (2013, p. 1550) argue, “risk information provision strategies are trust-moderating factors, whose impact is strongly influenced by the content, timing, and coordination of communications.” While research on risk communication has consistently highlighted the importance of credibility (e.g., Guo, 2024), little research exists on the specific strategies for building credibility in health risk communication. This study is an attempt to fill this gap by examining how the WHO builds credibility in its risk and outbreak communication by using a form of hedging called shields (Prince et al., 1982) to indicate the level of tentativeness in the risk information provided (Thiebach et al., 2015). Hedging is when words or expressions are used to convey varying levels of certainty or uncertainty (Kashiha, 2024). Hedges are grouped into two: shields and approximators (Jovic et al., 2025).

While shields indicate the extent to which a speaker or writer accepts responsibility for the truthfulness of a statement, approximators adjust the precision of a statement. Shields, unlike approximators, have been more common in medical risk outbreak communication (Jovic et al., 2025). In an experimental study involving 78 participants, Thiebach et al. (2015) manipulated the types of shields used in journal articles and found that shield type influenced participants’ evaluations of the “scientificity”, that is, the extent to which the argument was perceived as objective, evidence-based, methodologically sound, and grounded in empirical research, and, consequently, its credibility. Focusing solely on shields in this study is therefore analytically valuable for understanding how institutions negotiate authority and build public trust when disseminating evolving health information, as well as for examining the potential implications of shielded content on public evaluations of the credibility of disease outbreak reports.

Specifically, the study investigates the types of shields used in Disease Outbreak News (DONs) by the World Health Organisation and the appeals they make in fostering trustworthiness and effectively eliciting appropriate public responses, such as immunisation and personal hygiene, during disease outbreaks (Abu Bashar et al., 2024; Charoensakulchai et al., 2025). Thus, the following two research questions guide the study. The remainder of this study is structured as follows: It begins with a review of the literature on the relationship between hedging and credibility. This is followed by an overview of the nature and structure of Disease Outbreak News (DONs). The methodological approach adopted for the study is then outlined, followed by the presentation and discussion of results. The final section offers a conclusion by providing a brief discussion of the practical implications and limitations of the study:

Q1: What kinds of shields are used in WHO Disease Outbreak News reports?

Q2: How do the use of shields and their associated appeals contribute to the credibility of risk and outbreak communication?

2. Literature review

2.1. Hedging, credibility and medical risk reporting

The use of hedging in scientific and medical communication has become increasingly common (Deng et al., 2025; Rana, 2024). Hedging has been explained as the use of words to indicate that “the writer is less than fully committed to the certainty of the referential information given” (Hyland, 1994, p. 240). Crismore and Farnsworth (1990, p. 135) deduce that “hedging is the mark of a professional scientist, one who acknowledges the caution with which he or she does science and writes on science”. In scientific writing, one in every 50 words is a hedge (Hyland, 1996). This is because hedging enhances the credibility of both the report and its author by indicating the degree of tentativeness in the information provided. Jensen et al. (2011) in an experimental study of cancer reports observed a significant effect of hedging on participants’ (N = 1082) perception of the report. In another study that examined the

influence of hedging on participants’ perceptions of information credibility, a total of 601 participants were randomly assigned to one of 4 conditions in a 2 (hedged vs. not hedged) × 2 (primary scientists vs. unaffiliated scientists) × 5 (message) between-participants experiment (Jensen, 2008). The messages used in the study were based on cancer reports produced by journalists and scientists. The data analysis across all five messages revealed that cancer reports were perceived as more trustworthy and credible when they were hedged and attributed to a specific source, regardless of whether they were written by journalists or scientists (Jensen, 2008). As Berry and Shields (2014) have noted, source attribution as a form of hedging allows authors to indicate the origin of information, thereby enhancing credibility in the content of the information.

In medical discourse and risk reporting, hedging is a widely observed linguistic feature. Jovic et al. (2025), in their analysis of 30 medical articles on the 1918–1919 influenza pandemic and the COVID-19 pandemic, found that shields, a specific form of hedging, were prominent in these reports, with 264 instances per 10,000 words in influenza-related papers compared to 198 instances per 10,000 words in COVID-19-related papers. Similarly, Kostenko et al. (2024) identified hedges as a salient characteristic of COVID-19 vaccine-related documents, noting that lexical hedging was the most frequently employed form. Beyond formal medical reporting, hedging is also prevalent in online mental and physical health forums, where it allows users to frame their statements in relation to medical advice while maintaining flexibility and personal perspective (Rana, 2024). In the communication of health risks, “scientists must actively construct or deconstruct the certainty of knowledge to explain what they are doing and why” (Jensen, 2008, p. 350). Given the inherent uncertainty in disease outbreak reports (Gobena et al., 2025; Jovic et al., 2025), hedges are frequently employed to signal the tentativeness of the information presented. The nature and manner of their use in these reports have significant implications for how the content is understood and applied, particularly when such reports serve as guiding documents for public action during disease outbreaks.

2.2. Disease outbreak news (DONs)

The WHO, through the provisions of Article 11.4 of the International Health Regulations (2005), established the Disease Outbreak News (DONs) section to disseminate authoritative and independent information on health emergencies and crises across the globe. As reported by the WHO (2020), DONs comprise a list of health-related events that the WHO is responding to globally and that meet the set criteria for the public display of such information. As noted by Weets et al. (2025, p. 2), DONs are “the most frequently used written outlet (and the only official public record of outbreak history curated by the WHO)” that act as key guidance documents and communication tools for individuals, institutions, and government bodies in coordinating responses during disease outbreaks. DONs also help “international actors stay informed on health-related events and emergencies around the globe” (Carlson et al., 2023, p. 2). As such, DONs, which provide information on the geographical context of the outbreak, response strategies, the etiology of the disease, and laboratory reports, play a critical role in shaping public opinion, understanding, and response to such outbreaks. Unlike other WHO communications, such as situation reports or technical briefs, which are often targeted at specialists or internal audiences, DONs are designed for the public. Their accessibility, regularity, and official status make them uniquely influential in shaping how governments, health institutions, and the public perceive global health risks. This distinctive role shows their significance as the WHO’s most visible and enduring mechanism for building credibility and guiding international responses during outbreaks.

DONs reports are structured to deliver critical information necessary for effective case management and risk assessment. They comprise six core sections: Situation at a Glance, Description of the Situation,

Epidemiology, Public Health Response, WHO Risk Assessment, and WHO Advice. These sections collectively provide indispensable information for both the general public and healthcare authorities. This study focuses on the “Situation at a Glance” portion of the DONs. This section, which is the first section of the DONs, offers a succinct summary of the outbreak, along with general advice. This section is particularly important because it contains a fusion of the rest of the sections and key information from the WHO, such as risk assessment, nature of virus spread, case fatality ratio etc. Thus, it presents the idea section for an examination of the strategies used in the dissemination of information to the public.

2.3. Analytical framework

A taxonomy for the classification of hedges was developed by Prince et al. (1982). This typology was based on the findings of earlier work on hedging (e.g., Fraser, 1975; Lakoff, 1973). According to the authors, hedges can be broadly classified into two main groups: approximators and shields. This is shown in Fig. 1 below. Approximators, which include rounders and adaptors such as “a little bit,” “kind of,” and “sort of” (Gribanova & Gaidukova, 2019; Jingwei, 2013; Nugroho, 2002), refer to the “truthfulness of a statement itself” (Thiebach et al., 2015, p. 370). In the following example, drawn from Cosman (2021, p. 27) on the use of approximators in disease reports, the statement “The specificity of most SARS-CoV-2 PCR assays is nearly 100 % as long as no cross-contamination occurs during specimen processing” illustrates how the expression “nearly 100 %” reflects the degree of truthfulness regarding the specificity of the assays, thereby showing how the approximator serves as a metric for evaluating the extent of truthfulness.

Shields, on the other hand, “indicate the degree of responsibility a speaker or writer takes for this truthfulness” (Thiebach et al., 2015, p. 370). The use of shields allows authors to communicate their level of involvement or commitment relative to a proposition, but does not change the veracity or truthfulness of the proposition (Jovic et al., 2025). Prince et al. (1982) distinguished two types of shields in discourse: plausibility shields and attribution shields. Plausibility shields express a certain level of inherent doubt in a statement (Leláková & Praženicová, 2024). Gribanova and Gaidukova (2019, p. 95) explained that plausibility shields “show the speaker’s commitment to the truth of the propositional content.” This form of shield introduces some degree of speculation into the statement (Gribanova & Gaidukova, 2019) and is usually signalled by explicit words such as “possibly,”

“might,” “seems” etc. (Thiebach et al., 2015). Plausibility shields relativise a statement (Hyland, 1996). In other words, the plausibility of the statement is relative to a particular situation or circumstance. An example of the use of shields in COVID-19 reports, as noted by Cosman (2021, p. 28), is the following: “The diagnosis of COVID-19 can be established on the basis of a suggestive clinical history ...” In this case, the expression “can be established on the basis of a suggestive clinical history” conveys a possible means of reaching a diagnosis, thereby reflecting the level of commitment to the notion that diagnosis may be based on suggestive clinical history.

Attribution shields simply “indicate where a statement comes from” (Thiebach et al., 2015, p. 370). They project external voices or perspectives onto the propositional content (Jingwei, 2013). In the expression “According to his mother, he was good at sports,” Nugroho (2002, p. 18) explains that the propositional content “he was good at sports” has been attributed to someone else, “his mother”, who acts as the object of attribution. In using attribution shields, speakers may employ this as a strategy to disassociate themselves from a claim, support the claim, or highlight its limitations (Thiebach et al., 2015). Attribution shields are often marked by such expressions as “According to ...”, “In one’s view ...”, “It’s said/believed ...” etc. (Jingwei, 2013, p.156; Qu, 2024).

Shields are a common feature of scientific reports and, more broadly, scientific writing (Jovic et al., 2025; Thiebach et al., 2015). While this study applies Prince et al.’s (1982) distinction between shields and approximators, it acknowledges that these categories are not always mutually exclusive in real-world usage. In some cases, a hedge may simultaneously adjust the precision of a statement and reduce the speaker’s or writer’s commitment to its truth value, thus serving as both approximator and shield (Gribanova & Gaidukova, 2019). Such overlaps are particularly likely in complex risk communication contexts, where multiple pragmatic goals may be pursued within a single utterance. In this analysis, the potential for overlap is addressed by focusing exclusively on one category, shields, and classifying them based on their primary pragmatic function within the context of use.

3. Methods

3.1. Data

The data for this study consists of all Disease Outbreak News (DONs) published by the WHO from 2023 to 2024. These DONs report on

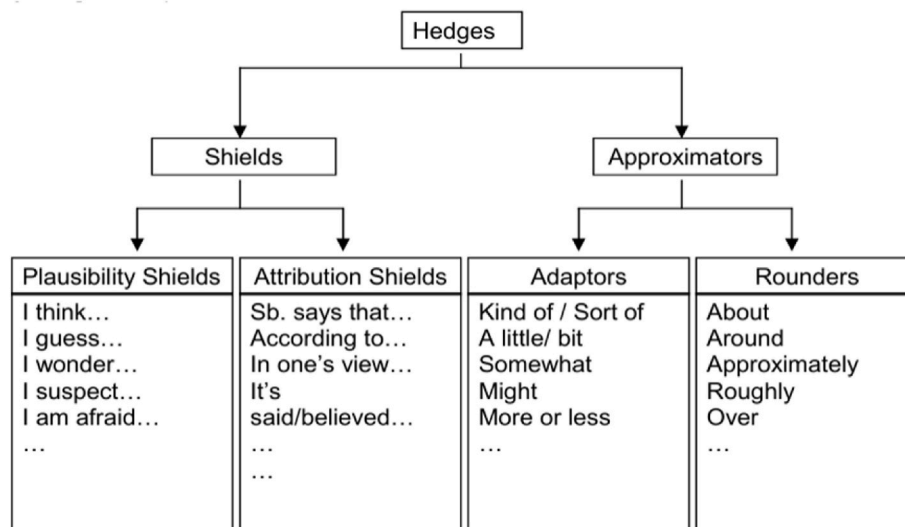


Fig. 1. Typology for the classification of hedges. Source: Jingwei (2013, p. 156)

various outbreaks worldwide. A total of 115 publications were made during the period under consideration. However, four DONs did not focus on specific outbreaks in any country or region but instead provided general assessments of global health situations. These were excluded from the study as they lacked a “Situation at a Glance” section. Consequently, 111 DONs were analysed. The data for the study comprised the “Situation at a Glance” sections of the 111 DONs. DONs are accessible on the official WHO website under the “Emergencies” menu (<https://www.who.int/emergencies/disease-outbreak-news>).

3.2. Analytical process

The data was uploaded onto the online platform Taguette (<https://app.taguette.org/>) under a new project. Taguette is an open-source qualitative data analysis tool used in various fields such as sociology, nursing, education, and psychology for data coding and annotation (Rampin & Rampin, 2021). Taguette provides a manual coding option. Two initial tags or codes (plausibility and attribution shields) were generated on Taguette. These codes represent the first coding process and correspond to the analytical model adopted in the study. Using the highlight function, the data were coded into these two tags by highlighting sections and selecting the appropriate tag. The data were read carefully to identify explicit and implicit markers of attribution and plausibility shields. For instance, in coding the data, the use of the expression “potentially” in Excerpt 1 below was treated as an explicit marker of the use of a shield, specifically plausibility shield. On the other hand, the content of a Disease Outbreak News report as seen in Excerpt 2 would be treated as implicit marker of a plausibility shield due to the lack of overt signals of plausibility shields.

Excerpt 1

The disease can affect all age groups, however unimmunised children are particular at risk. It is *potentially* fatal. The disease can be treated by administering diphtheria antitoxin as well as antibiotics. (Diphtheria – Nigeria, April 27, 2023)

Excerpt 2

Given that birds act as a reservoir, they can act as amplifying hosts for viral dissemination to other countries. At-risk groups include people who live, work, or participate in outdoor activities in endemic areas or where there are active disease outbreaks in animals. (Western Equine Encephalitis – Uruguay, February 8, 2024)

In coding the data, special attention was paid to sections where the WHO offered explanations for the causes of a virus outbreak, risk assessments and general recommendations for case management. These sections of the DONs are critical to the formation of public opinion and, consequently, the appropriate actions to take.

After the first round of coding, the data were extracted from Taguette as an Excel document and subjected to a second round of coding. The goal of this second round was to identify the types of appeals used in the respective shields. For instance, all codes under plausibility shields were further categorised based on the specific types of appeals they employed, where appeals are seen as techniques by which a logical process of reasoning is achieved. By carefully analysing the initial codes using Clarke and Braun’s (2017) method of thematic analysis, the types of appeals within each shield category were identified. New codes were generated and later grouped into categories, which represented the types of appeals most commonly associated with each shield. Frequencies are calculated for the distribution of shields. The inclusion of frequency counts in the analysis does not in any way make the study quantitative, but merely enhances the presentation of the results and helps to gauge the nature of how each type of shield is used (Halevi Hochwald et al., 2023). As suggested, “although statistical analysis of qualitative data should not be used as a replacement for qualitative analysis, it can be perceived as a complementary method for the generation of new hypotheses and relationships that could not have been

observed through qualitative analysis alone” (Halevi Hochwald et al., 2023, p. 4398; Schmitz & Finkelstein, 2010).

As the primary researcher, I recognise that my disciplinary background, familiarity with WHO public communications, and interpretive stance may have shaped both coding and data interpretation. To mitigate these influences, I developed a codebook through inductive analysis of a subset of 20 DONs and collaboratively refined it with a second coder, who independently coded the same sample. According to O’Connor and Joffe (2020), coding between 10 % and 25 % of the total data units is acceptable for assessing reliability in this type of analysis. The 20 DONs coded by both the author and the second coder constitute 18 % of the total corpus collected for the study and thus fall within the acceptable range recommended by O’Connor and Joffe (2020). This practice aligns with emerging qualitative-based guidelines for establishing inter-coder reliability, valued for enhancing transparency, reflexivity, and systematic analysis, while remaining epistemologically compatible with interpretivist approaches (Cofie et al., 2022; Olmos-Vega et al., 2023). Following this initial coding exercise, inter-coder reliability was assessed and found to be perfect (Landis & Koch, 1977). Any discrepancies were resolved through discussion, after which the author proceeded to code the remaining data. Throughout the analysis process, I documented analytic decisions and reflections and adopted an iterative approach to the coding of the data, practices that ensure credibility, dependability, and confirmability in qualitative research.

4. Results

The data analysis revealed instances of both forms of shields in the risk and outbreak communication of the WHO, particularly regarding issues on causes of disease, risk assessments and recommendations. Table 1 below presents the overall distribution of these two shields.

As shown in the table, 148 instances of shields were used in the DONs. Of these, plausibility shields were dominant, accounting for 51.4 % of all shields used in the data, as opposed to attribution shields, which comprised 48.6 % of all instances of shield usage. In the DONs, plausibility shields involved lexical hedges such as “suggest,” “may,” “potential (ly),” “likely,” etc. Attribution shields made explicit reference to some form of epidemiological data from health institutions of various countries from which the outbreaks were reported.

In terms of the types of appeals made in these shields, attribution shields primarily relied on appeals to institutions, whereas plausibility shields often appealed to what has been termed “circumstantial evidence”. These and other types of appeals, as shown in the conceptual map below (see Fig. 2), are discussed in the next section of the paper.

4.1. Attribution shields

Attribution shields drew on two primary appeals: **appeal to institutions** and **appeal to empirical evidence**. In an appeal to institutions, the credibility of a claim is reinforced by attributing it to a reputable or authoritative organisation (e.g., WHO, CDC). In an appeal to empirical evidence, the claim is supported through references to data, research findings, statistics, or other forms of verifiable, evidence-based information. As seen in Table 2 below, these two forms of appeals were used in varying degrees, with the most common being appeal to empirical evidence. 79.2 % of attribution shields were associated with appeal to empirical evidence. In this form of appeal, the WHO explicitly

Table 1
Distribution of shields in DONs.

Type	Frequency	Percentage (%)
Plausibility Shield	76	51.4
Attribution Shield	72	48.6
Total	148	100

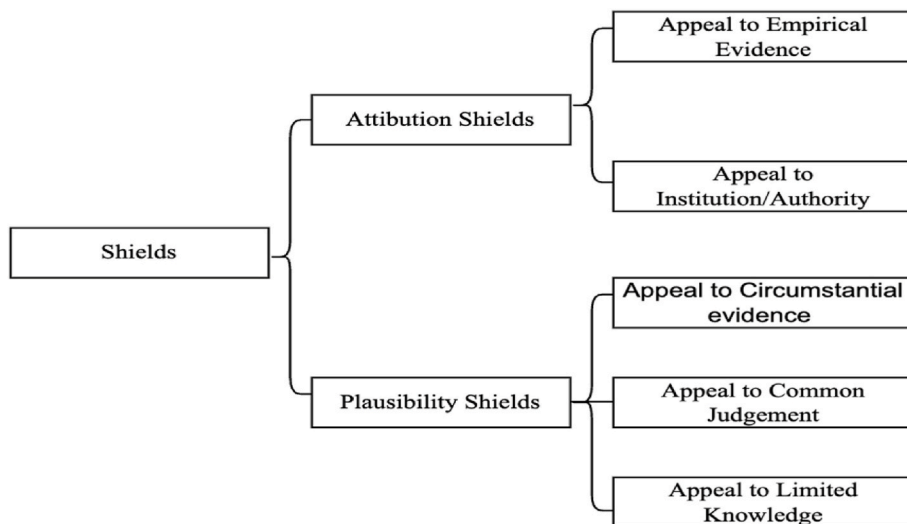


Fig. 2. Conceptual map for types of shields and appeals used.

Table 2
Appeals in attribution shields.

Type	Frequency	Percentage (%)
Appeal to empirical evidence	57	79.2
Appeal to institution/authority	15	20.8
Total	72	100

referenced statistical data or health reports from relevant governmental health institutions to justify its reasoning.

In Excerpt 3 below, the WHO’s conclusion regarding the spread of the Mpox virus (clade Ib MPXV) in the African region in 2024 was explicitly based on “available epidemiological data.” In a similar report on the outbreak of Avian Influenza A (H9N2) virus in Ghana in 2024, the WHO categorically indicated that its assessment of the risk posed by the virus as low was based on the data before it, as signalled by the expression “Based on currently available information”, contained in Excerpt 4 below. Detailed accounts of statistical data are usually presented in the full report of the DONs, which was out of the scope of the present study.

Excerpt 3

Based on available epidemiological data, this clade has been spreading rapidly among adults through close physical contact, including sexual contact identified within networks of sex workers and their clients. (Mpox – African Region, August 22, 2024)

Excerpt 4

Based on currently available information, WHO assesses the current risk to the general population posed by A (H9N2) viruses as low, but is continuing to monitor these viruses and the situation globally. (Avian Influenza A (H9N2) – Ghana, September 20, 2024)

Excerpt 5

According to WHO/UNICEF estimates of national immunisation coverage (WUENIC), the immunisation coverage with the diphtheria tetanus toxoid and pertussis (DTP3) containing vaccine was reported to be 47 % for 2022 in Guinea and has remained below 50 % since 2014. (Diphtheria – Guinea, October 18, 2023)

In Excerpt 5 above, an appeal to empirical evidence is made through direct reference to the national immunisation coverage by the WHO/UNICEF. The source of information on “the immunisation coverage with the diphtheria tetanus toxoid and pertussis (DTP3) containing vaccine” was a named entity to which reference has been made. By naming the “WHO/UNICEF estimates of national immunisation coverage

(WUENIC)” as the source of information, the WHO is using an attribution shield by appealing to empirical evidence. The object of attribution in this case is the WUENIC.

Appeal to institution/authority was also employed in the reasoning of the WHO in their DONs. It accounted for 20.8 % of all instances of attribution shields in the data. In this form of appeal, the WHO made direct reference to a body or legal framework that guided their actions or recommendations. These included legal policy frameworks or other institutional instruments. In the data, the most common appeal to institutions involved references to the International Health Regulations (2005) (IHR). The IHR is “an instrument of international law that is legally binding on 196 countries, including the 194 WHO Member States.” Through the IHR, the WHO, in recommending that countries notify the organisation of any emerging outbreak, invoked the legal provisions of the IHR to justify its authority and demand action. This can be seen in Excerpt 6 below. Excerpt 6 is typically found in the concluding section of the “Situation at a Glance” report.

Excerpt 6

According to the IHR (2005), a human infection caused by a novel influenza A virus subtype is an event that has the potential for high public health impact and must be notified to the WHO. (Avian Influenza A (H5N1) – Cambodia, September 2, 2024)

By invoking the legal provisions of the IHR (2005), the WHO strategically appeals to the authority of this legal framework. The WHO instructs nations to report “human infection caused by a novel influenza A virus” to the organisation because, under the provisions of the IHR (2005), nations are obligated to report such cases.

4.2. Plausibility shields

The use of plausibility shields to indicate the degree of tentativeness in reasoning in DONs relied on three main appeals: appeal to circumstantial evidence, common judgment, and limited knowledge. The

Table 3
Appeals in plausibility shields.

Type	Frequency	Percentage (%)
Appeal to circumstantial evidence	34	44.7
Appeal to common judgement	27	35.5
Appeal to limited knowledge	15	19.7
Total	76	100

distribution of the types of appeals in plausibility shields is presented in Table 3 below. In this paper, circumstantial evidence refers specifically to reasoning based on indicators of probable causes or case scenarios. In appeal to circumstantial evidence, the reasoning is “based on facts linked more or less remotely to the target event” (Carlson & Dulany, 1988, p. 463). Inferences are drawn from available evidence to assess the plausibility of a conclusion. In the DONs, this includes leveraging the geographical context of an outbreak and related factors, such as war, to project its potential spread or assess its associated risks. 44.7 % of plausibility shields involved an appeal to circumstantial evidence.

On February 10, 2023, the WHO issued a Disease Outbreak News regarding a cholera outbreak in parts of the Democratic Republic of the Congo. However, a cholera epidemic had already been declared the year before, in 2022. By February 4, 2023, there were 4386 reported cases and 16 deaths, resulting in a case fatality rate of 0.4 %. In its risk assessment report, the WHO relied on circumstantial evidence to evaluate the risks, as seen in Excerpt 7 below.

Excerpt 7

Considering the fragile context in which this outbreak is taking place, ongoing armed conflicts with further displacements, concurrent epidemics, inadequate levels of access to health care, poor drinking water, hygienic and sanitary conditions, and population movements between the affected HZs and neighbouring countries (including Rwanda and Uganda), WHO assesses the risk posed by this outbreak as high at the national and regional level, and low at the global level. (Cholera - Democratic Republic of the Congo, February 10, 2023)

Excerpt 8

Low population immunity, combined with concurrent epidemics, conflict, forced displacement, and other humanitarian crises that disrupt childhood vaccinations, are some factors that may explain the increases. (Measles – Ethiopia, May 4, 2023)

The risk assessment of the outbreak was based on the surrounding circumstances. At the regional and national levels, the risk was deemed high due to ongoing conflicts, displacement, and limited access to water. In contrast, the global risk was considered low due to differing conditions. Thus, the reasoning behind this assessment was based on the connection between these factors and the spread of cholera.

During the 2023 measles outbreak in Ethiopia, the WHO also relied on circumstantial evidence to explain the rise in reported cases. As seen in Excerpt 8 above, the increase was attributed to factors such as humanitarian crises, low population immunity, and ongoing conflicts. The use of the modal particle “may” suggests that alternative factors could have accounted for the rise in the number of cases.

An appeal to common judgment presents a course of action as the most rational or logical choice, assuming that any reasonable person would agree. Appeal to common judgment accounted for 35.5 % of plausibility shields in the data. This rhetorical strategy is evident in Excerpt 9 below. During the 2024 outbreak of Acute Respiratory Infections complicated by malaria in the Democratic Republic of the Congo, the WHO, in its DONs, referenced the implementation of epidemiological surveillance protocols based on prior knowledge of similar infections. Specifically, the protocol was guided by “the detection of syndromic cases of febrile illnesses with cough, body weakness, and one or more other symptoms compatible with acute respiratory and febrile illnesses.”

Excerpt 9

Enhanced epidemiological surveillance was rapidly implemented, which, in the absence of a clear diagnosis, was based on the detection of syndromic cases of febrile illnesses with cough, body weakness, and one or more other symptoms compatible with acute respiratory and febrile illnesses. (Acute respiratory infections complicated by malaria (previously undiagnosed disease) - Democratic Republic of the Congo, December 27, 2024)

The expression “in the absence of a clear diagnosis” serves as a plausibility shield because it introduces a degree of uncertainty regarding the accuracy of the epidemiological surveillance protocol implemented. By stating that the surveillance was implemented without a definitive diagnosis, the statement acknowledges a level of doubt or speculation about the basis for identifying cases. In this case, the plausibility of the surveillance approach is made relative to the lack of a confirmed diagnosis, meaning the measures taken were based on symptom patterns rather than definitive medical determination.

Appeal to limited knowledge was another form of appeal used by the WHO. In this approach, reasoning is framed within the context of the information available at the time. 19.7 % of plausibility shields were appeals to limited knowledge. This type of appeal acknowledges the limitations of the conclusions drawn, which in turn affect their plausibility. In Excerpt 10 below, the WHO presents laboratory findings from 430 samples, identifying multiple common respiratory viruses and malaria as contributing factors to the outbreak. However, the statement also highlights that “further laboratory tests are ongoing”, indicating that the conclusions remain tentative. By using phrases like “these findings suggest” and linking multiple possible causes, seasonal viral infections, malaria, and acute malnutrition, the WHO constructs a reasoning framework that accounts for uncertainty while still providing a plausible explanation for the observed increase in severe infections and deaths.

Excerpt 10

As of 16 December, laboratory results from a total of 430 samples indicated positive results for malaria, common respiratory viruses (Influenza A (H1N1, pdm09), rhinoviruses, SARS-COV-2, Human coronaviruses, parainfluenza viruses, and Human Adenovirus). While further laboratory tests are ongoing, together these findings suggest that a combination of common and seasonal viral respiratory infections and falciparum malaria, compounded by acute malnutrition led to an increase in severe infections and deaths, disproportionately affecting children under five years of age. (Acute respiratory infections complicated by malaria (previously undiagnosed disease) - Democratic Republic of the Congo, December 27, 2024)

5. Discussion

This study examined the use of plausibility and attribution shields in risk and outbreak communication and their role in building credibility in disease outbreak news. Additionally, it explored the types of appeals employed when these shields are used. The data analysis showed that both plausibility and attribution shields are present in the risk and outbreak communication of the WHO. This finding aligns with expectations, as disease “outbreaks are frequently marked by uncertainty, confusion, and an increased sense of urgency” due to limited information about the virus (Gobena et al., 2025, p.2; Han et al., 2021; Jovic et al., 2025). Plausibility shields are the more common form in both written and spoken discourse (Leláková & Praženicová, 2024; Qu, 2024). It is, therefore, reasonable that they appeared slightly more frequently in the data under study than attribution shields.

The near-balanced use of plausibility and attribution shields reflects the inherent level of doubt in DONs, with plausibility shields reinforcing uncertainty (Deng et al., 2024; Han et al., 2021) and attribution shields signalling efforts to enhance credibility (Jensen, 2008). Shields, as “textual features of scientificness” in DONs, enhance the credibility of the reports, as the information presented is more likely to be perceived as highly convincing (Thiebach et al., 2015, p. 317). This is particularly important given that DONs often serve as a primary source of information for various actors involved in developing response strategies during disease outbreaks. The information must therefore be credible enough to foster trust and ultimately inspire action, leading to more effective measures for managing the spread of the disease. By employing these shields, the WHO demonstrates how conclusions regarding outbreak

causes, risk assessments, and recommendations are derived. These shields, therefore, serve as clear metrics for evaluating the soundness of the WHO's reasoning in risk and outbreak communication. A closer examination of the appeals made through these shields reveals a deliberate effort to present DONs as logically sound and well-reasoned. For instance, attribution shields frequently reference evidence, thus reinforcing the credibility of the information presented by the WHO (Berry & Shields, 2014). By anchoring its propositions in the DONs in some form of statistical data from relevant bodies, the WHO strengthens its position, making its reasoning appear firmly supported by evidence.

The kinds of appeals made in DONs are particularly important for evaluating the logic behind the WHO's speculation about either the potential nature of the causes, spread, or risk assessment of disease outbreaks, where data is not readily available. Disease outbreaks often pose serious threats to affected communities and, by extension, the global population. In some instances, affected regions may hesitate to report outbreaks to international bodies due to potential consequences such as travel bans, stigmatisation, or economic repercussions, including trade restrictions. This was evident during the COVID-19 pandemic, where certain nations were repeatedly blamed and negatively portrayed in the media as the source of the virus. In such situations, the "need to be able to appeal to authority in the justification of public health policy" becomes crucial (Jennings, 2003, p. 11). Through appeal to institution/authority, nations and affected regions are legally and ethically compelled to report outbreaks, thereby supporting a more coordinated and effective regional and global response.

The appeals made through plausibility shields present a different dimension of the WHO's reasoning that warrants attention. By invoking circumstantial evidence, limited knowledge, and common reason, these appeals invite a critical examination of the WHO's argumentation. In employing such appeals, the WHO's reasoning is framed as a "probabilistic approximation to reality and the limitations to the validity of statements", which in turn "enhances the recipients' perceptions of argument strength and credibility" (Thiebach et al., 2015, p. 372). In this context, while the WHO's reasoning in DONs is grounded in some form of evidence, it ultimately underscores the fact that its conclusions are based on approximations and probabilistic considerations. Therefore, the evaluation of these arguments should take into consideration the understanding that "the assertion is not based on deductive logic but plausible reasons" (Nugroho, 2002, p. 18). By being transparent about the limitations of the information provided, the WHO strategically positions itself as an institution that values credibility and acknowledges limitations when necessary. This approach enhances the credibility of the information (DONs) and the author (WHO) (Jensen, 2008).

Another perspective on the use of shields in general in DONs is reflected in Popper's (1961) concept of tentative knowledge. According to this understanding, shields can be used as mechanisms to keep information "tentative forever" (p.280). These shields enable the WHO to keep information provisional, allowing for adjustments, corrections, and updates as new data on an outbreak becomes available. A clear example of this occurred in the WHO's updates on an outbreak of acute respiratory infections complicated by malaria in parts of the Democratic Republic of the Congo. In an earlier DONs published on December 7, 2024, the WHO initially referred to the disease as an "Undiagnosed disease in the Democratic Republic of the Congo" (World Health Organisation Disease Outbreak News, 2024). However, following new diagnostic findings, the WHO released an update on December 27, 2024, identifying the disease as "acute respiratory infections complicated by malaria." In both instances, shields were employed to frame the information as tentative. By using these shields, the WHO ensures that updates, even when they introduce new or contradictory information, do not undermine its credibility. Instead, the presence of these shields reinforces the organisation's adaptability in response to evolving outbreaks.

The evidence provided in this study corroborates previous research on the use of shields, and more generally hedges, in medical reports and

health-related communication (e.g., Deng et al., 2025; Leláková & Pražnicová, 2024; Qu, 2024; Thiebach et al., 2015). These studies have shown that shields are commonly employed in conveying high-risk health information. A key distinction in this study, however, is its effort to account for the frequency of shields and the types of appeals they invoke in health communication. This approach provides a more in-depth understanding of how shields function in shaping the presentation of medical and outbreak-related information. Additionally, this study presents a new perspective on how shields can be used to both strengthen and hedge reasoning, even in the face of uncertainty (Deng et al., 2024; Han et al., 2021). Shields are, thus, perceived as tools that help shape health-related information. To a large extent, these tools influence the credibility and trustworthiness of the information presented, which in turn affects public perception and response. By shaping how risks are communicated, shields play a crucial role in guiding public actions when assessing the severity of an outbreak and determining appropriate responses.

6. Conclusion

The strategic use of plausibility and attribution shields in risk and outbreak communication reflects an approach to balancing credibility with the inherent uncertainty of evolving health crises. This study repositions these shields not merely as rhetorical devices, but as essential tools that enhance credibility while signalling the tentativeness of scientific information. Their presence in WHO Disease Outbreak News (DONs) accentuates the importance of cautious interpretation, especially when reports are issued under conditions of limited or evolving knowledge. By framing conclusions as provisional, these shields allow for flexibility in response and communication as new evidence emerges.

However, a key limitation of this study lies in its inability to empirically assess how these shields influence public perceptions of credibility. While interpretive insights were offered, future research adopting experimental designs, such as those employed by Thiebach et al. (2015), is necessary to determine the relative effectiveness of each shield type in fostering trust. In addition, audience-centred approaches, such as focus groups or semi-structured interviews, could be used to explore how diverse readers interpret shielded messages and whether these messages successfully convey both credibility and uncertainty. Such methods would provide richer insights into the ways shields function as stance markers, clarifying their role in shaping perceptions of authority and tentativeness in health communication.

The practical implications of this study are particularly relevant for health communication professionals, policymakers, and public health institutions. By revealing how the WHO uses plausibility and attribution shields to balance transparency with authority, the findings offer a framework for constructing more effective and credible risk messages. Understanding the types of appeals these shields invoke, such as appeals to empirical evidence, institutional authority, and circumstantial reasoning, can help communicators craft messages that are both informative and trustworthy. In doing so, public health messages can better support informed decision-making and foster public cooperation during health emergencies.

Ethical approval and informed consent statements

Ethical approval was not required for this study.

Data availability statement

The data for the study is available upon request.

Funding statement

No funding was received for this research.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

The author would like to acknowledge Ebenezer Agbaglo for his insightful comments on the initial draft of the paper.

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