Timeliness of "Red Event" Reviews: Optimizing "Cardiac-Multidisciplinary Assessment of Performance" (C-MAP) Rounds with Morbidity and Mortality Review

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Background

Timely divisional review at Heart Center Morbidity & Mortality (M&M) conference is important to maintain transparency and accuracy in recall for persons involved. Prompt review is necessary to produce actionable items to reduce repetition of similar occurrences.

Large divisions may struggle to efficiently review patient events as M&M selection committees may be backlogged with case complexity or unaware of events requiring review.

Cardiac-Multidisciplinary Assessment of Performance (C-MAP) rounds were initiated in July 2020 to review surgical patient outcomes, team performance, and significant "off-course" patient events. Our institution's rounds were modified from Toronto's flight threat and error model (Hickey 2017, 2018) and Cincinnati's flight plan process (LaMantia 2017).

M&M Selection Committee was formed in July 2020 to review patient events and determine those appropriate for review at Heart Center M&M conferences (once a month).

Objective

We aim to analyze the timeliness from significant patient event to review in relation to institution of C-MAP rounds and M&M Selection Committee.

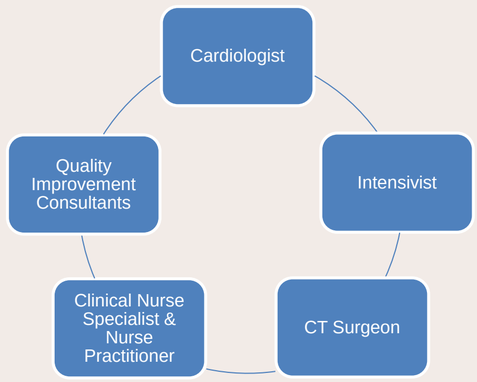
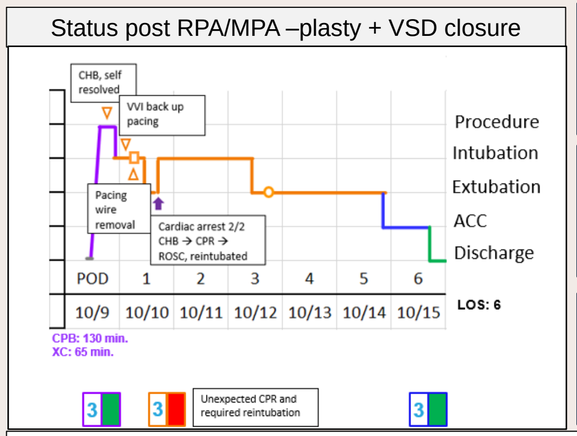


Figure 1 – Multidisciplinary participants meet monthly at M&M Selection Committee to review patient events, select patients for next M&M, and assign action items.

Methods

Analysis of C-MAP "red" events was performed between 2022-2023 to identify the percentage of patients captured for review at M&M Selection Committee. No previous formal policy to coordinate C-MAP and M&M committee review was in place prior to this analysis.

Further analysis was performed to elicit timeliness of review between event date and committee review date. Additionally, timeliness review was performed prior to the initiation of C-MAP and M&M committees.



Ideal clinical course or minor deviation that did not extend length of stay (LOS) or overall health

Deviation from ideal clinical course with impact on health and longer LOS but no lasting long-term effects

Deviation from ideal clinical course with significant impact on patient's health and LOS

4 – Exemplary (team exceeded expectations → identify actions to replicate)
3 – Good (standard of care; expected team dynamics)
2 – Sub-optimal (room for improvement → identify, understand, and address issue)
1 – Poor ("never events" → identify follow up actions to prevent recurrence)

Figure 2 – Cardiac-Multidisciplinary Assessment of Performance (CMAP) patient example (s/p CT surgery) with scoring rubric. ***Key***: **Color** = Patient outcome; **Number** = Team performance.

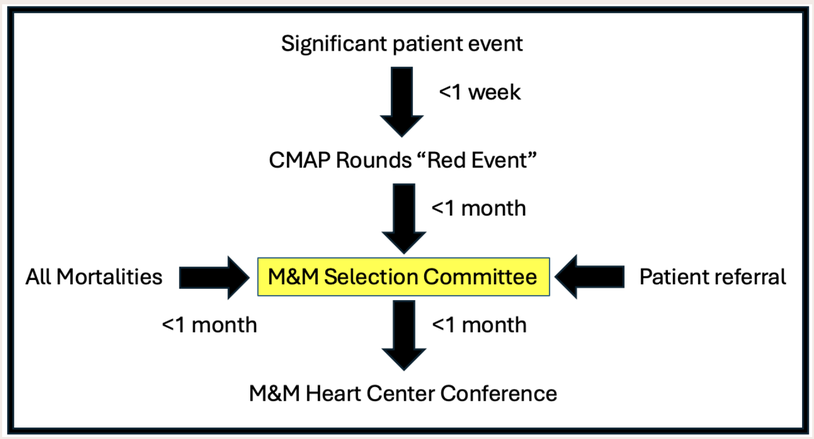


Figure 3 – Current process from significant patient event reviews.

Results

Review of M&M RedCap database by quality improvement (QI) consultants demonstrates Heart Center "red" events (2022 to present) were reviewed at a rate of 83.2% (79/95) at M&M Selection Committee.

Prior to C-MAP/M&M Selection Committee initiation, all significant patient events were reviewed on average 60.5 days (median 52 days) from event. After establishing C-MAP/M&M committee, cases were reviewed on average within 29 days (median 26 days).

Figure 4 – Improvement in timeliness between patient event and formal Heart Center M&M review before and after instituting C-MAP/M&M Selection Committees.

Conclusion

Instituting C-MAP rounds and M&M Selection Committee allowed for more timely review of significant patient events at our institution.

Next steps include formal referral of all C-MAP "red" events to M&M Selection Committee to ensure appropriate oversight and identifying methods to garner nurse-specific feedback which may elucidate additional patient events worthy of review.

1) Hickey, E., Pham-Hung, E., Nosikova, Y., Halvorsen, F., Gritti, M., Schwartz, S., ... & Van Arsdell, G. (2017). NASA model of "threat and error" in pediatric cardiac surgery: patterns of error chains. *Ann Thor Surg*, *103*(4), 1300-1307.
2) Hickey, E. J., Halvorsen, F., Laussen, P. C., Hirst, G., Schwartz, S., & Van Arsdell, G. S. (2018). Chasing the 6-sigma: drawing lessons from the cockpit culture. *J Thor Cardiovasc Surg*, *155*(2), 690-696.
3) LaMantia, S., Donnellan, A., & Cooper, D. S. (2018). Cockpit culture: Avoiding the crash and burn. *J Thor Cardiovasc Surg*, *155*(2), 697-698.