

In hospital emergency department, teams with disconnected roles found to be less effective

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Reliance on pre-defined roles (e.g., a nurse and physician in medicine) has long been a cornerstone of coordination in organizations, providing

clarity to team members about what they and their teammates are expected to know and do. However, the rise of fluid participation—frequent changes to team membership and the composition of available skills—poses new challenges to such traditional coordination mechanisms.

Membership changes can leave teams with more-disconnected or more-intersecting roles—that is, a set of roles with more distinct or more overlapping capabilities, respectively. In a new study of hundreds of teams from a U.S. hospital emergency department (ED), researchers investigated the possibility that experiencing disconnected team roles hinders the flexible coordination needed to perform in what is the volatile context of an ED. The study found that teams with disconnected roles are less effective (i.e., provided less efficient care) than teams with intersecting roles.

The study is [published](#) in *Frontiers in Psychology* in a special issue focused on the tradition of the Carnegie School. It was conducted by researchers at Carnegie Mellon University, the Brazilian School of Public and Business Administration, Waseda University, and Nanyang Technological University; all but one co-author have ties to Carnegie Mellon University, working and/or having trained there.

"In order to adapt to volatile environments, many organizations began to organize work into teams in the 1980s to help the organization to quickly respond to shifting demands," explains Anna Mayo, assistant professor of organizational behavior at Carnegie Mellon's Heinz College, who coauthored the study.

"Increasingly, though, organizational teams have become less stable than those of the past. In part due to increasing specialization and advances in technology, team membership is now commonly in flux as experts come and go and people juggle work on multiple teams at once. This makes it

difficult to coordinate as the boundaries around who is 'in' the team and workflows become dynamic and harder to identify."

In this study, researchers examined data from nearly 350 teams working in 2011 in a 12-bed hospital ED in a medium-sized suburban hospital in the United States. The data combined hospital scheduling records, patient health records, and surveys completed by attending physicians.

Researchers analyzed two kinds of teams: The more-connected role sets included an attending physician, a nurse practitioner, and an average of seven nurses. Teams with a less-connected role set lacked the nurse practitioner role, which has capabilities overlapping both with nurses and physicians, and this absence was theorized to reduce the level of flexibility a team could exercise.

Less-connected role sets were associated with less team effectiveness in terms of longer stays in the ED and more patients being handed off during a shift change. This was true after accounting for other possible explanations such as the overall labor available to the team and the time of day. However, the cognitive versatility—or capacity for flexibility in thinking style—of a team's attending physician—considered to be the strategically core member—could alter that effect.

Teams with a more cognitively versatile physician provided more efficient care overall, and were less negatively affected by working with a less-connected role set compared to teams with less cognitively versatile attending physicians. These results remained even after accounting for other physician traits like their experience.

"Role-based organizational systems have been an effective tool for coordination in part because they offer a clear understanding of what each person can do and how team members' work should fit together," notes Brandy Aven, associate professor of organizational theory,

strategy, and entrepreneurship at Carnegie Mellon's Tepper School of Business, who coauthored the study.

"In our study, we highlighted how having roles with more overlap in the tasks they can perform might create redundancy that is critical for adaptation, allowing members to back up one another and thereby creating a structural mechanism for some flexibility. Absent that structural flexibility, though, cognitive flexibility may become critical."

Among the study's limitations, the authors note that their work is correlational and does not address the causal effects of role structures or cognitive versatility. In addition, they were not able to observe the coordination behaviors that they suspect explain the association between care efficiency and both role structures and cognitive flexibility.

"Our findings extend the Carnegie School's groundbreaking work on organizational theory in general and fluid participation in particular," according to Anita Williams Woolley, professor of organizational behavior and theory at Carnegie Mellon's Tepper School of Business, who coauthored the study.

"As the formal organizational structures that historically supported coordination fade away, insights from psychology and organizational behavior point to individual attributes of team members as a possible source of flexibility that can bolster team coordination in dynamic settings."

More information: Ishani Aggarwal et al, Cognitive versatility and adaptation to fluid participation in hospital emergency department teams, *Frontiers in Psychology* (2024). [DOI: 10.3389/fpsyg.2024.1144638](https://doi.org/10.3389/fpsyg.2024.1144638)

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