

## Comparative Analysis of Survey Instrument to Social Network Analysis to Assess Key Team Attributes:

- TDM Team average is 49.2, placing the team at stage 2: “building communication”, and they have passed building cohesiveness and cohesiveness is in place.
  - Cohesiveness had the highest median score at 2.6 supporting that this attribute is furthest along in their team development.
  - Communication is their current stage in development and this was their lowest median score at 2.36.
  - Goals and means clarity and role clarity both had median scores of 2.4. While they scored higher than communication for median score, they were still lower than cohesiveness.
- You can see from the teams average score as well as the lowest attribute score that communication is key road block in this teams development and success.
- A social network analysis was completed using the following question:
  - “For each team member below, please indicate the frequency with which they provide you with information you use to do your work”
- Data analysis using *GEPHI* showed the following:
  - Density: 0.5
  - Diameter: 2 maximum distance between any two people
  - Modularity: 0.069 measures the tendency of a networks to group into communities. High value means a strong community connection.
    - Communities: 3, however the modularity value is very low.
  - Average path: 1.5 number of steps for each connection and measures efficiency
  - Clustering coefficient: 0.695 degree to which nodes in a graph tend to cluster together, and this can be a prediction of future collaboration within a network
  - Betweenness centrality: degree to which each person is a bridge to all other people, and measures importance of member to flow of communication.
    - The betweenness centrality of the network was centered around only 2 members and not more dispersed.
- **Cohesion** describes the interconnectedness of nodes, in this case team members, in a network. Measures of a network or teams cohesion are density and distance. (Hawe et al. 2004)
  - Closeness Centrality Average: 0.687, the closer to 1 the shorter the paths are to the other members of the team.
  - Density: 0.5, Dense networks are better for coordination of activities among members and communication, while loose networks allow for deviation from norms or structure. In our case the team is looking for high density to support the structure/workflows put in place and communication between members.
- **Communication**: Centrality measures are excellent measures of communication.

- Degree centrality: assigns an importance score based on the number of links held by each node, which is useful for finding very connected individuals, popular individuals.
- Betweenness centrality: Shows which nodes are “bridges” between nodes in a network or team who connect members who otherwise have no connections. These members are important for understanding communication.
- Closeness centrality: Calculates a score based on the sum of the shortest paths between the nodes. Short paths translate to less time, so closeness centrality can find members who can communicate to large numbers of team members efficiently.
- No strongly weighted communication between MA supervisor, and team members.
  - nurse manager only has one strongly weighted connection to one of the nurses.
  - Explains answers to questions from the Team Development Measure that rated responded on average “disagree” to the following communication questions:
    - #15 There is confusion about what the work is that the team should be doing
    - #4 All team members participate in making decisions about the work of the team
    - #10 The team openly discusses decisions that affect the work of the team before they are made.
  - Should be more meaningful and strong communication both between the supervisors, and between supervisors and team members.
  - Increased communication between supervisors and team members can help to improve communication around team goals, work of team, and participation in decision making.

## References

Hawe, P., Webster, C., & Shiell, A. (2004, December 1). *A glossary of terms for navigating the field of social network analysis*. *Journal of Epidemiology & Community Health*. Retrieved September 15, 2021, from <https://jech.bmj.com/content/58/12/971>.