

Quality Improvement

Engaging Chief Medical Officers to Improve Multidisciplinary Rounds

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Abstract

Background

Multidisciplinary rounds (MDRs), a model of care in which multiple members of the care team, representing different disciplines, come together to discuss the care of a patient in real-time. MDRs are a valuable tool for clinical teams to improve patient length of stay (LOS), reduce healthcare-associated infections, and increase care coordination. HCA Healthcare's data science and performance improvement teams created a data visualization tool called Next-gen Analytics for Treatment and Efficiency (NATE) Tempo to support care teams in managing rounds and barriers.

Methods

A pilot implementation of MDRs using the NATE Tempo tool was initiated in 10 hospitals, accompanied by a survey for Chief Medical Officers (CMOs) of each of the participating hospitals.

Results

Implementation of MDRs using the NATE Tempo tool was associated with an average reduction in LOS ratio from 135% to 114% across the 10 hospitals. CMO survey feedback identified areas of improvement related to MDR participation, and incorporation of NATE Tempo. CMO leadership within each facility and the use of the interactive dashboard facilitated the identification of high performers and areas of opportunity for improvement.

Conclusion

CMO engagement can help physicians take steps to decrease variation in practice, leading to compliance with best practice guidelines and decreasing the overall LOS in hospitals. The MDR process can support these efforts. Empowering CMOs through the use of the NATE Tempo tool improved engagement. Through the tool, the CMO promotes coordination of patient care throughout the hospital experience and during the post-discharge phase.

Keywords

multidisciplinary rounds (MDR); chief medical officers (CMO); care team communication; patient outcomes; Next-Gen Analytics for Treatment and Efficiency (NATE); information technology

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Background

Multidisciplinary rounds (MDRs) allow for communication and coordination of care among providers of different specialties, thereby promoting joint decision-making and better delegation of responsibilities for patient care.¹ The minimum standard for MDRs is designed to focus on the patients who most benefit from the multidisciplinary approach: high-risk,

problem-prone patients who tend to incur the most barriers to care and discharge and the longest length of stay (LOS).

Previous publications have demonstrated that the standardization of key elements improves multidisciplinary communication and is associated with lower mortality in intensive care units (ICUs).^{2,3} Outside ICUs, it is more chal-

lenging to implement MDRs, as physicians may have patients in several different units. Furthermore, non-ICU patients tend to move from unit to unit during their stay, and physicians tend to rotate on and off these units during a patient's stay, making it harder to facilitate a standardized workflow. Results of MDR implementations in acute care settings are less available but appear to improve staff and patient satisfaction as well as LOS, however, these results are not conclusive.⁴⁻⁸

Leadership support is critical for the success of MDRs, both for ensuring completion and encouraging physician participation.¹⁹ The Chief Medical Officer (CMO) can play a central role in initiating MDRs, with the goal of pursuing improvements in LOS. Several HCA Healthcare hospitals have hospitalist programs for patients admitted to the medical/surgical units, and each of these programs has a hospitalist medical director who reports to the CMO. The CMOs can leverage this relationship to drive accountability and ensure that the hospitalists are aligned, engaged, and follow MDR best practice guidelines consistently.

Various technology interventions have been proposed for use in supporting and improving MDRs.¹⁰ Within the HCA Healthcare system, a data delivery and visualization platform referred to as Next-gen Analytics for Treatment and Efficiency (NATE) was developed to provide near real-time situational awareness via views of an entire facility to allow care teams to quickly prioritize clinical and operational opportunities.¹¹ Within NATE are multiple overlays that focus on specific components of the care pathway, including managing rounds and barriers. The NATE Tempo overlay was developed to support efficiency in MDRs. The goal of developing this tool was to assist in improving patient throughput, decreasing discharge barriers, and improving clinical efficiency. The tool aids caregivers in the entry of specific information related to discharge orders as well as viewing patient information and ultimately increases hospital capacity by improving the LOS through support for greater productivity.

While the NATE Tempo tool is primarily used by those involved in the MDRs, namely the patient care team members, there is a role for the CMO in interacting with, improving, and

encouraging uptake in order to facilitate better MDRs. Here we describe the results of a pilot implementation of the NATE Tempo tool in 10 facilities and an accompanying survey to CMOs to improve both the tool and MDRs within these facilities.

Methods

Setting and Design

In October 2021, the pilot was initiated in 10 hospitals affiliated with HCA Healthcare. These hospitals ranged in bed size from 286 to 1013 beds and were located in Kansas, Tennessee, and Texas. These were all urban or large suburban community hospitals, and the majority had teaching programs. A series of calls with the CMOs was conducted to gain the buy-in of physician leaders. MDRs that existed prior to kickoff were aligned with the scope and process described below; MDRs were implemented in all remaining facilities in October of 2021 (**Table 1**).

Scope and Process

The MDR scope and process were defined by a cross-functional team of physicians, nursing, case management, performance improvement, and finance subject matter experts. With input from these team members, the case management representative led the development of an MDR playbook by using existing literature/resources and assessing best practices currently in use. The MDR scope and process implemented in the pilot facilities are defined in **Table 2**.

MDR guidance in the playbook suggested best practices for format, participants, and patient scope (**Table 2**). Facilities were empowered to choose the format that allowed for the best uptake with local workflows; while bedside MDRs were considered "mature," both virtual and desktop MDRs were permissible and used to launch programs in several facilities. Participants included hospitalists, charge nurses, bedside nurses, case managers, and ancillary services; full attendance was defined as the presence of essential participants (hospitalists/physicians, nurses, case managers) in at least 95% of MDRs conducted. If resources were limited, facilities were encouraged to focus MDR efforts on patient populations based on diagnosis-related groups (DRGs) (sepsis, congestive heart failure, stroke, pneumonia) and other

Table 1. Pilot Performance of Participating Facilities

Facility	Hospital Beds	Active MDRs Prior to Kickoff	MDRs Established in October 2021	MDRs Maturity in January - February	MDRs Maturity in March	Units Impl LOS Ratio Baseline	Units Impl LOS Ratio Nov 2021	Units Impl LOS Ratio Dec 2021	Units Impl LOS Ratio Jan 2022	Units Impl LOS Ratio Feb 2022	Units Impl LOS Ratio Mar 2022
Facility A	535	Yes	N/A	Advanced	Advanced	144%	139%	128%	127%	180%	139%
Facility B	341	Yes	N/A	Intermediate	Intermediate	153%	139%	142%	155%	165%	137%
Facility C	590	Yes	N/A	Advanced	Advanced	132%	158%	144%	153%	150%	140%
Facility D	286	Yes	N/A	Intermediate	Intermediate	127%	133%	137%	134%	141%	129%
Facility E	334	Yes	N/A	Intermediate	Advanced	122%	133%	125%	131%	122%	120%
Facility F	760	Yes	N/A	Advanced	Advanced	137%	138%	143%	142%	146%	127%
Facility G	741	No	Yes	Beginner	Intermediate	120%	122%	128%	127%	114%	123%
Facility H	1013	No	Yes	Intermediate	Intermediate	142%	143%	143%	130%	143%	133%
Facility I	986	No	Yes	Intermediate	Intermediate	139%	140%	129%	138%	137%	153%
Facility J	603	No	Yes	Intermediate	Intermediate	123%	127%	109%	112%	126%	136%

Abbreviations: MDRs = multidisciplinary rounds; Impl = implemented; LOS = length of stay

Table 2. MDR Scope and Process for Pilot

When	<ul style="list-style-type: none"> • Daily, including weekends • 11:00 AM to 2 PM • Best practice is to perform MDR at a consistent time
Who	<ul style="list-style-type: none"> • Unit-wide implementation unless otherwise specified • If needed, patient population based on DRG (sepsis, congestive heart failure, stroke, pneumonia) and other criteria • MDR team: hospitalist, charge nurse, bedside nurse, case manager, ancillary services
How	<ul style="list-style-type: none"> • For each patient: <ul style="list-style-type: none"> • recap current condition • discuss plan of care and set goals • identify progression barriers • identify discharge barriers • limit time to 30-60 minutes/unit
Where	<ul style="list-style-type: none"> • Nurse station, conference room, or bedside, with preference for moving toward advanced MDR maturity
Abbreviation: DRG = diagnosis-related groups	

criteria. However, physician feedback indicated a preference to apply MDRs to all patients and thus the process was implemented unit-wide in practice.

MDR Maturity Definitions

The maturity of MDRs was defined by factors such as attendance (defined above), use of NATE Tempo, and actions on the goals. Definitions are as follows:

- **Advanced:** Full attendance; efficient, NATE Tempo used, measurable and actionable goals, follow-up on goals, alignment on discharge plan.
- **Intermediate:** Moderate attendance; efficient, NATE Tempo used, goals established, partial follow-up on goals, partial alignment on discharge plan.
- **Beginner:** low attendance; opportunity for efficiencies, partial use of NATE Tempo, goals established, partial follow-up on goals, partial alignment on discharge plan.

NATE Tempo

The NATE Tempo tool was designed to support MDRs by helping clinical teams communicate and manage action plans. Features include the ability to document and update the anticipated discharge date, track goals and barriers, and auto-populate key patient information from the electronic health record. A screenshot of the patient card within the NATE Tempo tool is provided in **Figure 1**. Each admitted patient has

a patient card with relevant details from the medical record. During the MDRs, progression or discharge barriers can be documented on this card. Flags for additional action, such as administration escalation, present notifications for the relevant parties.

Length of Stay Data and Assessment Tools

Access to Case Management Care Coordination dashboards with LOS details, including opportunity days at the patient level, was established for CMOs of the pilot facilities. The CMOs of the pilot facilities were assimilated within a clinical committee to advise on improvements for the Care Coordination details to assist in identifying opportunities. CMOs recommended adjustments to the LOS categories, geometric mean length of stay (GMLOS) utilization by categories, as well as the inclusion of patient volume by percentage and discharge status description.

The CMOs of the pilot facilities were provided individual facility-based Excel files with LOS details in an interactive dashboard. The interactive dashboard allows the CMO to easily identify the high performers and areas of opportunity.

Dashboard categories included month, admitting service, LOS by category (0-20 days, 21-50 days, >50 days), GMLOS utilization by category.

Figure 1. A Next-gen Analytics for Treatment and Efficiency (NATE) Tempo patient card created for multidisciplinary rounds

C.3322-A - Inpatient

12 - MANAGED MEDICARE - UNITED MEDICARE WELLMED

Add patient to MDR +

Ehsan, Sana MD

Chief Complaint: UTI, CELLULITIS

Admitted: 11/12 07:39:00

Forecast DRG: None generated

Description: None generated

Actual LOS: 18 days

Geometric mean: None generated

Anticipated Discharge Date

11/30/2023

Flag for administration

Email Patient Info Share Link

DDD Outstanding Orders 20/408

Placement

DPE discharge plan: Home-Home Health

Referral: None

Booked provider: N/A

PAC bed availability

mm/dd/yyyy

Goals

Add goal for progression to discharge

Write new comment and press enter Add

Barriers

Add progression barriers

Add discharge barriers

Search all barriers Add

ries ($\leq 110\%$, $>110\% - \leq 119\%$, $>119\%$), discharge status, DRG, opportunity days, LOS ratio, patient volume, patient volume as a percent of the total volume, average opportunity days, average opportunity days percent of the total volume, and the average LOS ratio. The LOS ratio was calculated as the ratio between actual and expected GMLOS as defined by Centers for Medicare and Medicaid Services measure guidelines.

CMO Survey

To better define the current state of MDRs, a 10-question survey was developed and sent to the CMOs of participating facilities for completion. The survey was designed by program implementation experts to capture basic facility information about processes and focused on the current state of MDRs at each facility. The survey was sent electronically to CMOs in August 2021. A screenshot of the survey is provided in **Figure 2**.

Results

The maturity of MDRs with NATE Tempo was measured at baseline. The survey noted that at the starting point, 6 of the 10 pilot facilities were actively conducting MDRs. The pilot started with 1 of the 10 classified as the beginner stage of MDR maturity, 6 of 10 facilities classified as intermediate maturity, and 3 of 10 classified as advanced, at baseline. A follow-up maturity assessment was also completed in March 2022, 5 months after kickoff. At this assessment, no facilities had an MDR maturity

of beginner, and 4 were classified as advanced (**Table 1**).

For the hospital units that implemented MDRs during the pilot, LOS ratio at baseline ranged from 120% to 153% (**Table 1**). Overall LOS ratio for units implemented during the pilot decreased from an average of 134% at baseline to 132% in March 2022 (**Table 1**).

Because of the success in the pilot units, MDRs were implemented facility-wide in all pilot facilities by July 2022. The overall facility LOS ratio at baseline (August – October 2021) was 135% in the pilot facilities. After the initial pilot implementation in select units (March 2022), the average facility LOS ratio was 121%. Following full facility-wide implementation (July 2022), the average facility LOS ratio was 114%. Facility LOS ratio for each pilot facility from January through July 2022 is presented in **Figure 3**.

During the pilot, facility physician leadership expressed engagement and support to establish physician-led MDRs. The CMOs became the physician champions of the project, partnered with the hospitalist medical directors in the establishment of routine reviews, distributed MDR data monthly, and identified opportunities that led to improved processes.

Discussion

Implementation of MDRs, facilitated by the NATE Tempo tool and supported by CMO engagement, was associated with improvements

Figure 2. A screenshot of a multidisciplinary rounds survey administered to CMOs at pilot facilities.

The screenshot shows a web-based survey form for 'Hospitalist Multidisciplinary Rounding'. The form is organized into several sections:

- Project Updates:** A header section.
- Attachments:** A section with a 'Click here to attach a file' button.
- Division:** A dropdown menu.
- Facility:** A dropdown menu.
- Units Live on MDRs:** A section with a text input for 'Provide the number of Units Live:' and a table for selecting specific units. The table has columns for 'Select Facility: (NEW)' and 'Select Units Live on MDR: (NEW)'. There are 10 rows in the table, each with a dropdown arrow.
- NATE Tempo Live:** A section with a checkbox and the text 'Yes / Live'. Below it is a note: 'Check to indicate "Yes" NATE Tempo is Live for Hospitalist in the facility.'
- MDR Attendance Documentation:** A text area with the instruction: 'Please describe the facility MDR attendance documentation process. (NEW)'
- Notes:** A large text area for additional notes.
- Contact Information:** A section with five fields: 'Division CMO', 'Facility CMO', 'Hospitalist Medical Director', 'Hospitalist Group', and 'Hospitalist Name's & HCA 3/4 IDs'. Each field has a small icon to its right.

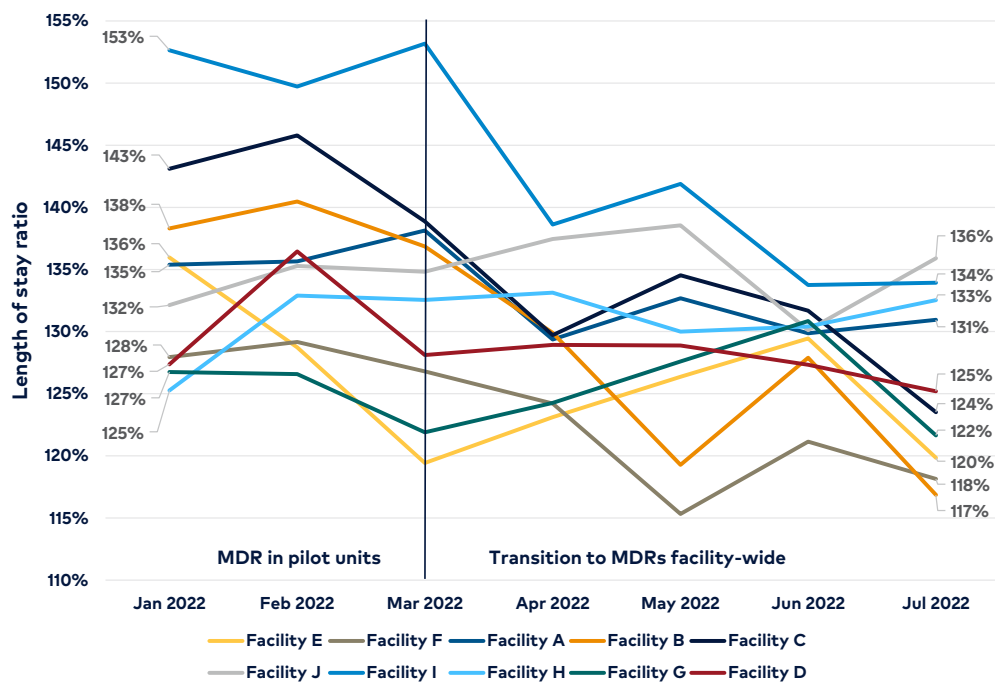
in the LOS ratio within 3 months and have been maintained over subsequent months. The success of the pilot implementation in select units initiated the decision to implement MDRs for entire facilities, resulting in the improvement in the overall LOS ratio. LOS reduction is a major lever to assist hospitals in navigating through capacity and staffing challenges. For instance, it allows for a reduction in admitted patients being held in the emergency room waiting for bed placement. MDRs can support efforts to improve capacity by promoting productivity through increased efficiency and communication.

As a tool, NATE Tempo provides access to data and structure to MDRs. NATE Tempo contains

barrier dictionaries that define the potential obstacles and challenges that must be managed to ensure a timely discharge. Some of these barriers are configured to automatically add a patient to rounds within the tool, namely those where the action of the care team often makes a pivotal difference to the effective management of the patient and their discharge plan. Examples include cases where clinical criteria for discharge are not met, medication management, and physician consult barriers. NATE Tempo also applies additional criteria to narrow the MDR patient population to meet the minimum standards mentioned above.

Prior to the pilot, CMOs did not have access to the Case Management Care Coordination sys-

Figure 3. The length of stay (LOS) ratio for pilot facilities shows the decrease in LOS after the full implementation of multidisciplinary rounds.



tem. This resulted in limited awareness of the physician LOS ratio, specifically LOS compared to GMLOS. In addition, there was limited routine communication between the facility CMOs and the case management and performance improvement teams. Providing CMOs access to data and engaging leadership as champions of the MDR process and the NATE Tempo tool helped overcome these barriers. The increased visibility and communication are likely contributors to the observed reductions in the LOS ratio among implemented units in the pilot.

MDRs can have a positive effect on promoting communication and collaboration but need focused planning and active management to be successful.¹² While the benefits of MDRs on coordination and holistic care planning are readily recognized by health professionals, perceptions of MDRs taking time away from other tasks, difficulty engaging all team members at the appropriate time, or power imbalances between disciplines can hinder adoption.¹³ Previous studies have emphasized the need for well-designed tools and checklists, education and training, and leadership support in the successful implementation and use of MDRs in various settings.^{3,14-16} The direct engagement of CMOs as presented in our study is a novel approach. With the CMO role increasingly func-

tioning to drive strategic innovations, engaging these leaders is key to overcoming barriers to MDR adoption as well as identifying opportunities for further improvement.¹⁷

Feedback from providers and facility leadership during the pilot highlighted several opportunities for improvement within the MDR structure that should be addressed in future implementations. First, MDR process standards should be developed for each member of the team. This will help with role clarity and streamlining workflow priorities. Second, the timing of rounds often conflicted with patient care events (eg, testing, rehab, physical therapy) or with care team breaks/lunches. Schedules should be designed with these events in mind to maximize team participation. It should be noted that the implementation of MDRs in this pilot allowed for flexibility based on local workflow needs and leadership priorities. This aided in the adoption of MDRs overall but also resulted in decisions to selectively implement certain components, which could account for some of the variation observed in LOS ratio.

Limitations

This was a small pilot study at 10 facilities, and thus generalizability may be limited. However, the MDR scope and process framework

are based on widely accepted best practices. The NATE platform, including the NATE Tempo overlay, is available in all HCA Healthcare facilities. Thus, the efforts discussed here to engage CMOs in the implementation and improvement of MDRs were critical to expanding MDRs throughout the facilities and could be applied elsewhere. Mechanisms to increase data visibility and real-time metrics for both care teams and leadership, especially LOS ratio and discharge barriers, should be considered by facilities that are attempting to use MDRs to decrease LOS.

Conclusion

There is an opportunity to engage CMOs to improve MDRs. The CMOs have a unique opportunity to influence physician engagement and leverage data products like NATE Tempo for improved communication and collaboration with nurses and case management teams. After large-scale adoption, tangible results can include shorter LOS, greater patient and family satisfaction, and consistency of care. A smoother discharge process is expected as a whole, and in limited cases, hospital readmissions are reduced.

Conflicts of Interest

The authors declare they have no conflicts of interest.

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