Standardizing Cardiopulmonary Bypass Communication: A Call for Structured Verbiage and Environmental Awareness in Cardiac Surgery

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To the Editor

Cardiac surgery continues to represent one of the most complex and high-risk domains within modern medicine, where procedural success is closely linked not only to technical expertise but also to seamless team communication. In such an environment, standardized instructions and clinical verbiage are crucial components of safe and effective surgical practice.[1]

Although open communication free from hierarchical barriers has been widely emphasized, its consistent implementation remains crucial in cardiac operating rooms, where effective team dialogue is essential for ensuring patient safety and optimizing clinical outcomes.[2]

In addition to communication challenges, environmental factors within the operating room can significantly impact intraoperative safety and team performance. Distractions such as non-essential personnel (e.g., trainees, visiting observers, or nurses undergoing orientation), background conversations, and unnecessary movement contribute to cognitive overload and decreased focus during critical phases of cardiopulmonary bypass. Ambient noise, including door movements, music, and overlapping discussions, further disrupts auditory clarity. The physical layout of the operating room also plays a role; for instance, whether the surgeon faces or turns away from the perfusionist and heart-lung machine (HLM) can influence communication flow. Moreover, the expectation for extensive perfusion data entry during Cardiopulmonary Bypas (CPB) can divert attention from real-time patient monitoring. The inappropriate use of mobile devices by team members can introduce further distraction and delay. Addressing these modifiable factors through ergonomic adjustments, staff orientation protocols, and workflow simplification can complement verbal standardization efforts and enhance overall surgical safety.[3,4]

The absence of standardized, universally understood commands can potentially lead to variability in the task carried out, delays, and unintended adverse outcomes.[5] Inconsistencies in how phrases are interpreted, especially in multicultural and multidisciplinary teams, can introduce significant safety hazards. A specific word could trigger multiple actions increasing risk. Every stage of the cardiopulmonary bypass process is critical and requires precise, unambiguous communication. Commands such as “flow down” and “flow up,” if misheard or misunderstood, can lead to inappropriate actions with direct patient consequences. These communication risks are especially significant during high-acuity situations such as deep hypothermic circulatory arrest and the delivery of selective antegrade and retrograde cerebral perfusion, where timely and accurate information exchange is essential.[3,6]

The introduction of standardized verbiage will ensure specific commands have consistent interpretations and trigger predefined, rehearsed actions. Providing clarity and having close loop communication is key to having good communication. The standardization will offer benefits in education, simulation training, electronic documentation, and in practical tasks such as CPB. This also support new staff integration and enable more accurate analysis of intraoperative workflow and outcomes. [4,5,7]

Leading professional societies such as the STS, AmSECT and EACTS are well positioned to spearhead the development of standardized terminologies and best-practice guidelines, enabling broader adoption and global benchmarking for complex cardiac procedures.

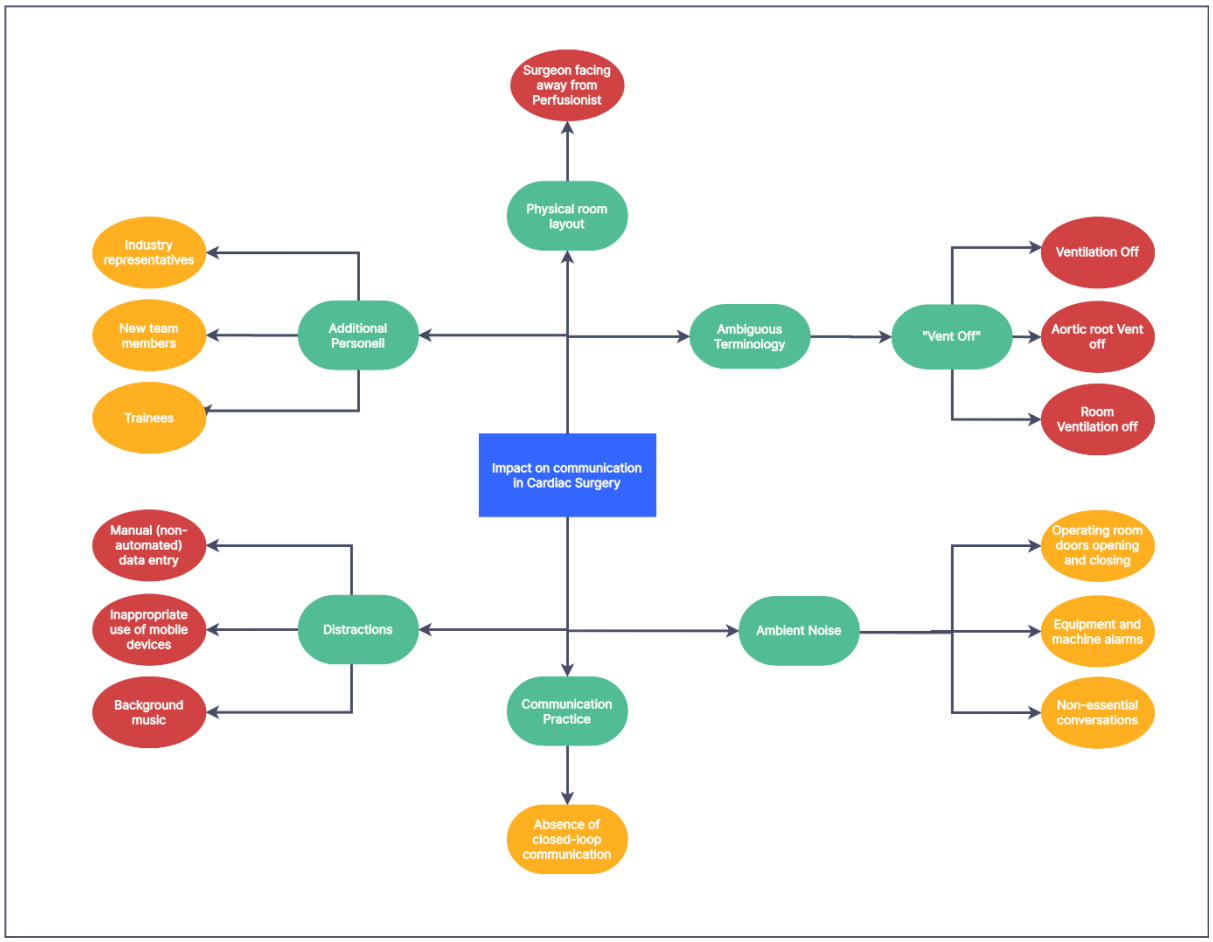

Figure 1

Flowchart summarizing key factors that impact communication in cardiac surgery. The elements illustrate how environmental, human, and linguistic factors combine to challenge effective communication in the cardiac operating room.

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