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Patient Trust and Communication Challenges in Healthcare Systems During Health Emergencies

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Abstract: Healthcare systems face the challenge of enabling trust and communication in both patients and healthcare providers during periods of stress. As the COVID-19 pandemic demonstrates, information uncertainty can evolve from rapidly changing knowledge to evolving political narratives that undermine trust. Resource and workforce shortages further impact the quality of trust-building interactions, and communication barriers—both for patients and providers—are amplified. Health systems must proactively plan for these issues and consider their consequences.

Patients desire clarity, transparency, empathy, and sufficient time to address concerns, and are forgiving of healthcare providers when patients perceive that they are doing their best under the circumstances. The nature of the translational physicianship spans both clinical communication and risk communication but is not always present among a stressed workforce. Decision-making policies for the responsible use of original language messages, especially granting national truism guards, must focus analysis on information sources and flows rather than geography, with the aim of creating stronger myth-busting communications without eroding trust. As other disasters have shown, part of the solution may lie with building and resourcing health information exchange systems and tools to enable care for remote populations in real time, while also ensuring support and training for those healthcare workers in frontline communication roles.

Keywords: Healthcare Trust, Crisis Communication, Information Uncertainty, Pandemic Response, Patient Provider Communication, Risk Communication, Translational Physicianship, Workforce Stress, Resource Constraints, Information Governance, Myth Busting Strategies, Health Information Exchange, Remote Care Enablement, Transparency And Empathy, Public Health Messaging, Communication Policy Design, Digital Health Infrastructure, Frontline Workforce Support, Trust Preservation, Health System Resilience.

I. INTRODUCTION

The role of Trust and Communication in Health Systems

The conceptualization and discussion of trust and trust-related phenomena, including risk, perceived quality and credibility, are central to the conceptual framework, but the emphasis on communication and information flows is also important. Communication is central to the functioning of health systems, and health systems science literature highlights the vital importance of both formal and informal channels of communication. Health systems function within a broader social setting that creates expectations of fidelity in social relationships. During health emergencies, information flows become strained; formal and informal sources become contested and uncertain; and the perceived quality of service providers comes under increasing scrutiny.

Relative trust and the level of trustworthiness of official channels strongly influence the quality and nature of these informal information relationships, in turn influencing compliance with public health guidelines during an emergency. Alongside the more overt signals of trustworthiness (such as honesty), a high level of perceived risk for providers can positively influence trust. One area of trust factor typically associated with the demand for private healthcare (and thus more informal communication flows) is the equity of service provision; ensuring that vulnerable populations within the catchment area are receiving services commensurate with relative health needs can therefore help cement the integrity of health systems during emergencies.

1.1. Opening Insights: Setting the Stage for Trust and Communication in Health Systems

Crisis events pose difficult decisions for both patients and healthcare providers that can impact trust in patients' relationships with their provider and health system. The fact that the outbreak of COVID-19 arose amidst periods of heightened political mistrust made it even more challenging as society's willingness to accept risky trade-offs and, in particular, to adhere to recommended control measures was compromised. Indeed, during times of heightened uncertainty, the risk of unfilled appointments reduces access to care for those who need it most. In this sense, ensuring that patient–provider relationships remain intact, and that a system's decision-making processes are seen to be appropriate, equitable and transparent, is crucial to maintaining public trust—both in times of crisis and beyond.

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All the trust and communication aspects are evidently even more critical for patients with limited health literacy and those from socio-culturally diverse backgrounds. Effective information flows for sub-groups of patients at increased risk may therefore require tailored approaches. Factors beyond individual patient characteristics remain equally important in shaping the nature and quality of communication during healthcare encounters. For example, major limitations such as the unavailability of interpreting services, constraints in time and physical examinations, the complex and evolving nature of COVID-19 risk and transmission, and the challenge of communicating risk in an environment saturated with misinformation have all contributed to difficulty in maintaining shared understanding.

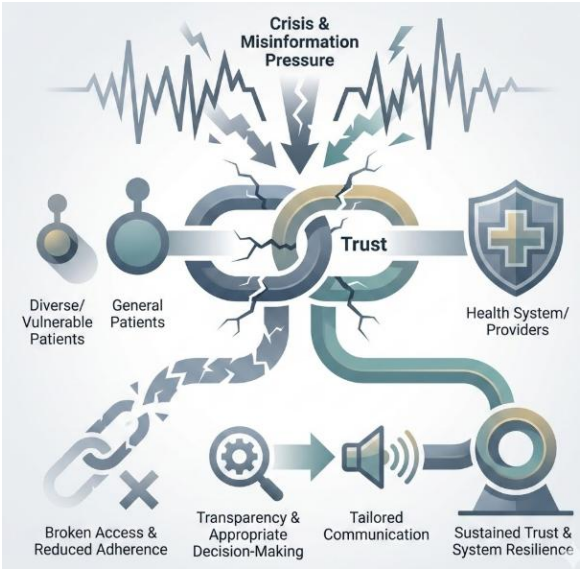

Fig 1: Navigating the Trust Nexus: Resilient Communication and Equitable Governance in Health Crises

II. CONCEPTUAL FRAMEWORK: TRUST, COMMUNICATION, AND HEALTH SYSTEMS

Patient trust and effective communication with health systems are essential prior to, during, and after crises. Numerous contextual factors influence these processes in emergencies, for both patients and providers. Patient trust enables effective collaboration and compliance with public health mandates, while efficient and empathetic communication mitigates – but cannot fully eliminate – the impact of chronic strains on overwhelmed health systems. Information flows in both directions: affected communities must be engaged and informed, and their needs understood and addressed.

The above premise echoes explicit findings from analyses of five reputation-damaging public health crises in high-income democracies. Data drawn from providers, patients, and healthcare systems reveal specific patterning of trust in providers and institutions, communication barriers and facilitators for patients, and considerations for emergency contexts where equity becomes paramount. Counter-strategies providing the best opportunity for success are underscored: research focusing on patient-reported outcomes emphasizes communication challenges of remote consultations, highlights the need to appropriately communicate risk and uncertainty, and underlines the burden associated with personal trauma and grief for patients and their families using medical services during a disaster. The call is for ahead-of-time crisis training for frontline provider staff, in addition to addressing the four information-communication needs of either side during the crisis: abnormalities during the crisis and their impact, relevant advice, resource availability, and support options.

2.1. The Role of Trust and Communication in Health Systems

Trust and communication are both important for health systems. Trust in providers and institutions tends to reduce patients' fears or concerns about their safety in potentially dangerous situations. Such fears can be heightened when patients are seeking medical care during public health emergencies, especially those related to infectious disease outbreaks. The possibility of coronavirus or other health emergencies may make patients wary of using facilities that they would normally turn to in times of crisis and can diminish their coping capacity. Disruption of patient-provider communication during such emergencies can act as a barrier to health-seeking behaviour and reduce the quality of healthcare delivery. The impact of such barriers may be particularly great for those from marginalised communities.

The ability of health systems to respond to patients' needs and concerns during emergencies, such as public health crises, is tested in extraordinary ways. Patients not only expect accurate and timely information from health systems, but also require such systems to act on it. The integrity of health information and messaging is central to the health systems'

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capacity to maintain or restore trust, encourage adaptive behaviour, and ultimately serve their health-seeking needs. Therefore, when communication and information-sharing channels among different stakeholders are impeded or disrupted, such barriers need to be resolved quickly. These barriers, together with tensions arising from scarcity of resources, are reflected in patients' perceptions of health systems.

Equation 1 — Patient Trust Index (PTI)

Step-by-step derivation (operational form)

1) Pick trust-building factors (all normalized to $[0,1]$):

- C=clarity, Tr=transparency, E=empathy, Ti=time given,
- A=accuracy, Tm=timeliness,
- Tw=two-way engagement, G=governance/message consistency.

2) Compute positive trust score

$$S_{pos} = w_C C + w_{Tr} Tr + w_E E + w_{Ti} Ti + w_A A + w_{Tm} Tm + w_{Tw} Tw + w_G G$$

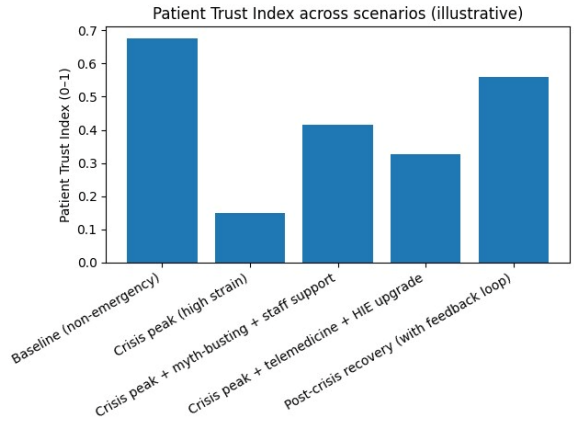
3) Compute "pressure" that erodes trust (resource strain, workforce stress, misinformation exposure are repeatedly highlighted as crisis amplifiers)

$$N = a\,RS + b\,WS + c\,ME$$

where RS=resource strain, WS=workforce stress, ME=misinformation exposure.

4) Combine into trust index

$$PTI = \text{clip}\left(S_{pos} - \lambda N,\ 0,\ 1\right)$$



III. CONTEXTUAL FACTORS IN HEALTH EMERGENCIES

In health emergencies, communication between patients and healthcare providers is often hindered by multiple factors. Emerging evidence suggests that communication flows adversely impact the healthcare system's ability to build and maintain trust among the public and stakeholders. When health systems are perceived as untrustworthy, the likelihood of patients following treatment advice or supporting public health initiatives such as vaccination may decrease. It is therefore vital to understand the factors that influence communication flows during emergencies and to develop strategies capable of mitigating the associated challenges.

Contextual factors that hinder the flow of information and subsequently compromise the establishment and maintenance of trust during an emergency are classified into three categories: information flows and uncertainty; resource constraints and system strain; and policy and governance considerations. The categorization recognizes that while trust is inherently a two-way process, it is often the healthcare system's ability to establish trust and communicate effectively that is most negatively impacted by environmental conditions.

3.1. Information flows and uncertainty

Both public and individual health depend on effective flows of information during periods of high uncertainty and health risk. Misinformation and uncertainty about disease transmission, treatment, prevention, and health service use can

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undermine health system responses and lead to patient distrust. Misinformation may be deliberate or inadvertent, but in either case it can almost inevitably be damaging. Online and social media generally amplify both real and fictitious information flows, with implications that extend beyond patients to include health care providers and the broader community.

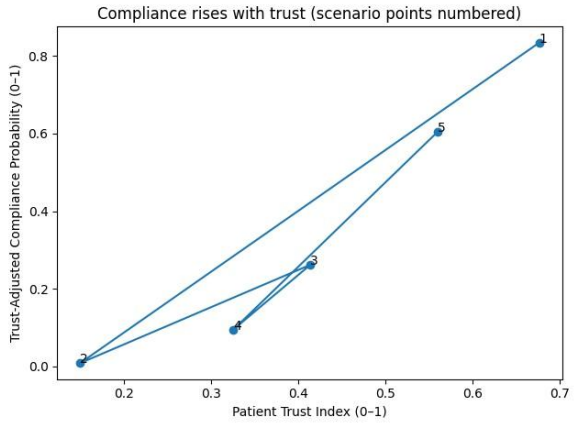
Mitigating misinformation during an emergency often involves the preparation and dissemination of accurate information "to counteract misinformation before it spreads." Such activities have been employed at national levels, undertaken by local health authorities in response to disinformation that has gone viral, and facilitated by other organisations. Efforts to understand the mind science of information engagement further support such response planning. "Truth teams" can be established, either formally or informally, to respond quickly to falsehoods that emerge during a crisis, and regular briefings about key issues can reduce the need for reactive responses.

Equation 2 — Communication Effectiveness Rate (CER)
Step-by-step derivation (operational form)
1) Define core components

- A=accuracy, Tm=timeliness, C=clarity
- Tw=two-way exchange (feedback/engagement)
- HL=health-literacy support (teach-back, plain language, etc.)

2) Build a synergy-based effectiveness score
(You can use a weighted sum, but a product captures "weakest link" behavior: if accuracy is low, effectiveness collapses.)

$$CER = (A \cdot Tm \cdot C) \cdot (0.6Tw + 0.4) \cdot (0.7 + 0.3HL)$$



3.2 Resource constraints and system strain

The reduced capacity of health services during emergencies generates uncertainty for patients, who may perceive the system as less able to provide timely and effective health care. Limited availability of medical resources prolongs waiting times and increases the likelihood of having to seek care from alternative providers, without full consideration of associated risks. Providers' prolonged exposure to highly stressful work environments can have a detrimental impact on communication with patients. Trust in providers can be positively correlated with a clear sense of their likely response ability, even when care is not delivered as expected. Indeed, trust in institutional health systems may be deterministically associated with the nature of relationships in their respective environments.

Public trust may increase or decrease depending upon how health authorities interpret information and communicate risks to the population. Health authorities can strengthen the perception of performing a robust risk communication by adopting a whole-of-government approach, integrating national and local health risk communications, including other sectors and levels of government involved in risk communication, and providing an effective feedback mechanism for all stakeholders at all levels of government and other interested parties.

3.3 Policy and governance implications

As well as exerting pressure on the patient-provider relationship, the precedents and characteristics of health emergencies may cause health authorities to issue public welfare information that is fragmented or difficult for the public to process. Indeed, authorities may have difficulty establishing consistency in their messages when responding to unpredictable

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dynamics or providing data where health information systems are inadequate. In such circumstances, patients may switch from a self-directed social communication strategy — tapping into the experience and understanding of their close network — to reliance on health authorities for credible accounts of the emergency.

In addition to the need for authorities to improve the clarity, consistency and credibility of their communications, the findings highlight the importance of real-time exchanges with frontline providers — a frontline information network of sorts — during the emergency, as well as for information sensitively directed at vulnerable groups. It is also evident that decision makers should aim to minimise resource constraints during an episode of influenza, and avoid any associated weakening of trust in public health authorities or information sources. Mistrust, once established, can take a long time to dissipate, leading to hasty recoil as much as to inertia or a flip-flopping response.

IV. PATIENT PERSPECTIVES ON TRUST AND COMMUNICATION

Online surveys conducted during the COVID-19 pandemic indicate that trust in healthcare providers and institutions has increased overall, especially for family doctors. Patients show a strong desire for their providers to prioritize empathetic, reassuring communication combined with accurate clinical information, even when the exchange occurs through telemedicine. A critical aspect of trust relies on perceptions of fairness and equity in health systems; during the pandemic, disparities were perceived in terms of access to care, support services, and clinical trial participation. These disparities correlated with patients' ability to trust health authorities and their willingness to comply with health recommendations—underscoring the significance of health equity in promoting trust.

Despite the central role of communication in enabling patient cooperation and adherence, communication challenges persist throughout health systems. Barriers to effective communication exist not only between healthcare providers and patients but also between policymakers and the broader community. Such barriers can be magnified by the speed and volume of information exchange during public emergencies. Healthcare systems should therefore prioritize planned communication interventions and training opportunities to prepare staff in advance. Recommendations include ensuring active listening, empathy, reassurance, and emotional support; adapting communication based on patient health literacy; delivering risk communication along with clinical information; using teach-back techniques and supplying clear, easy-to-understand information resources; supporting hard-to-reach groups through appropriate channels; and enabling decision-making support for patients.

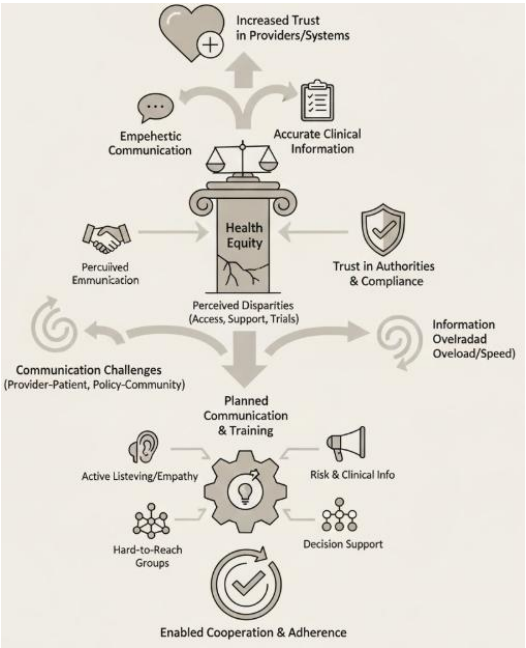

Fig 2: Architectures of Trust: Integrating Health Equity and Empathetic Communication into Resilient Healthcare Systems

4.1. Trust in providers and institutions

Trust in the health authorities and rhetorical legitimacy is essential for effective health emergency communication, with patient trust in healthcare institutions strongly linked to guideline adherence. Trust is central to many health

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communications, as timely action relies on people frequenting and collaborating with the health services. The effect of confirming an event and the communication channel, that is, the commissioner of the message (health ministry, World Health Organization, or popular social media channel), on the perception of the message as true, important, and urgent is determined. Trust appears to be the determining factor for patients' support for the COVID-19 vaccination campaign and their willingness to vaccinate. Specific actions can enhance trust in health authorities during an epidemic: health authorities should openly acknowledge the challenges posed by the risk, thus demonstrating an understanding of the problem; surrendering control on key information channels, for example, permit influencers to recommend the vaccine; and anticipating rumors about the vaccine in order to counter them through myth-busting campaigns direction and must receive support, training, and time to communicate risk and respond to each patient and community reality.

The design of specific political communication training for hospitals and healthcare institutions requires qualified personnel. These communications should avoid giving alerts and news that may create uncertainty every hour when the situation is evolving. Sharing the stage and the message content across different channels is important in order to increase trust and have a reliable communication at the different institutions serving the community. Mistrust among different communication channels can create confusion. Further, empowering the agents on a lower hierarchical level to be emotionally available and to share feelings is crucial, specifically toward children and the elderly. Consideration of privacy, delicacy, and patience also matters.

4.2. Communication barriers and facilitators for patients

Patients' ability to understand, appreciate, and respond to health information is critical during emergencies. Yet there are many communication barriers, including low health literacy, language differences, cognitive difficulties, and unavailability of interpreters. Patients experience added difficulties if communication is rushed and they feel untrusted or dismissed. Health Risks; An Analysis of Empirical Evidence from Healthcare Providers, for the Healthcare Providers in any healthcare worsening communicable disease, Health Providers and their healthcare system During an infectious disease outbreak for the healthcare sectors' final consideration providing patients/caregivers with information about the nature, causes and effects of the Health and Healthcare Problems is more effective than providing information about avoiding risk during terrorist attacks.

Patient-centered perspectives on communication are rarely represented in the academic literature but are of immense significance to health providers. The nature of communication that patients value has several key components including: listening, discussions of emotional concerns, clear explanations of the condition, treatment and prognosis, and discussion of reasons for treatment decisions. Listening to patients is a crucial component of effective communication. Demonstrating concern and empathy may help to convey greater trust and lessen the patients' concern that they will not be understood. A key facilitator of real patient-centered communication is time. Providing information about the risk is ineffective during a Health Risks health problems it will lessen the fear and worry in patients/career.

Equation 3 — Misinformation Exposure Risk (MER)

Step-by-step derivation (operational form)

1) Base risk grows with exposure and susceptibility

- ME=misinformation exposure (how much false content someone sees)
- S=susceptibility (low literacy, language barriers, cognitive load, etc.)

$$R_{base} = ME \cdot (0.5 + 0.5S)$$

2) Protection reduces risk

- MB=myth-busting protection (truth teams, rapid corrections)
- G=governance clarity/consistency (reduces confusion)

$$P = 0.6MB + 0.4G$$

3) Final misinformation risk

$$MER = \text{clip}(R_{base}(1 - P),\ 0,\ 1)$$

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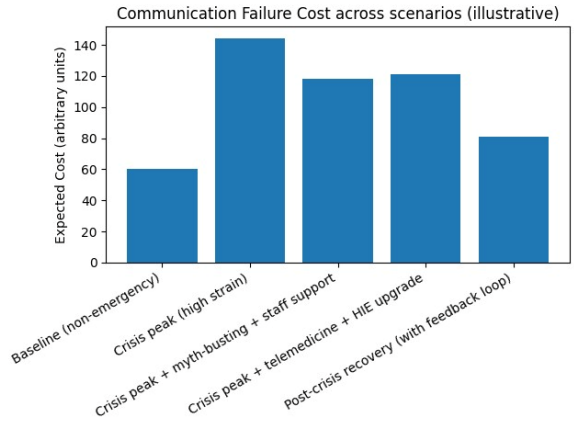

Week	MER(t)	Trust T(t)
0	0.419	0.150
1	0.350	0.117
2	0.292	0.114
3	0.244	0.131
4	0.204	0.163
5	0.171	0.203
6	0.143	0.248
7	0.120	0.293
8	0.100	0.340
9	0.083	0.384
10	0.070	0.426
11	0.058	0.466
12	0.048	0.501

4.3. Equity considerations in emergency contexts

In the context of trust and communication for patients experiencing health emergencies, equity considerations can have a major impact. The availability and effectiveness of social networks that provide information in times of crisis may differ between patients and could be a crucial determinant for establishing emergency trust. Migrants, whether voluntary or forced, may be particularly at risk for unreliable information and adverse health outcomes. Moreover, patients with pre-existing conditions that require regular contact with the healthcare system may experience a loss of continuity of care and may have more difficulty establishing trust. The challenges faced by vulnerable populations thus create asymmetries within the healthcare system that require special consideration and dedication of resources. Patients with special needs, such as language difficulties, are more likely to experience misunderstanding or misinterpretation of information, and adequate framing of the attack is even more important for them.

Research suggests that certain aspects of socioeconomic status, such as education, strongly correlate with the level of trust. For example, during a previous outbreak of a highly contagious disease – SARS in Toronto – mistrust prevailed among ethnic minorities due to previous discriminatory experiences in Canada. Patients' past experiences with public authority may prevent them from having confidence in safety communication during a new crisis, and entrenched mistrust may persist long after an emergency has passed. In addition to the perspectives of patients, these factors are also taken into account by healthcare providers when considering how to respond to patients' requests during crises.

V. HEALTHCARE PROVIDERS AND SYSTEM RESPONSIVENESS

Patients’ trust and communicative needs must be considered in preparing health systems for emergency scenarios. Health systems in crises must focus on establishing and maintaining patients’ trust in providers and institutions, while also enabling effective communication for patients. Such trust and communication constitute cornerstones of successful

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health-system responses, fostering adherence to guidelines, supporting better clinical outcomes, and demoting harmful behaviours.

The importance of communication arises because patients' needs for explanations and reassurance remain high even during emergencies of demanding provider capacity. Although challenges exist, enabling factors can aid communication with both patients and families whose well-being is threatened. Healthcare providers must be equipped with appropriate strategies for crisis communication as part of regular training and support. National-level investments in risk communication during emergencies must comprise not only information dissemination but also proactive initiatives to facilitate public dialogue and support shared decision making. Finally, tools such as telemedicine and health information exchanges can empower and enable health systems to respond effectively to patients' communicative needs.

Equation 4 — Trust-Adjusted Compliance Probability

Step-by-step derivation (logistic model)
1) Start with a "propensity to comply" score z:

$$z = \alpha\, PTI + \beta\, CER + \gamma\, Risk - \delta\, MER - \eta\, RS$$

2) Convert propensity into a probability using the logistic function:

$$P(\text{comply}) = \frac{1}{1 + e^{-k(z-\theta)}}$$

- k controls steepness; θ sets the midpoint.

5.1. Communication strategies during crises

While patients placed greater emphasis on communicative competence among healthcare providers, the following responses highlight the broader importance of communication—between patients and staff, among healthcare staff, and between healthcare organisations and the public (Yeung et al., 2016). Crisis communication is a well-studied field. Health emergencies call for effective communication strategies that meet changing priorities across the phases of a crisis from preparation to response. In the prevention phase, educating the public on relevant risk factors and self-help strategies builds knowledge that aids in risk mitigation (Paton and Jackson, 2002). During the response phase, the balance between openness and the need for containment is critical for preventing panic, and effective risk communication is a key component of disaster management (Pérez et al., 2009). Crisis communication capacity is also an important but often neglected area of health system resilience planning (López-Campos et al., 2016). In the recovery phase, attention turns to rebuilding relationships of trust, with the aim of minimising long-term mental health effects among affected communities (Huang et al., 2009).

Frontline staff often bear the burden of communicating bad news and dealing with bereaved relatives. As well as attempting to provide some comfort, it is crucial for staff to be aware of the risks faced by relatives in this context, particularly contagion. Bereavement support during a crisis or disaster has received little research attention, but responsive, sensitive healthcare provision is key to mitigating long-term psychological impact on survivors (Hesketh and Lunt, 2000). However, it must also be acknowledged that staff response to these sensitive communication challenges is not only affected by their communications skills, but by their own awareness of individual personal and social conditions, and their confidence in their skills (Huang et al., 2013).

5.2. Risk communication and shared decision making

Effective communication during health emergencies cannot rely on the capacity of specific individuals, however. It must be supported by health systems, structure, policy, and governance that enable responsive, timely provision of clear health information in trusted formats and contexts for recipients. High-visibility risk communication must facilitate choices by different population groups that protect their health, align interests with those of others, and ensure that individual freedoms and choices protect rather than endanger or lengthen risk for others.

Key communication challenges for patients and patients' experience of communication have been identified. Confrontation of these challenges and fulfillment of patients' communication needs are unavoidable prerequisites to responsive communication by healthcare systems with their patients. These, in turn, must be prioritized and consolidated by governance bodies and health systems if responsiveness during health emergencies that engender visible risk is to be achieved.

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5.3. Training and support for frontline staff

To optimize communication with patients during health emergencies, health systems must invest in the training and support of frontline providers and caregivers. Effective training leverages evidence on patient-centered communication and trust-building strategies to help providers mitigate patients' fears and anxieties, promote adherence, and address health literacy barriers. While the articulation of guidance in standardized treatment protocols further empowers providers, dedicated sessions equip them to share critical but distressing information more compassionately. Administrative and psychosocial support—such as providing breaks, peer-coaching opportunities, and mental health services—further enables providers to connect meaningfully with patients and families.

Crises can generate difficult exchanges between patients and providers. Empirical research demonstrates that dyadic communication works best, and that response strategies should ideally be tailored to individual patient concerns rather than following a rigid protocol. Training and peer-support systems have been designed to foster such nuanced clinical interactions.

Misinformation amplifies public anxiety and confusion. Recognizing trust as a key weapon against misinformation, healthcare systems have trained leaders and trusted influencers to deliver effective counter-messages during crises. However, evidence suggests that emotional validation of concerns is critical for successful myth-busting, and that authorities can erode public trust by overemphasizing problem resolution.

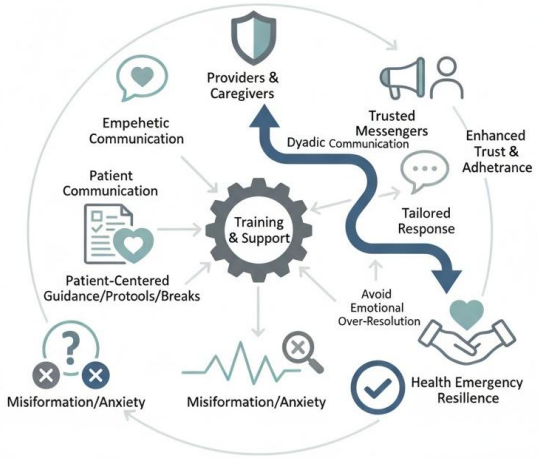

Fig 3: Empowering the Frontline: A Framework for Resilient Communication, Provider Well-being, and Trust-Building in Health Emergencies

VI. INFORMATION SYSTEMS AND TECHNOLOGICAL AIDS

Trustworthiness and reliability of information presented and shared through digital technology plays a key role to improve patient trust during health emergencies. Health services readiness plan should incorporate Telemedicine and Remote Communication. Telemedicine is an effective alternative to provide health service under the situations where physical interaction is not possible like health emergencies. Health Information Exchange (HIE) systems and telemedicine should be improved to facilitate secure and timely information sharing during health emergencies. Technology has shown its capability to propagate Misinformation during health emergencies. Since Misinformation tends to repulse people towards the service system, health authorities have to prepare prior Myth-busting campaigns based on community needs to eliminate prevalent Misinformation, so as to protect the being served people for their risks and explore the opportunities of Trust Repair. When health services operate in an emergency mode, the providers must concentrate on properties and limiting aspects of rapid trust repair strategies in direct communication with the being served.

During health emergencies, such as the COVID-19 pandemic, barriers of communication may appear in Public Health and Clinical Health Care. Communication strategy for Health delivery, information sharing, planning and management needs to be developed within a health system to address the barriers. Use of digital technology in similarity during such health emergencies helps in repairing Trust with the being served. Health authorities must ensure appropriate technology-enabled methodologies for conducting risk communication and shared-decision making to resolve the barriers in communication faced by a patient. Also, supporting and training frontline staff in a way that shields the responders and mitigates the negative effects of an outbreak are crucial.

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Equation 5 — Communication Failure Cost

Step-by-step derivation (expected cost)
1) Expected cost framework

$$E[\text{Cost}] = P(\text{failure}) \times \text{Severity}$$

2) Model probability of failure
Failure rises with strain/stress and low CER:

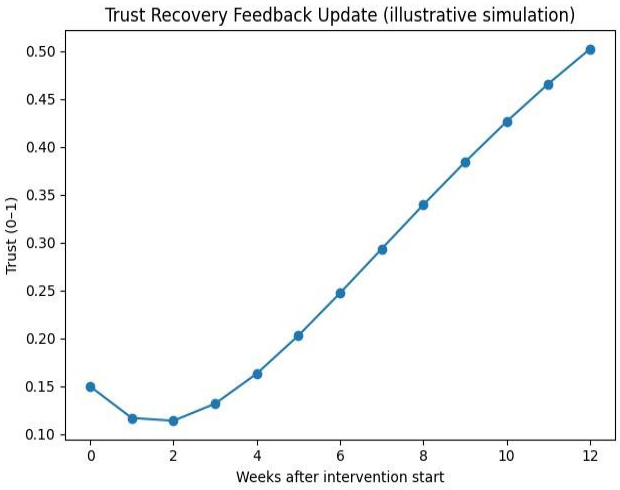
$$P(\text{failure}) = \text{clip}(p_0 + p_1 RS + p_2 WS + p_3(1 - CER),\ 0,\ 1)$$

3) Model severity
Severity increases when risk is high and when HIE is weak:

$$Severity = C_0\left(0.8 + 0.6Risk + 0.3(1 - HIE)\right)$$

4) Multiply

$$CFC = P(\text{failure}) \times Severity$$



6.1. Telemedicine and remote communication
Despite the long-standing vision of universal telemedicine, successful integration of remote interaction between patients and healthcare providers has remained limited. While telemedicine deployments have increased markedly in many regions during health emergencies—driven by improved technology, public health need, and both patient and provider experience—telehealth remains under-utilized in the post-crisis phase, with willingness to use falling faster than the decline in transmission risk. Barriers to rolling out and sustaining telemedicine adoption include entrenched behaviors and lower comfort levels with video consultations among some patient groups, therefore minimizing face-to-face encounters during crises should be encouraged.

Health systems may benefit from incorporating novel applications that enable remote interaction with trusted providers, such as social media messaging tools or text-based chat facilities. Where telemedicine is integrated into the information architecture of a health system, especially via scheduled consultations for patients with non-urgent needs, leveraging existing technology to allow such consultations can help maintain continuity for patients with ongoing medical needs when physical visits are not possible. Providing patients with 'telehealth companions'—a trusted individual to assist with video conferencing during consultations—is one recommendation for foster access to remote care during emergencies.
Immediate and post-crisis public health communications can also use telemedicine to improve health information exchange between providers and patients. Rapid deployment of information and communication technology, electronic health record support for telemedicine exchanges, accessible guidance on available telemedicine services, and dedicated resources and personnel to support their use can all enhance responsiveness to patient health information needs during emergencies.

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6.2. Health information exchange during emergencies

Health Information Exchange (HIE) enables disparate health information systems, databases, and resources to communicate with one another, to save and share patient information electronically in real time, and to provide authorized users with access to relevant clinical information. It supports population-based disease surveillance and case reporting, which are vital during public health emergencies. However, roadblocks such as lack of technical capabilities or key services, missing, incomplete or erroneous information requests, and cumbersome external queries hinder health information exchange in crisis conditions.

Patient care information must flow between necessary providers even when care is not rendered in a location that regularly communicates. Previous events have shown the need to include EMS (emergency medical services) agencies, hospitals, and public health agencies in the core communications for all emergencies, not just for large-scale disasters. A goal of EM is to ensure that high-quality patient care information, including referral information, arrives at hospitals and is made available to EMS at any location currently providing care. During HS, health systems can bore through electronic communications, pushing information traffic to neighbors intensely and automatically—a temporary state of affairs that allows agencies to take care of business even when they lack the energy to remember what needs doing.

Equation 6 — Trust Recovery Feedback Update

Step-by-step derivation (discrete-time update)
1) Let trust at time t be T_t, with a target "desired trust" T^*.
2) Recovery term (moves trust toward target)

$$+\alpha(T^* - T_t)$$

3) Disturbance term (misinformation pushes trust down)

$$-\beta\, MER_t$$

4) Full update

$$T_{t+1} = \text{clip}(T_t + \alpha(T^* - T_t) - \beta MER_t,\ 0,\ 1)$$

6.3. Misinformation, myth-busting, and trust repair

The spread of misinformation during emergencies can erode trust and increase health risks, emphasizing the need to identify and dispel myths. Trusted sources, such as decision-makers and healthcare professionals, are particularly effective in combating misinformation related to risk perceptions and protective behaviours, and many health systems employ dedicated teams and communication campaigns to deliver accurate information and counter prominent myths. Repairing trust once it is eroded requires targeted action and commitment to build credibility and ensure accessible and meaningful information exchange. The Social Listening program developed by Singapore's Ministry of Communication and Information monitors social media sentiment to inform operational messaging, while the Government of Canada website provides clear information and an avenue for citizen feedback. In the context of COVID-19 vaccine hesitance, approaches that recognize and engage with specific concerns and values are particularly promising.

Across these areas of research and practice, growing attention is directed to communicating with, and supporting, communities facing distinct barriers related to equity, health, and ultimately trust. Involving representatives from such communities in planning and decision making can enhance responsiveness, and designing solutions in collaboration with these groups ensures that targeted strategies are tailored to specific needs. Initiatives should extend beyond emergency contexts, as the potential benefits of building these relationships in advance are clear. Misinformation and fear remain pertinent challenges across crisis situations, and addressing the intersection of trust and communication serves to advance progress across these various themes and considerations.

VII. CONCLUSION

Shifts in public health and health system information flows during emergencies introduce distinctive communication challenges. Evidence from recent emergencies and health crises suggests that patients experience increased uncertainty regarding their health status, heightened dependence on healthcare systems under strain, and concerns about the capacity of health authorities to manage the crisis. Consequently, attention to communication cannot be limited to healthcare providers interacting with patients. To support and reinforce patient trust in health systems, all communication elements

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and processes within the emergency context must be considered and effectively managed, beginning with policy decisions and continuing through the development of communications strategies for healthcare providers and other local authorities.

The specific areas explored above provide some guidance on how trust can be strengthened. During an emergency, the appropriate communication strategy for each targeted group must be designed, with attention to both barriers and facilitators. For patients, these strategies should include the use of risk communication approaches, where appropriate, that promote two-way dialogue and engage patients and their families in shared decision making. For healthcare providers, training and support are required to help them cope with the increased attention and stress experienced during times of crisis. Finally, remote communication methods (such as telemedicine) and health information exchange networks offer valuable tools for emergency healthcare management; however, their use requires appropriate prior preparation. Addressing these aspects helps to build public confidence during health emergencies, thereby enhancing overall system responsiveness.

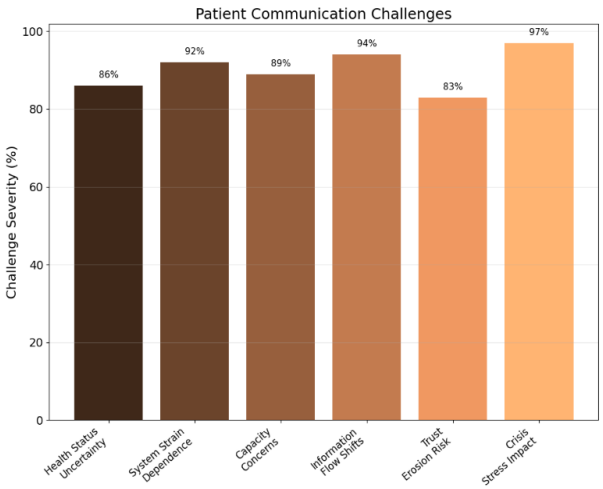

Fig 4: Patient Communication Challenges

7.1. Final Reflections and Future Directions

A trust-centered, patient-focused approach to health system communication during emergencies can mitigate the impact of the intensifying stresses on healthcare systems and their environments, benefiting patients, providers, institutions, and the communities in which they operate. However, trust in healthcare systems, a vital factor determining health outcomes, remains fragile and susceptible to rapid erosion under such conditions. Consequently, understanding the specific challenges of maintaining and nurturing trust and communication for patients and providers must be a priority area for future research.

Research findings across diverse health emergencies suggest that rapid assessment and response of information flows during crises can enhance patient trust while simultaneously meeting care requirements, healthcare resourcing, and quality-of-care expectations. More broadly, although the requirements of effective communication for patients and healthcare providers become more challenging during emergencies, a trust-centered perspective—considering patients' needs and concerns, adapting messages and media channels, preparing frontline staff, and empowering communities—allows these requirements to be framed as opportunities. With the right processes, the strains on health systems can even be used to strengthen and repair that most precious resource: trust.

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