Australasian Emergency Care 28 (2025) 123–128

Contents lists available at ScienceDirect

Australasian Emergency Care

journal homepage: www.elsevier.com/locate/auec

RESCUE - Rapid, Effective, Safe Communication in Emergency Departments: A cross-sectional e-survey

Amy Freeman-Sanderson [a,b,c,d,*], Nicola Clayton [e,f,g], Margaret Fry [h,i], Rebecca Sullivan [a,j], Bronwyn Hemsley [a]

[a] Graduate School of Health, Faculty of Health, University of Technology, Sydney, NSW, Australia
[b] Speech Pathology Department, Royal Prince Alfred Hospital, Sydney, NSW, Australia
[c] Critical Care Division, The George Institute for Global Health, Faculty of Medicine, UNSW Sydney, Sydney, Australia
[d] Australian and New Zealand Intensive Care Research Centre (ANZIC-RC), School of Public Health and Preventive Medicine, Monash University, Melbourne, VIC, Australia
[e] Speech Pathology Department, Concord Repatriation General Hospital, NSW, Australia
[f] School of Health & Rehabilitation Sciences, University of Queensland, QLD, Australia
[g] Faculty of Medicine and Health, University of Sydney, NSW, Australia
[h] Faculty of Health, School of Nursing and Midwifery University of Technology Sydney, Australia
[i] Northern Sydney Local Health District, Sydney, NSW, Australia
[j] Speech Pathology Department, Eastern Health, VIC, Australia

ARTICLE INFO

Keywords:
Communication
Masked-communication
Emergency department
PPE

ABSTRACT

Background: Effective staff-to-staff and patient-provider communication in the Emergency Department (ED) is essential for safe, quality care. Routine wearing of Personal-Protective-Equipment (PPE) has introduced new challenges to communication. We aimed to understand the perspectives of ED staff about communicating while wearing PPE, and to identify factors contributing to communication success, breakdown, and repair.
Methods: Study design was a descriptive cross-sectional online survey with convenience sampling. Categorical data were analysed using descriptive statistics and qualitative data analysed using content thematic analysis.
Results: Across nursing, medical and allied health, 78 staff responded with mean age= 38.8 years and mean ED clinical experience= 8.8 years). Respondents reported PPE impacted communication with patients/family members (81 %) and staff (61 %), with almost three-quarters of patient interactions rated as "somewhat difficult" or "extremely difficult". Content themes were: (i) impacts of mask-wearing on communication, (ii) impacts of mask-wearing on patient care quality and safety, and (iii) strategies for repairing communication breakdown. Health impacts of communicating in PPE (50 %) included voice fatigue, skin irritation, and throat dryness.
Conclusion: ED staff perceived that wearing PPE impacted communication and compromised safe and efficient quality care delivery. Staff reported using increased voice volume, repetition, gestures, increased proximity, and emphasised facial movements to enhance their communication.

Introduction

Time pressures and clinical demands are constantly increasing in Emergency Departments (ED), with 8.8 million people presenting to Australian EDs in 2022–2023 [1]. In the 'ordered chaos' of the ED work environment, clear patient-provider and staff-to-staff communication is essential for the rapid and accurate transfer of information to ensure the timely delivery of safe, quality care. Communication content may relate to a patient's presenting signs and symptoms, facilitating care, and information exchange between patients and providers as well as between healthcare professionals, often across disciplines for prompt patient management [2,3].

Effective patient-provider and staff-to-staff communication is essential to ensure the timely delivery of safe, quality care from the point of patient presentation to the ED. The chain of communication commences with the triage nurse as the initial point of contact with the patient. The triage nurse must make a brief but accurate assessment, prioritise the care needed, and provide an appropriate handover of the

* Correspondence to: Graduate School of Health, University of Technology Sydney, PO Box 123, Ultimo, NSW 2007, Australia.
E-mail address: amy.freeman-sanderson@uts.edu.au (A. Freeman-Sanderson).

https://doi.org/10.1016/j.auec.2024.12.002
Received 11 October 2024; Received in revised form 2 December 2024; Accepted 10 December 2024
Available online 27 December 2024

patient to other areas in the ED [4]. Similarly, at the point of patient discharge from the ED, accurate communication is essential for either (a) the education of patients and their families to address and manage their ongoing health needs if discharged home, or (b) clear handover information must be provided to ward staff if the patient is admitted for inpatient treatment [5].

Although the range of patients and reasons for presentation to Australian EDs varies [6], a high proportion of patients will present with infectious conditions [7]. To maintain staff safety and reduce risk of infection transmission, personal and protective equipment (PPE) is commonly used for selected patients as a mitigation strategy. While ED staff should be able to access different types of PPE, the directive for PPE varies across clinical situations [8] and common equipment (e.g., masks, goggles and face shields) are considered standard for droplet or airborne precautions. Since the outbreak of the COVID-19 pandemic, the use of PPE escalated with staff being required to don this equipment, often for the entirety of the work shift [9]. As a result, PPE used to protect the head commonly covers large parts of the face and limits the visibility of these structures which are key to effective communication [10].

Communication is known to be impacted by the presence of a mask in several ways [11]. Loudness of speech is directly affected, with significant reductions in sound level and speech perception during communication using surgical and N95 masks [12]. Patients also report impacts including loss and misinterpretation of intended messages, which result in negative impacts on relationships between the patient and healthcare provider [13]. Such adverse impacts of masked communication may be further magnified with increased ambient noise, a feature that is prominent within the ED environment [14].

Consequently, the impacts of PPE on communication effectiveness, and its relation to the safe, quality patient care, specifically within the fast-paced, time-critical EDs in the Australian context across the interprofessional team are currently unknown. Therefore, this research aimed to understand the views of ED staff about communicating while wearing PPE, and to identify factors contributing to communication success, breakdown, and repair.

Methods

Study design

We conducted a descriptive cross-sectional online survey. Ethical and institutional approval was granted by Sydney Local Health District (ETH X22–0336) and the University involved. All elements of the study are reported using the CROSS guideline [15].

Survey design

Respondents were asked six demographic questions including (e.g., age, gender, years of experience in ED). The main part of the survey consisted of 38 items, being open (n = 22), closed (n = 14) and Likert scale questions (n = 9) addressing the central aims of the study. The questions were developed by the interdisciplinary research team (speech-language pathology and nursing) and piloted by ED clinicians (n = 3). Pilot testing resulted in the minor refinement of the questions for clarity and content. Following pilot testing the estimated survey completion time was 20 minutes. A copy of the survey is provided in the supplementary material.

Communication questions focused on mask-wearing patterns and frequency of communication (n = 6), mask-wearing communication and impact to care in ED (n = 19), communication strategies (n = 15), and impacts, including communication and health impacts (n = 3). Ease and confidence of communication while wearing masks were rated on a 5-point scale (e.g., 1 = easy to 5 = extremely difficult). The open-ended survey questions asked respondents to provide specific examples of communication impacts, facilitators, and barriers. All questions were mandatory.

Sampling

Convenience sampling was used to prospectively recruit respondents who work or have worked within an Australian ED in the prior 12 months. A study invitation sheet outlining the eligibility criteria was sent via publicly available ED member networks and groups, on social media (X platform), and to researcher networks including internal hospital ED mailing lists and via snowball sampling. Along with the invitation to participate, a link to the survey was provided with implied consent being provided by clicking into and starting the survey. The survey data were collected and managed using REDCap, an e-survey tool [16] hosted at the University of Technology Sydney. All responses were anonymous and data was stored securely on University servers in accordance with ethical permissions. The survey was open in 2023 for a 12-week period from June to August.

Analysis

Data were checked for completeness before analysis. All surveys contributing data, including incomplete surveys were included, therefore due to respondent attrition across the survey sections denominations vary. In cases where two options were selected, the highest value was retained (e.g. ‘How often do you use pen and paper to communicate?’ when ‘rarely’ or ‘sometimes’ were both selected, ‘sometimes’ was retained). Demographic data were analysed using simple descriptive statistics: frequencies and percentages for categorical data, with mean and standard deviation for continuous data. Two-way associations using Fisher’s exact test were completed in Stata 18.0 [17].

A content thematic analysis of qualitative data in responses to the open-ended responses was conducted. Responses were coded in NVivo 14 [18] by author RS, with all codes checked and verified by author AFS.

Results

Demographics

Of the 81 respondents entering the survey, 78 (96 %) answered questions relating to mask-wearing patterns and frequency of communication. There was some attrition of respondents across the remaining survey domains of mask-wearing communication and impacts (n = 70), communication strategies (n = 60) and communication and health impacts (n = 59). Table 1 details respondent demographics, with representation across genders and professional disciplines of nursing (n = 38, 49 %), medical (n = 17, 22 %), and allied health (n = 23, 29 %). Across professions, respondents reported a mean 8.8 years (SD 9.47 years) of experience in ED. Specific to nursing, this ranged from 4 months to 30 years of direct clinical experience in ED. Most respondents worked across all areas of ED including sub-acute, acute, fast track, resuscitation and trauma and triage; with no statistical difference between groups (p = 0.468).

Communication outcomes - quantitative

Across the professional groups, respondents (n = 73, 94 %) reported ‘regularly’ to ‘always’ interacting with patients/families during a typical shift; with medical staff reporting statistically increased frequency of communication interactions with patients when compared to the other participant groups (p = 0.030). Type and frequency of PPE use during communication varied (Table 1) with 87 % wearing masks all the time during communication. Only 1 (2 %) respondent reported completing specific training in optimising patient-provider communication in PPE.

Regarding mask-wearing communication, respondents (n = 51, 73 %) reported being ‘somewhat’ or ‘very confident’ with their communication skills in PPE, with no statistical differences across professional groups (p = 0.079). However, nursing respondents were the only group who did not report experiencing any level of reduced confidence in communicating with others.

Table 1
Respondent Demographics.

Variable (n = 78)	Total	Nursing, n = 38	Medical, n = 17	Allied Health, n = 23
Gender				
Female	53 (68)	27	6	20
Male	23 (29)	10	11	2
Prefer not to say	2 (3)	1	0	1
Mean age (years) (SD)	38.8 (11.85)			
Australian State and Territories				
New South Wales	69 (89)	38	16	15
Queensland	2 (3)	0	1	1
Northern Territory	6 (8)	0	0	6
Tasmania	1 (1)	0	0	1
Mean years working in ED (SD)	8.8 (9.5)	8.66 (8.80)	14.1 (12.1)	5.03 (6.36)
How often are you interacting with patients				
Some of the time	5 (6)	2	-	3
Regularly	19 (24)	9	1	9
All of the time	54 (69)	27	16	11
PPE worn during communication interactions				
Masks (n = 77)*				
All the time	68 (87)	33	15	20
Most of the time	6 (8)	4	1	1
Some of the time	3 (4)	0	1	2
Goggles (n = 77)				
All the time	7 (9)	3	2	2
Most of the time	6 (8)	4	0	2
Some of the time	52 (67)	26	11	15
None of the time	12 (15)	4	4	4
Face shields(n = 77)				
All the time	1 (1)	0	1	0
Most of the time	-	-	-	-
Some of the time	42 (54)	18	9	15
None of the time	34 (44)	19	7	8
Training received in optimizing communication in the Emergency Department? (n = 60)**				
Yes	1 (2)	-	-	1 (2)
No	59 (98)	25	15	19

ED = Emergency Department, PPE = Personal protective equipment
* Nursing n = 37, Medical n = 17, Allied Health n = 23;
** Nursing n = 25, Medical n = 15, Allied Health n = 20

Respondents described greater impacts on patient/family interactions (81 %) as compared to staff interactions (61 %) (Table 2). Most respondents (n = 51/70, 73 %) rated communication with patients and family as 'somewhat difficult' or 'difficult', and only 7 % (n = 5) rated this task as 'easy' (Fig. 1). Respondents (n = 58, 83 %) also reported increased communication difficulties with patients of older age, from culturally and linguistically diverse backgrounds, or with hearing, language, or cognitive impairments.

Respondents reported that while wearing PPE, some effects on specific care processes occurred. Specifically, more than 50 % of respondents reported effects on perceived patient satisfaction, time-critical events, quality of patient care, and patient consent to treatment. However, the majority did not report that mask-wearing communication impacted the processes of transfer to another ward or length of stay (Table 2). Many respondents described using a range of communication strategies to optimise their communication interactions with patients; most frequently reporting increasing voice volume, repeating messages, using gestures, increasing proximity, and emphasising facial movements (Table 3).

Of the 59 respondents who contributed data on health impacts, 49 % (n = 29) reported physical health impacts from communicating in PPE which included dry throat/dehydration, voice fatigue, facial discomfort, skin irritation, headaches, and cough. Proportionally across professional groups, nursing staff reported the most physical impacts from PPE use at 63 % (n = 15). However, any differences across participant groups were not significant (p = 0.206).

Table 2
Communication impacts.

Variable, (n = 70)	Yes n (%)	No, n (%)	I don't know n(%)
Does communicating in PPE impact on communicating with other staff?	43 (61)	22 (32)	5 (7)
Does communicating in PPE impact on communicating with patients/family members	57 (81)	9 (13)	4 (6)
Care impacts in the Emergency Department			
Patient satisfaction	41 (62)	14 (21)	11 (17)
Time critical events	40 (61)	20 (30)	6 (9)
Patient care quality	35 (53)	27 (41)	4 (6)
Patient consent to treatment	34 (52)	25 (38)	7 (11)
Patient safety	31 (47)	28 (42)	7 (11)
Handover	23 (44)	31 (47)	6 (9)
Patient time to diagnosis (including discussion of tests)	27 (41)	31 (47)	8 (12)
Transfer to another ward	17 (26)	36 (55)	13 (20)
Length of stay	13 (20)	36 (55)	17(26)

PPE = Personal protective equipment.

Content thematic analysis of written comments: communication outcomes

Across the 22 open questions, written responses formed three content thematic categories (i) impacts of mask-wearing on communication; (ii) impacts of mask-wearing on patient care; and (iii) strategies for communication breakdown while mask-wearing.

Impacts of mask-wearing on communication. Survey respondents reported communication difficulties while wearing masks and other PPE. Specifically, responses reflected challenges for both receiving and understanding messages (i.e., comprehension of speech) and expressive communication (i.e., speaking), and with all communication partners. Impacts were described as loss of message: "*sometimes [it] is difficult to hear and understand other staff especially when speaking from a distance*" (P18); and loss of quality of the acoustic signal or sound of speech "*as [it] is muffled in a mask*" (P63). Respondents described specific impacts on their communication attempts, such as "*I find myself having to shout to be heard. ED has a lot of background noise and if I can't see the lips of the other person, it makes things harder*" (P21).

Some respondents noted that the content of the spoken message was decipherable, but there was loss in other aspects of communication such as when "*attempting to communicate humour or irony [I was] unable to get meaning across*" (P5). This also extended to the tone of voice, as "*it can be difficult to understand tone and without facial expression, I have misunderstood how people have communicated with me*" (P36). For some respondents, loss of meaning was related to some loss of non-verbal communication - including facial expressions and visual cues - that staff usually relied on for enhanced meaning within a conversation: "*sometimes I don't get what the consultant conveys properly as I cannot see the lips and I cannot see the facial expressions*" (P72). Increased difficulty was also reported with communication over the phone. As explained: "*Phone handover is affected if both the caller and receiver are wearing masks, where phone communication is already hindered by lack of body language, it's now more difficult to enunciate and hear correctly*" (P52).

Beyond the spoken content of messages, respondents' comments reflected that mask-wearing communication impacted rapport and

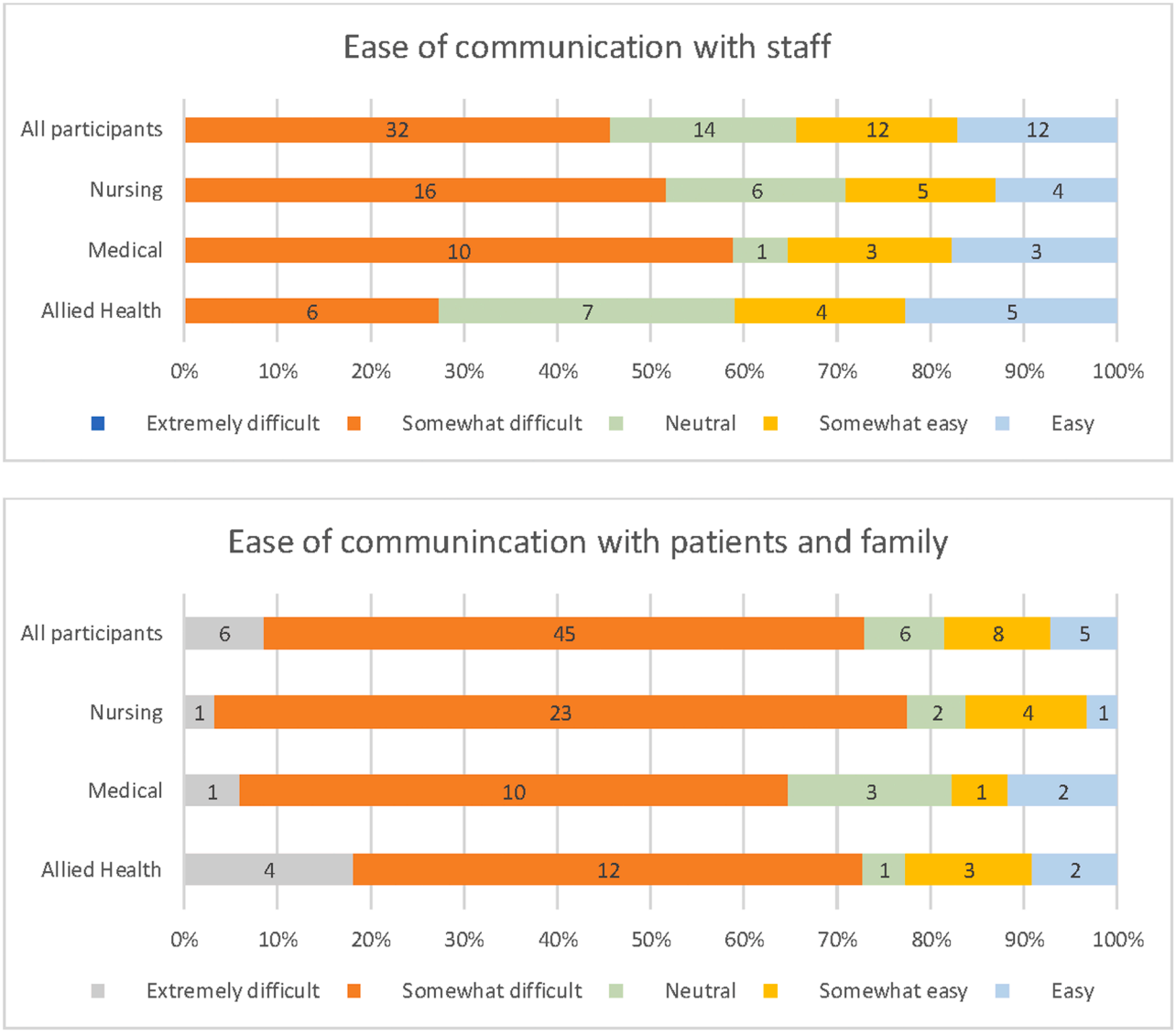

Fig. 1. Ease of communicating in a mask, n = 70.

Table 3
Communication strategies.

Variable n (%) N = 60	Never n (%)	Rarely n (%)	Sometimes n (%)	Often n (%)	All the time n (%)
Talking more loudly	1 (2)	3 (5)	7 (12)	28 (47)	21 (35)
Repeating myself	-	1 (2)	8 (13)	32 (53)	19 (32)
Gestures/miming action	-	1 (2)	14 (23)	34 (57)	11 (18)
Proximity	5 (8)	3 (5)	17 (28)	26 (43)	9 (15)
Emphasising facial movements	6 (10)	7 (12)	10 (17)	25 (42)	12 (14)
Eye pointing	7 (12)	16 (27)	17 (28)	16 (27)	4 (7)
Drawing	12 (20)	24 (40)	11 (18)	10(17)	3 (5)
Touch	5 (8)	6 (10)	29 (48)	17(28)	3 (5)
Using pen and paper	6 (10)	14 (23)	22 (37)	16 (27)	2 (3)
Changing the environment	8 (13)	17 (28)	26 (43)	7 (12)	2 (3)
Using an App	28 (47)	9 (15)	18 (30)	3 (5)	2 (3)
Using a voice amplifier	51 (85)	6 (10)	3 (5)	-	-

emotional well-being across the healthcare team. As P42 described: "[I] *gave handover very clearly and directly but left the situation feeling like I didn't build good rapport*". Such adversely impacted communication resulted in negative emotions and workplace conflict, as P37 explained: "I *was attempting to have a clinical conversation with [redacted] who became frustrated with not being able to hear what I was saying*". For many respondents, both the understanding and expression of communication took increased time due to PPE, as P56 highlighted: "*handover to other staff was prolonged due to needing to speak slower and louder to ensure correct information* [was] *received*". Also, this increased the time staff needed for communication exchanges and evoked further deleterious emotions in both staff and patients, as P41 wrote

> *It increases the time of an interaction as explanations are challenging and often need to be repeated to ensure understanding. When you have to do this with every interaction with the patients, families and MDT it slows the process significantly and increases everyone's frustration.*

Impacts of mask-wearing on patient care. Many respondents reported communicating in PPE impacted both processes and approaches to patient care. The most frequently reported impact was on the time it takes to communicate, as "*it makes communicating much more difficult but not*

impossible, but it does require more time" (P18). The need to repeat messages was commonly reported with ongoing communication breakdowns as "*miscommunication leads to not being able to fully obtain all symptoms" (*P34). This particularly impacted "*patient admission medication history and patient discharge medication counselling"* (P56) and obtaining consent in time-pressured situations.

Respondents acknowledged the use of PPE being important for staff safety but reported communication in PPE impacted the development of rapport and therapeutic alliance between staff and patients. P44 wrote "*masks create an additional barrier between patient and clinician, resulting in fear, discomfort, and therefore less comprehension and less information given by the team. People need to feel comfortable in order to ask questions and take a bigger part in their own healthcare"*. Wearing PPE also impacted on the staff's ability to convey or express empathy in difficult and stressful situations such as end of life care, as P65 explained: "it was *very difficult to comfort and talk to the patient and their family when wearing N95 and face shield"*.

Strategies for communication breakdown while mask-wearing. Respondents reported needing to use various strategies to optimise communication; including both individual actions and environmental adaptations. Individual communicative actions used to adapt included the use of multiple communication modes including use of "*gestures, repeating myself, slowing down my communication, speaking louder and moving closer" (P81), "more physical touch" (*P65) and "*use [of] writing, interpreters and pointing"* (P10). Respondents described attempting to maximise communication with use their eyes, with P32 writing: "*I try harder to smile with my eyes so patients can see"*. Over half of the respondents described 'sometimes' to 'always' adapting their external environment to optimise communication, adaptations included "*being closer to who you are speaking with*" (P52) and making attempts to "*reduce background noise or go to a quieter location" (P25)*. Some respondents reported that while strategies mitigated some episodes of communication breakdown, they also described "*removing [the] mask if other strategies haven't worked (P31)* as *I have had to pull down the mask if it is in the best interest of the patient"* (P58). Respondents acknowledged managing the risk to their health and safety when pulling down a mask considering "*if the patient has negative respiratory swabs*" (P62) or "*if nil signs of flu/COVID symptoms and stand back from the family/patient"* (P15) but reporting mask removal was necessary at times as "*Communication is everything*" (P20).

Discussion

The findings of this study reflect the views of ED nursing, medical, and allied health staff on key aspects, frequency and impacts on communication experienced while wearing PPE. Communication breakdowns occurred across both receptive and expressive communication domains for both verbal and non-verbal modalities. These communication challenges related to wearing PPE reportedly negatively affected the processes of time-sensitive clinical assessment and management of patients with potentially life-threatening conditions.

Effective team communication is vital to provide life-saving care to vulnerable patients. Results of this study suggest that communicating in PPE impacted the success of the first intended message across team members with loss of clarity due to muffling of vocal sound, loss of vocal tone, and obscuring of non-verbal expression particularly when conveying empathy. Aengst, Walker-Stevensonet al. [19] reported similar negative impacts on delivery of healthcare, in the wearing of PPE negatively impacting communication processes. Our results also support the finding of Yanez Benitez [20] that the use of PPE, particularly items used for droplet precautions, impedes effective patient-provider and team communication due to decreased voice volume and muffling of the voice.

Healthcare staff performing procedures in a range of hospital settings have previously reported a range of negative impacts on patient safety due to difficulties with communication and visibility whilst wearing PPE [20,21]. Further, nursing staff and caregivers of children report that the use of PPE impacts on the development of an effective patient-provider relationship, exchanging information, and providing compassionate care [22]. Our findings highlighted that communication breakdowns in ED were perceived as being greater for patients with hearing loss, of older age, from culturally and linguistically diverse backgrounds, or having speech or language impairments. This is an important finding, given the increased rates of ED re-presentations for older people, from culturally or linguistically diverse communities, or having communication disability [6] or hearing impairment.

Beyond direct patient care, effective staff-staff communication is essential for building and maintaining strong interprofessional team relationships. Our findings suggest that communicating in PPE did at times, deleteriously affect staff relationships and rapport. These findings are supported by Hayirli, Starket al. [10] who explored the impact of PPE on team relationships within the ED. Their 55 study participants, including nursing, medical and allied health staff reported direct negative impacts on communication, including problems with information exchange, disruption to staff roles/tasks, and lack of collegiality and rapport across the team. Additionally, the negative impacts of prolonged wearing of PPE on the health and well-being of healthcare workers included pressure injuries, dermatitis, and headaches [23].

Mitigating the spread of infection using PPE is essential in the ED for the health and wellbeing of clinicians and patients alike [24]. However as highlighted by our findings, communication with PPE requires skilful adaptation by clinicians to maximise communication. Whilst ED staff in this study recognised the need and use of PPE equipment, they also decided to remove their masks when facing difficulty communicating in a time-pressured environment particularly when people experienced life-threatening and/or stressful conditions. Ultimately, this means that ED staff may decide 'on balance' towards prioritising effective and timely communication and the delivery of care to enable patient safety, over risk reduction for infection control [8].

Enhancing communication skills for all staff and at all organisational levels is key to enhancing performance within the ED [25]. The results of this study suggest that ED staff rarely complete communication training programs, even though such training offers an opportunity to enhance healthcare professionals' communication skills while wearing PPE [26]. Ponraj, Clayton et al. [11] reported outcomes of a tailored multimodal communication training program designed for hospital staff to enhance communication in PPE. The training, developed and delivered by speech pathologists, included strategies for clear speech, multimodal communication techniques, and active script practice (i.e., a framework of structured phrases). Anecdotally, the training evaluations reflected positive short-term and sustained outcomes; specifically in the use of communication skills, reduced communication breakdown, and greater use of multimodal communication. These outcomes, combined with the findings of the current study, present further opportunities for the future co-design of communication training in the emergency context for interprofessional ED teams.

Limitations and directions for future research

Although this study included staff across multiple disciplines in the ED there are some important limitations. The relatively small sample size and attention to the collective patient cohort, rather than according to patient sub-groups (e.g., older patients, culturally and linguistically diverse patients, patients with communication disability) offers only general insights into communicatively vulnerable populations. Further research is needed to explore the relationship between communication breakdowns and subsequent healthcare outcomes for diverse populations. A larger number of participants and use of qualitative or mixed-methods designs could verify and expand upon this study's findings [27]. It is also important to obtain the views of patients and family

members in the ED about their experiences of communicating while wearing PPE to identify any additional strategies undertaken by staff that might influence overall communication success. Continued research and development of transparent masks should be pursued in an effort to ease communication while mask-wearing is required. Given growth in the areas of virtual and augmented reality being used to simulate conversational interactions [28], virtual and augmented reality environments could provide additional ways to train staff in responding to mask-wearing communication conditions authentic to ED contexts.

Conclusion

ED staff report that wearing PPE in interactions impacts negatively on communication and care processes, rapport, and relationships. PPE wearing reportedly adversely impacted both comprehension and expression of messages, and audibility and intelligibility of the intended message. Lack of timely and effective communication also deleteriously affected patient assessment and management. Nonetheless, staff persisting with PPE wearing described using a range of strategies to mitigate these problems to reduce adverse impacts on patients or procedures including assessment and management. The findings can be used to inform ED staff training in ways to support communication while wearing PPE in the ED.

Funding

Seed Funding was received from The Graduate School of Health, Faculty of Health, University of Technology Sydney.

Declaration of Competing Interest

Professor Margaret Fry is a former Senior Editor of Australasian Emergency Care but had no role to play whatsoever in the peer review or editorial decision-making of this manuscript. The other authors declare no interests.

Acknowledgements

Thanks to Sharon Taylor, Emma Jenkins and Saartje Berendsen Russell for pilot testing the survey.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.auec.2024.12.002.

References

[1] Australian Institute of Health and Welfare. Emergency department care, 2023 [Available from: ⟨https://www.aihw.gov.au/reports-data/myhospitals/sectors/emergency-department-care⟩.
[2] Hemsley B, Balandin S, Worrall L. Nursing the patient with complex communication needs: time as a barrier and a facilitator to successful communication in hospital. J Adv Nurs 2012;68(1):116–26.
[3] Hemsley B, Balandin S, Worrall L. Nursing the patient with developmental disability in hospital: roles of paid carers. Qual Health Res 2011;21(12):1632–42.
[4] Varndell W, Hodge A, Fry M. Triage in Australian emergency departments: Results of a New South Wales survey. Austral Emerg Care 2019;22(2):81–6.
[5] Curran JA, Gallant AJ, Zemek R, Newton AS, Jabbour M, Chorney J, et al. Discharge communication practices in pediatric emergency care: a systematic review and narrative synthesis. Syst Rev 2019;8(1):83.
[6] Dinh MM, Berendsen Russell S, Bein KJ, Chalkley D, Muscatello D, Paoloni R, et al. Trends and characteristics of short-term and frequent representations to emergency departments: A population-based study from New South Wales, Australia. Emerg Med Austral 2016;28(3):307–12.
[7] Flacks N, Martin C, Liew D, Walker K, Jones D. Infectious and sepsis presentations to, and hospital admissions from emergency departments in Victoria, Australia. Emerg Med Austral 2024;36(3):450–8.
[8] Hor SY, Wyer M, Barratt R, Turnbull M, Rogers K, Murphy M, et al. Risk assessment and the use of personal protective equipment in an emergency department: Differing perspectives of emergency and infection control clinicians. A video-vignette survey. Am J Infect Control 2024;52(10):1114–21.
[9] Dempster P, Hutchinson A, Oldland E, Bouchoucha SL. Australian emergency nurses' experiences of working with personal protective equipment during the COVID-19 pandemic. A qualitative study. Austral Emerg Care 2024;27(1):63–70.
[10] Hayirli TC, Stark N, Bhanja A, Hardy J, Peabody CR, Kerrissey MJ. Masked and distanced: a qualitative study of how personal protective equipment and distancing affect teamwork in emergency care. Int J Qual Health Care 2021;33(2).
[11] Ponraj RA, Clayton NA, Ryan H. Masked communication: impact of a purpose-built communication training program to enhance communication effectiveness. J Clin Pract Speech-Lang Pathol 2024;25(1):3–11.
[12] Rahne T, Frohlich L, Plontke S, Wagner L. Influence of surgical and N95 face masks on speech perception and listening effort in noise. PLoS One 2021;16(7):e0253874.
[13] Clay P, Broomfield K. Masking care: A qualitative investigation of the impact of face masks on the experience of stroke rehabilitation from the perspective of staff and service users with communication difficulties. Int J Lang Commun Disord 2022;57(4):749–63.
[14] Adams C, Walsan R, McDonnell R, Schembri A. As loud as a construction site: Noise levels in the emergency department. Austral Emerg Care 2024;27(1):26–9.
[15] Sharma A, Minh Duc NT, Luu Lam Thang T, Nam NH, Ng SJ, Abbas KS, et al. A consensus-based checklist for reporting of survey studies (CROSS). J Gen Intern Med 2021;36(10):3179–87.
[16] Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap)–a metadata-driven methodology and workflow process for providing translational research informatics support. J Biomed Inf 2009;42(2):377–81.
[17] Stata Statistical Software: Release 18 [Internet]. College Station, TX: StataCorp LLC, 2023.
[18] QSR International Pty Ltd. NVivo qualitative data analysis. 14 ed2023.
[19] Aengst J, Walker-Stevenson G, Harrod T, Ivankovic J, Neilson J, Guise JM. Uncomfortable yet necessary: The impact of PPE on communication in emergency medicine. Int J Qual Health Care 2022;34(4).
[20] Yanez Benitez C, Guemes A, Aranda J, Ribeiro M, Ottolino P, Di Saverio S, et al. Impact of Personal Protective Equipment on Surgical Performance During the COVID-19 Pandemic. World J Surg 2020;44(9):2842–7.
[21] Kumar P, Jain M, Amirthavaali G, Mishra TS, Sasmal PK, Lubaib KP, et al. Impact of personal protective equipment on patient safety and health care workers. Med J Armed Forces India 2023;79(5):531–8.
[22] Ferrari G, Dobrina R, Buchini S, Rudan I, Schreiber S, Bicego L. The impact of personal protective equipment and social distancing on communication and relation between nurses, caregivers and children: a descriptive qualitative study in a maternal and child health hospital. J Clin Nurs 2021.
[23] Galanis P, Vraka I, Fragkou D, Bilali A, Kaitelidou D. Impact of personal protective equipment use on health care workers' physical health during the COVID-19 pandemic: A systematic review and meta-analysis. Am J Infect Control 2021;49(10):1305–15.
[24] Verbeek JH, Rajamaki B, Ijaz S, Sauni R, Toomey E, Blackwood B, et al. Personal protective equipment for preventing highly infectious diseases due to exposure to contaminated body fluids in healthcare staff. Cochrane Database Syst Rev 2020;5(5):CD011621.
[25] Austin EE, Blakely B, Tufanaru C, Selwood A, Braithwaite J, Clay-Williams R. Strategies to measure and improve emergency department performance: a scoping review. Scand J Trauma Resusc Emerg Med 2020;28(1):55.
[26] Yuksel C, Unver V. Use of simulated patient method to teach communication with deaf patients in the emergency department. Clin Simul Nurs 2016;12(7):281–9.
[27] Thorne S, Kirkham SR, O'Flynn-Magee K. The analytic challenge in interpretive description. Int J Qual Methods 2004;3(1):1–11.
[28] Aliwi I, Schot V, Carrabba M, Duong P, Shievano S, Caputo M, et al. The role of immersive virtual reality and augmented reality in medical communication: a scoping review. J Patient Exp 2023;10. :23743735231171562.