**Communication in medical emergencies - a matter of life and death.**

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**Introduction**

“To err is human” - Alexander Pope (1688-1744)

Human error is defined by the Institute of Medicine (IOM) as ‘either a failure of a planned action to be completed as intended or the use of the wrong plan to achieve an aim’.¹ Human error is inevitable and everybody makes mistakes. This has been cited as a primary cause or a contributing factor in disasters and accidents in industries as diverse as nuclear power. The evaluation of a series of aircraft accidents has led to the start of formal training in human factors through their Crew Resource Management (CRM) program in the aviation industry.² Human error has been documented as the primary contributory factor in more than 70% of all major commercial airplane accidents. The majority of these accidents were due to communication failures.³ Communication failures are the leading cause of inadvertent patient harm. Evaluation of incidents received by the Joint Commission for Hospital Accreditation (JCAHO, 2008) has identified communication failures were associated with more than 70% of cases.⁴ Communication is the transfer of information, ideas, or feelings.⁵ Proper communication provides knowledge, establishes and maintains good relationships, improves awareness, minimises conflicts, and is vital for leadership and team coordination. Every aspect of patient management requires effective
communication between individuals, teams, and the organization. So, it is no wonder that failure in communication is associated with the majority of human errors causing critical events. Every member of the team should be excelled in good communication techniques to prevent such mishaps.

**Delivery and receiving information.**

**Thinking and Preparation**

Transmission of information in a complex and dynamic environment is challenging. It is highly likely that even an experienced clinician may not be able to do it effectively. Having a clear idea of the information you are transmitting will help you in presenting a well-structured message. Making a note of relevant information according to a structured format, prior to making a call, is helpful in delivering the relevant information within a short period.

The most widely used structured format is Situation, Background, Assessment, and Recommendation (SBAR) was initially developed by the U.S. Navy nuclear submarine industry and later on was incorporated into the clinical practice.³ ‘Introduction’ can be added to the beginning to—introduce both parties before delivering the message. (ISBAR). The AT-MIST (Age, Time of injury, Mechanism, Injuries, Symptoms and signs, Treatment) and AMPLE (Allergies, Medications, Past medical history, Last meal, Events leading to the presentation) are commonly used by the UK ambulance services during their pre-alert calls and handovers, especially in acute trauma.

A clinical example –

**Identify who you are and whom you are speaking to.** (“Hi! I’m Dr. Susan, the Surgical registrar, am I calling Dr. Brown, the consultant surgeon?”)

**Situation in brief** (“I am calling about a bleeding polytrauma patient in the A/E”)

**Background/ Past medical history?** What happened up to now (“he is a 25-year-old gentleman with no significant past medical history. This has happened half an hour ago”)
Assessment- Findings on assessment and what intervention has already been done? (“He is conscious and airway is patent, and no obvious chest injury. He is pale and tachycardic, and his blood pressure is 70/40mmHg. Abdomen distended, and FAST is positive. He has a 17G cannula, and the second pint of normal saline is running fast. MTP is activated”)

Recommendation – What do you suggest or what should you do? (“Shall I take him to the theatre?)

Listening

In any communication, listening is equally important as talking. Listening is an essential component in two-way communication such as face–to–face or telephone conversations. Supporting conversation, showing that you are engaged and willing to listen more, and giving full attention to what the person is saying enable a complete message to be delivered effectively. We also can ask some questions if any clarification is necessary.

Speaking (Specific/directed/acknowledged)

Specific- Messages should be clear, precise (accurate) and concise (brief but comprehensive). All messages should be delivered using good voice projection at a normal pace. Use numbers rather than non-specific descriptions. For example, “His blood pressure is eighty by forty” instead of “His blood pressure is low” gives the exact values and the interpretation is easy to make clear decisions. The vocabulary (words and mnemonics) should be in “common language”, where everyone in the team should be able to understand them. For example, “George, the pneumothorax is on the left side. Right? I want you to do the finger thoracostomy”. The word “right” should only be used to indicate the side (left or right), but not to indicate whether it is “ok” or “correct”. In this example, the receiver may get confused about the side of the pneumothorax. If your message is about the administration of a medicine, the “five rights” convention (patient, drug, time, dose, and
route) should be followed. For example, “Smith, please give adrenaline one in thousand, point five ml IM immediately to Mr. John”. Using mitigating language may also make the message less specific and might result in confusion and not achieving it. For example, “Would you be able to intubate this patient?” vs “Please intubate”.

**Directed** - Use individual names to direct the message to a specific person. For example, “Can someone call the blood bank and activate the massive transfusion protocol?” vs “Vicky, (staring at Vicky) please call the blood bank and activate massive transfusion protocol”.

**Acknowledged** - Delivery of the message may not be adequately received and apprehended in most circumstances. Even if it is received adequately, sometimes the intended task may not be carried out due to various reasons. Once the message is delivered, repeating the content by the receiver (read-back) may allow both parties to confirm that the information is received correctly. When the task is completed by the receiving party, it can also be communicated back to the team or team leader (closed-loop communication). This tool of communication assists us in minimising errors in critical environments.

A clinical example -

George- “Smith, give Tranexamic acid 1g intravenous over 10 minutes.”

Smith- “Do you want me to give IV tranexamic acid 1g over 10min?”

George- “Yes, please”.

Smith- “I just started giving Tranexamic acid 1g slow injection”.

**Non-verbal communication**

Non-verbal communication is an effective and acceptable way of communication if appropriately used in emergencies. Use of body language, facial expressions, eye contact, body movements, gestures, and postures can be used to deliver some information in crises. For example, Hand gestures to say “stop” or ‘Start” and head nodding to say, “yes or ok”.
**Assertiveness**

Assertiveness is the ‘quality of being confident and not frightened to say what you want or believe without being aggressive’. Lack of assertiveness has led to numerous disasters and critical events including the world’s worst airplane accident in aviation history and the Ms. Elaine Bromiley case in medicine. The ability to escalate your concern appropriately without any reluctance improves patient safety, especially in hierarchical structures where the team is comprised of more senior and junior members. We should empower the junior staff by providing them with training in assertion techniques and minimising the hierarchical structure. The team leader should specifically make sure that the environment is safe and ‘friendly’ for the other members to speak up if there is any concern. This can be facilitated by frequently asking for their opinion or concerns whenever a decision is made. This kind of non-hierarchical structure, allows even a junior nurse to raise her/his voice, if ‘something is not right’. Certain tools have been developed to escalate the concern if the authoritarian leader does not respond appropriately. The CUS (Concern, Uncomfortable, Unsafe) tool was initially developed by United Airlines and now it is frequently being used in medicine.

A clinical example

C - “his saturation is dropping. I’m concerned about it”.

U- “his airway doesn’t look patent, and he has obstructed breathing. I am uncomfortable with the situation”.

S- “I think, He’ll go into cardiac arrest. This is unsafe. He needs immediate intubation”

S- “Please stop and listen to me. I’m going to inform the consultant”.

Another aviation-based tool is PACE (Probe or observation, Alert, Challenge, Emergency). It follows a similar structure as in CUSS. **Shared mental model (having a similar situational awareness).** Communication improves the situational awareness among team members.
Team leaders should always try and make sure that the team is aware of what has already been done, what is the current status and what is going to happen. This can be achieved by various techniques.

**Pre-briefing or briefing**

Discussing the patient’s condition based on the information received through the alert call and planning the immediate management before the arrival of the patient, spending a few minutes prior to the start of the shift or before patient arrival, gives the team the sense of near-field situational awareness. It in turn reduces anxiety, gives an opportunity to add inputs, and finally improves performance. WHO surgical safety checklist is another form of well-accepted briefing tool used before a surgical procedure.

Holding intermittent briefs ("time-outs") during patient management helps improve situational awareness and shared mental model. Usually, the team leader pauses and updates the condition and plans the management with the team. Advanced Trauma Life Support (ATLS) recommends time-outs in 2, 5, and 10 minutes into the patient management.² Verbalising what is going through the team leader’s mind (‘thinking loud’) when he analyses and makes decisions, also improves awareness.

Proper handovers (handoffs) to the other teams will also enhance the shared mental model.³,⁴,⁵,⁸ Debriefing is usually performed immediately or as soon as possible after the patient management is over (when the events are fresh) to reflect on the performance.³ This is a very good opportunity for the team to evaluate their management and learn from the experience. Then the team can discuss the strategies to overcome the problems next time.

**Identifying barriers to communication**

Communication is not complete unless you recognize barriers and overcome them appropriately.
“Lack of communication” or “failure to communicate” is recognized as one of the most significant barriers. The main reason for this is the ‘psychologically unsafe’ environment that is partly discussed under assertiveness. This prevents the members from “speak up” behaviour. If the team member had previous experience of being ignored, humiliated, confronted, intimidated, or any other bad consequence by speaking up, there is a higher chance of being quiet next time. Sometimes, team members do not speak up for fear of being wrong, being not prepared, or being perceived as incompetent. In certain circumstances, junior or less experienced members might think that encroaching into someone’s area of expertise should not be done. Trainees under the direct supervision of a senior member, may feel that speaking up might introduce confrontation which might badly affect their assessment. Strategies to improve speak-up behaviour are to create an environment where these barriers are minimal and empower the team members to raise their concerns without being afraid of the consequences (CUS tool). Sometimes, certain organizational failures (system failure) such as the non-availability of necessary channels for communication, nonfunctioning of existing channels or not using them (Trauma alert call/crash call facility) may be accountable for the lack of communication.

Limitations in the cognitive function of an individual will affect the acquisition, manipulation, and reasoning of data which in turn can adversely affect effective communication. Human cognition is highly vulnerable to being influenced by interruptions and distractions such as background noises, human traffic, sudden changes in the situation, cross-talking, use of smartphones, and unnecessary interruption to a conversational flow. Hunger, dehydration, lack of sleep, and fatigue may also increase the risk of cognitive dysfunction. “Sterile cockpit rule”, used in flight operations where all non-essential
activities are stopped during critical phases of flying (Taxing, take off, landing, and any other operations conducted below 10000 feet) has been successfully incorporated in medicine in which only essential activities are performed during certain critical phases of patient management (handovers, induction and recovery from anaesthesia, complex surgery). Another example of this is the ‘hands off, eyes on’ rule for 60 seconds to facilitate the handover of patients from the ambulance crew on arrival to the emergency department.

Language (linguistic) barriers are very common. Communication style, whether it is submissive (trying to please the other party to avoid conflicts) or aggressive (expressing the message with a demanding, commanding, authoritative, or blaming nature) can influence effective communication. Tone (variations in amplitude), and tempo (speed of flow) can also affect communication to a varying degree. Non-standard or less familiar words should not be used. Certain specialties may not understand some words commonly used in another (‘for the induction, I used fentanyl’). Sometimes words with similar sounds (‘abduct vs adduct’, ‘decrease vs increase’) may confuse the receiver. The best strategy to overcome most of the linguistic barriers is to use the “read back” and closed-loop communication as discussed above.

Physical barriers such as PPE, face masks, screens, distance, and wearing protective glasses directly affect non-verbal and verbal communication. Hearing impairment, signal interruptions and problems in understanding the language are obvious reasons for communication failures.

Summary

Communication failures are extremely common and are associated with inadvertent patient harm including mortality. Care during emergencies is highly complex and when this is coupled with inherent human performance limitations, even a highly experienced clinician can make serious mistakes. Adequate
knowledge of frequent communication errors, identification of barriers to effective communication, and application of different strategies and tools will greatly enhance team performance and reduce morbidity and mortality.

References
7. Advance Trauma Life Support, Student Course Manual. 10th edition; American College of Surgeons.