COMMENTARY

The Covid-19 War: Military Lessons Applied to a Public Health Campaign

Alexander Gerard Garza, MD, MPH, Wm. Claiborne Dunagan, MD, MS, Keith Starke, MD

Vol. No. | February 9, 2021
DOI: 10.1056/CAT.20.0549

Public health officers, elected officials, and health care leaders are well versed at addressing common public health problems, as well as geographically and population-limited disasters such as tornadoes and floods. However, they were — and continue to be — challenged in planning for an overwhelming and widespread threat, such as a pandemic. The authors detail how the St. Louis Metropolitan area health care systems used the Military Decision-Making Process as a foundational tool to plan against the viral threat.

“Plans are worthless, but planning is everything.” — General Dwight D. Eisenhower

Throughout the Covid-19 pandemic, war-related themes and terms have been used to describe efforts to defeat the virus, triage the infected, equip the frontline heroes, manufacture the medicines, count the casualties, and consider the collateral damage. Few health care leaders, however, have utilized military strategies, planning, or decision-making processes. In the St. Louis area, leaders have come together to embrace the Military Decision-Making Process (MDMP).2-6

It is remarkable how this pandemic resembles other threats to our national security, economic vitality, and public health, only by a different means. Were SARS CoV-2 a terrorist organization that claimed the lives of hundreds of thousands of Americans, we may have seen a different approach. However, this enemy turned out to be a strand of RNA, and the responsibility of combating it fell mostly on public health systems and health care organizations.

In early 2020, the chief medical officers of major health systems in the St. Louis Metropolitan area — first SSM Health, BJC HealthCare, and Mercy Health, and later St. Luke’s Hospital — met to discuss how each organization was planning for the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic. These health care systems spanned the urban, suburban, and rural areas in the counties of Eastern Missouri and Southern Illinois surrounding the City of St. Louis. The leaders of the health care systems quickly agreed that it made sense to work together as one to develop a regional strategy and speak with one voice in the pandemic. This led to the formation
of the St. Louis Metropolitan Pandemic Task Force (PTF), which eventually included public health authorities, the business community, Federally Qualified Health Centers, and the local elected officials.

**The Military Decision-Making Process**

The MDMP has been used for decades in the military for planning operations and campaigns, both large and small, and brings an organized thought process to a complex issue. Planning for a pandemic is consistent with the aspects of military campaign planning:

- Planning is the art and science of understanding a situation, envisioning a desired future, and laying out effective ways to bring that future about.

- Planning is based on imperfect knowledge and assumptions about the future.

- Planning cannot predict exactly what the effects of the operation will be, how things will behave, or how people will respond.

- The understanding and learning that occur during the planning process have great value.

Several acronyms are used throughout the process (Table 1) and appear in accompanying figures.

The MDMP is seven distinct steps — Receipt of Mission; Mission Analysis; Course of Action (COA) Development; COA Analysis; COA Comparison; COA Approval; and Orders Production, Dissemination, and Transition — each with specific inputs, actions, and outputs (Figure 1).

| Acronym | Description |
|---------|-------------|
| WARNO  | Warning Order: Issued as a preliminary notice to subordinate units to begin a planning process with limited information. Sets a general direction in anticipation of more formal operational orders. |
| OPLAN  | Operations Plan: A complete plan for conducting military operations including lines of effort and specific requirements. |
| OPORD  | Operations Order: Operationalizes the OPLAN. Triggers subordinate units to develop orders specific to their role. |
| CCIR   | Commanders Critical Intelligence Requirement: Information required for successful conducting of operations. |
| EEFI   | Essential Elements of Friendly Information: Information that should be protected from the enemy. |
| IPB    | Intelligence Preparation of the Battlefield: Systematic process of analyzing the mission variable of enemy, terrain, weather, and civil considerations in the area of interest to determine their effect on operations. |
| COA    | Course of Action: A broad potential solution to the identified problem. |
| HQ     | Headquarters |
| PTF    | Pandemic Task Force |
| CMO    | Chief Medical Officers |
| ICC    | Incident Command Committee |

Source: The authors.
Traditional Military Decision-Making Process

The MDMP is a specific methodology used by the military to build a war plan. Among the advantages over health care that the military has is a cadre of professional planners and, usually, enough lead time to develop effective courses of action, to wargame the outcomes, and to implement command and control. These are luxuries that were not afforded to the health care systems when planning for the Covid-19 disaster. Because of this, the health care systems must use those steps that are most applicable and use persuasion more than control.

| Step                        | Input                                                                 | Output                                                                 |
|-----------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------|
| 1. Receipt of Mission       | • Higher headquarters’ plan or order or a new mission anticipated by the commander | • Commander’s initial guidance  
                             |                                                                      | • Initial allocation of time  
                             |                                                                      | • WARNO                  |
| 2. Mission Analysis        | • Commander’s initial guidance  
                             | • Higher HQ’s plan/order  
                             | • Higher HQ’s knowledge and intelligence products  
                             | • Knowledge products from other organizations | • Problem statement  
                             |                                                                      | • Mission statement  
                             |                                                                      | • Initial commander’s intent  
                             |                                                                      | • Initial planning guidance  
                             |                                                                      | • Initial CCIRs and EEFIs  
                             |                                                                      | • Updated IPB and running estimates  
                             |                                                                      | • WARNO                  |
| 3. COA Development         | • Mission Statement  
                             | • Initial commander’s intent, planning guidance, CCIRs, and EEFIs  
                             | • Evaluation criteria for COAs | • COA statements and sketches  
                             |                                                                      | • Tentative Task organization  
                             |                                                                      | • Broad concept of operations  
                             |                                                                      | • Revised Planning guidance |
| 4. COA Analysis            | • Update running estimates  
                             | • COA statements/sketches  
                             | • Enemy COA | • Refined COAs  
                             |                                                                      | • Potential decision points  
                             |                                                                      | • Wargame results  
                             |                                                                      | • Initial assessment measures |
| 5. COA Comparison          | • Refined COAs  
                             | • Evaluation criteria  
                             | • Wargame results | • Evaluated COAs  
                             |                                                                      | • Recommended COAs        |
| 6. COA Approval            | • Evaluated COAs  
                             | • Recommended COA | • Commander-approved COA and any modifications  
                             |                                                                      | • Refined commander’s intent, CCIRs, and EEFIs  
                             |                                                                      | • WARNO                  |
| 7. Orders Production       | • Commander-selected COA and any modifications | • Approved operation plan or order  
                             |                                                                      | • Subordinates understand the plan or order |

Source: Based on Figure 2-1. Military decision making process (FM 6-0), MDMP Handbook: Lessons and Best Practices. Fort Leavenworth, United States Army Combined Arms Center. March 15, 2015.  
https://usacc.army.mil/organizations/mccoe/call/publication/15-06  
NEJM Catalyst (catalyst.nejm.org) © Massachusetts Medical Society

In using the MDMP, the PTF leveraged the most appropriate steps in developing its plan while ignoring others (Figure 2).
Here, we offer details on how the modified MDMP steps function in the health care context for Covid-19.

In this step, the staff would receive the higher headquarters order or plan, with the output being the commander’s guidance. That guidance includes the time required to develop the plan, whether to go straight to the MDMP process or abbreviate the MDMP, any necessary coordinating functions required with others, and initial information requirements. An example would be for the commander to instruct his staff that he needs to be able to issue an operations plan within 2 weeks and would like to go right into the MDMP process and dispatch his staff to make requests for information from other units or federal agencies; the commander may request liaison officers from other units to supplement the planning process. The commander’s intent is dependent on multiple issues and is meant to convey what the commander believes are key aspects to planning, such as, “My intent is to dominate the battle space using combined XX forces, defeat opposing forces, and quickly establish an interim government.” The subordinate staff then works on specific battle plans to support the overall plan and commander’s intent.
The challenge of the current pandemic is that there is no unity of command; instead, there is fractured and discordant strategy — from the U.S. Centers for Disease Control and Prevention and the White House Coronavirus Task Force at the national level, to state and local governmental leaders. At each level there has been different guidance and intent. This makes it incredibly difficult, if not impossible, to address the pandemic in any coordinated and effective fashion.

And, of course, the pandemic is different because, unlike military operations, there was no invasion to plan or objective to take. Because of this, we supplemented the traditional Army Design Methodology (ADM) for establishing commander’s intent. The ADM is usually used to formulate the commander’s intent and helps develop the initial framework that then translates into the deliberate planning process using the MDMP. ADM frames the problem and develops an operational approach to solving the problem. This includes describing the Current State as well as the Desired End State and then defining the operational approach, which features broad general actions to solve the problem. An example of a national campaign end state would be “An economically viable and stable Country X, without the capability to coerce its neighbors.”

Just as in complex military campaigns, this pandemic has highlighted different societal and political issues, some of which continue today. The military typically addresses these in the planning process using the PMESII/ASCOPE method; this forces the military to identify and plan for Political, Military, Economic, Social, Infrastructure, and Information issues, which are then cross referenced with the Area, Structures, Capabilities, Organizations, People, and Events. As mentioned previously, because the pandemic “battle space” encompassed multiple different political jurisdictions as well as very diverse social, economic, and cultural areas, the PTF had to consider these different areas of operation while developing a course of action. As an example, the politically conservative elected officials in the more suburban and rural areas were more reluctant to shut down businesses or take proactive measures, such as mandatory masking requirements, and were more likely to “open” the communities earlier, and allow for more higher-risk situations, such as indoor dining and bars, whereas the more liberal officials of the inner suburbs and urban areas were more likely to take broader and more aggressive public health actions and refrain from higher-risk actions.

However, although the elected officials owned the battle space, they did not control the combat power, specifically health care assets. None of the public health departments had significant testing capabilities, nor did they control the fundamental war fighter, who, in this battle, was the health care personnel. The elected officials’ most effective strategy and tactic is to “shape the battlefield” by instituting policies that will alter the enemy’s effect in the battle. This includes things such as shelter-in-place orders, restricting activities, and mandatory masking policies for the general public.
The PTF agreed to certain principles at the outset of our planning, which was the guidance given by the health care CEOs. These included that we (the health care systems) would function as a single entity as much as possible. No one health care system would be allowed to fail because of issues such as an influx of Covid-19 patients beyond capacity, or a loss of personal protective equipment (PPE). In addition, we would coordinate policies and procedures as much as possible. This follows another axiom of military planning of unity of effort for the whole and autonomy of action for the parts. The PTF also agreed to designate author AGG (who has significant military and combat experience) to serve in the commander role. In practice, however, the agreed-upon End State effectively served as the commander, given that there was no single commander as there is in the military model.

According to the process articulated above, we developed what we believed was a reasonable and inclusive end state of the pandemic. This was articulated broadly as reestablishing the vitality and vibrancy of the Greater St. Louis Region through:

1. Overall health and well-being; substantial decrease in new transmissions and deaths

2. Elimination of shelter-in-place orders

3. Reactivation of the local economy

With the commander’s guidance understood and the end state established, the PTF set out to do the deliberative planning using the MDMP.

This step serves as a method to clearly identify the problem and the tools available to solve the problem. This is the most important step in the MDMP because it helps leaders to understand the environment and define the plan. There are multiple sub-steps under mission analysis; only those relevant to our planning are mentioned here.

Perform Initial Intelligence Preparation of the Battlefield

In this step, the commander is attempting to understand the enemy, such as: How many divisions of infantry does the enemy possess? What air assets do they have? What is their organizational structure? What do I have to bring to the fight? Where, when, and how can I dominate the battle space? This is coordinated through the planning cell and intelligence assets.

"Although the elected officials owned the battle space, they did not control the combat power, specifically health care assets. None of the public health departments had significant testing capabilities, nor did they control the fundamental war fighter, who, in this battle, was the health care personnel."

Fundamental to a good battle plan is understanding the area of operations. The St. Louis Metropolitan Statistical Area (MSA) spans two states, Illinois and Missouri, and 15 different counties including the City of St. Louis, which is a separate political body. The MSA has a
population of 2.8 million and a geography of 7,863 square miles. The population is 52% female and 18% Black, with a median age of 40 years. The median household income is $66,000 with 10% of the population below the poverty line, although this is highly variable depending on the county. The health care systems in the PTF provide the vast majority of health care services throughout the MSA including in the rural areas outside of the urban jurisdictions. Several of the PTF systems also provide health care services across the state of Missouri. Therefore, the PTF hospitals had operational control over the primary war fighter and significant assets such as testing, hospitals, intensive care units, ventilators, and pharmaceuticals.

In addition to intelligence about the population, the systems began analyzing modeling data to help predict how the virus would impact the area of operations, including cases, admissions, hospital and ICU census, and ventilator demand, very similar to understanding the enemy’s course of action and predicted movements, as well as anticipated casualties in the military. Prior to forming the PTF, each health care system had generated its own estimates for hospitalizations and deaths, each with different models and assumptions. The health systems recognized the need of a single source of truth for our data and analytics requirements. This resulted in the formation of the PTF analytics cell where all the data scientists, epidemiologists, and modelers from across the health care systems and the major universities within the area collaborated to produce a single model for the entire metropolitan area that everyone would use. The analysts decided to use the Epidemic Modeling platform for a reasonable best guess for Covid-19 prediction and a polynomial model based on the European epidemic curves as a reasonable worst-case scenario. These intelligence products would bound the assumptions for planning purposes.

Review Available Assets; Identify Resource Shortfalls

For the combatant commander (who is the primary commander at multiple levels in the military), of course, this sub-step involves determining: What weapon systems do I have available for the purposes of battle? Do I have air assets? Do I have Special Operations Forces, and if so, how many? How much and what type of medical resources for deployment do I have? Within the pandemic, as explained above, because of the fractured nature of federal, state, and local government, there is no single combatant commander that could gain mass effect from a singular strategy. Regardless, the PTF used this step to identify resources that we could reasonably assume would be available to combat the virus.

For the PTF, this was titled Space, Staff, and Stuff. The PTF leadership assigned clinical and operational leaders into a planning cell to identify critical assets. These teams calculated the range and maximum bed and ICU capacity and the range of ventilatory equipment that might be required, as well as our staffing capabilities and PPE. The team also inventoried community assets that could be called upon in case of extreme measures.

“The Pandemic Task Force agreed to certain principles at the outset of our planning, which was the guidance given by the health care CEOs. These included that we (the health care systems) would function as a single entity as much as possible.”
This effort resulted in two different planning bounding assumptions. One included hospital beds and ventilators during non–Covid-19 normal operations and a second in extreme crisis pandemic operations. We estimated that we had approximately 5,000 medical/surgical beds and 1,000 ICU beds within the PTF on any given day. We further recognized that approximately 4,300 of these beds would be occupied on average and that just under 2,300 beds would be available for Covid-19 admissions. In extremis, we believed we could double our medical/surgical and ICU capacity using various methods. These numbers would be flexed incrementally depending upon which phase of the pandemic we were in and by hospital census status.

Identify Critical Facts and Assumptions

A fact is a “statement of truth or considered true at the time.” An assumption is “a supposition of the current situation or a presupposition of the future course of events.” These must be logical, realistic, and considered likely to be true.

For the combatant commander this may be something like, “We know country XX has GB and VX chemical weapons. We also know they have used these nerve agents before on their own population during uprisings.” Therefore, an assumption would be, “We believe, if country XX was backed into a corner, they will use chemical weapons against our forces.”

The PTF agreed to certain critical facts for our planning purposes. These included the limits to our space, staff, and stuff. Based on the modeling at that point in time, the PTF also made certain assumptions including the probability that there would be more patients than capacity, that we would not receive support from outside of the metropolitan area, that we would need to manage the messaging, and that our assets would degrade over time, including PPE and the workforce.

Develop Initial Commander’s Critical Information Requirements (CCIR)

The CCIR refers to all the information elements the commander and staff require to successfully conduct operations. For the combatant commander, this could be something such as, “I need to continuously know the movements of country XX’s elite force” or “I need to know the battlefield casualty rate.” This element is key to understanding where the pandemic is in space and time in order to make decisions. Early on, the PTF health systems developed agreements to share data on a daily basis — including laboratory data, admissions, ICU, ventilator status, and hospital census data — and more complex data on a weekly basis. Data use agreements were executed, and data elements were added over the course of the pandemic to gain greater situational awareness.

Develop Initial Themes and Messages

This could be more appropriately titled building relationships for the PTF. In the military, as described in the MDMP handbook, gaining and maintaining the trust of key actors are important aspects to ensure stable and successful operations. “Faced with many different actors (individuals, organizations, and the public) connected with the operation, commanders [must] identify and engage those actors who matter to operational success. These actors’ behaviors can help solve or complicate the friendly forces’ challenges as commanders strive to accomplish missions. . . . Commanders and their units coordinate what they do, say, and portray through themes and messages. A theme is a unifying or dominant idea or image that expresses the purpose for the military action.” For the combatant commander this could be how to interact with the host nation...
government, a local militia force, or other “centers of gravity,” such as a sheikh or other informal leader and what to say to reinforce why they are taking action. This was similarly true in the pandemic, where there were multiple different “actors” who could impact the mission.

“The health systems recognized the need of a single source of truth for our data and analytics requirements. This resulted in the formation of the PTF analytics cell where all the data scientists, epidemiologists, and modelers from across the health care systems and the major universities within the area collaborated to produce a single model for the entire metropolitan area that everyone would use.”

We recognized early on that pandemic-related efforts would need to adopt a notion known in the military as a whole of government approach, which translated into a whole of community effort for the PTF. In addition to the health care systems, the PTF expanded to include the Federally Qualified Health Centers, the business communities, the local health departments, and the elected officials. Developing appropriate themes and messaging for these influencers — as well as the general public and other stakeholders, including the media — is an important element in successfully managing the pandemic. Of course, it was very challenging to have an overarching theme or message due to the fragmentation of government and public health approaches. However, the health care systems were very consistent in messaging and had a singular voice in the pandemic when working with our various partners and the public or media.

A Course of Action Development (COA) is a broad potential solution to an identified problem that must be feasible, acceptable, and suitable (Figure 3).²
Course of Action and Lines of Effort

The Course of Action is essentially the core of the battle plan and broadly defines the actions called lines of effort, which are necessary to achieve the end state condition. This incorporates all the work product that has been developed in the prior steps and adjusts for any newly developed changes. There are normally multiple different Courses of Action so the commander has different choices on how to approach the problem. Figure 3a shows lines of effort in a military context of establishing the rule of law under civil control, while Figure 3b shows lines of effort in a health care context for establishing the ability to care for Covid-19 patients as part of the mission to deliver acute health care.

3a. Lines of Effort: Civil Control (Military Context)

- Establish Police Forces Training
- Integrate Trained Police into Operations
- Counter Organized Crime
- Establish Judicial System
- Transition to Host Nation Police Force

CONDITION: Rule of Law Established

3b. Lines of Effort: Delivery of Acute Health Care

- Ensure Supply Chain Integrity
- Ensure Adequate Staffing
- Ensure Adequate Space for Covid-19 Patients
- Ensure Workforce Protection Policies
- Ensure Adequate Critical Assets (e.g., Ventilators)

CONDITION: Capability to Treat Covid-19 Patients Established

Source: Alexander Garza MD, MPH, adapted from of Figure 3-8: Sample Lines of Effort (Figure IV-12 in JP 5-0). Haseman M (Ed), Campaign Planning Handbook Academic Year 2020. United States Army War College, Department of Military Strategy, Planning, and Operations, Carlisle Barracks, Pennsylvania. https://publications.armywarcollege.edu/pubs/3706.pdf

NEJM Catalyst (catalyst.nejm.org) © Massachusetts Medical Society

The COA identifies multiple “lines of effort” to achieve conditions necessary to reach end state goals and assigns responsibility to each effort. Lines of Effort (LOE) link multiple tasks and missions to focus efforts toward establishing operational and strategic conditions. It describes and connects the major efforts/actions of the campaign. An LOE helps the commander visualize and articulate the “logic of the campaign” and how they might organize major efforts over the course of the campaign to achieve synchronize unified action. Such things in the military may be a Condition such as Rule of Law Established, where the tasks are Establish Police Force  Establish Judicial System  Transition to Host Nation Police Force.

The LOEs developed for our COA included:

- Delivery of Acute Health Care
  - Supply chain including PPE assurance
  - Staffing requirements for predicted surge
  - Space requirements for predicted surge
  - Delivery of medical care, triage, and crisis standards of care

- Community Assistance
The subtasks were then developed by teams within the respective health care systems to ensure efforts were synchronized. These plans were briefed to the senior leaders of the PTF, where there was broad general agreement that this would be the approach. The Community Assistance component was led by our business organization partners to develop support mechanisms, such as food drives and other support, for those who would be potentially impacted by the pandemic. Public Health strategies were coordinated among the health department leaders and there was general agreement on some mitigation strategies and policies. However, due to the political nature of the different jurisdictions, there were not synchronized mitigation strategies. Emergency Medical Services was coordinated through the health care systems’ emergency managers, as well as the local government Emergency Management structure.

“We recognized early on that pandemic-related efforts would need to adopt a notion known in the military as a whole of government approach, which translated into a whole of community effort for the PTF.”

After going through multiple iterations of the COA, the PTF agreed that the final plan had met the requirements of being feasible, acceptable, and suitable. Traditionally, multiple courses of action are developed for the commander to consider. However, because of the rapidly developing situation, a single COA was developed for all the participants in the PTF.

Phasing the Operation

Just as in military planning, where there are phases to an operation, there are clearly different phases in the pandemic, and each phase has different levels of effort from the health care system, the public health system, and the community. And like in war, each phase requires different efforts and solutions (Figure 4, Figure 5).
Notional Health Care Effort by Phase

In this figure, adapted for Covid-19 efforts, three specific objectives are depicted (executing plans to ensure capability to handle and provide for admissions, Covid-19 admissions, and ventilators) along with the level of effort for each over the course of the phases that lead to the end state of stability and reopening.

Source: Alexander Garza MD, MPH
NEJM Catalyst (catalyst.nejm.org) © Massachusetts Medical Society
Phase names are driven by the activity in that phase and an emphasis on decisive tasks driven by what the planners intend to have occur in that phase. The phases in the pandemic were initially thought to contain these distinctive activities:

- **Phase 0, Shaping operations.** This helps to create a condition for success before the pandemic onset and continuing throughout the pandemic. Examples: shelter-in-place orders, mandatory masking policies, PPE conservation policies, and ceasing elective surgeries.

- **Phase I, Initial surge.** This ensures that the health care systems can handle the initial surge in patients. Examples: to ensure adequate staffing, PPE, negative pressure space, etc.
• **Phase II, Critical mass/prevent failure.** This period is focused on peak demands and stressors, such as handling maximum Covid-19 patient load, ensuring that the health care system is able to handle the load, with a whole of health care approach. Examples: maximize capacity, alternative care sites, federal assets, institute crisis standards of care.

• **Phase III, Maintain operations and prevent failure of the health care system.** This period is focused on the post-peak period to continue operations during the pandemic while avoiding setbacks. Examples: sustainment the workforce, planning for phase IV.

• **Phase IV, Stability operations.** Here, health care systems transition back to more normal operations. Examples: decommission Covid-19 units, relax visitation policies, and restart elective surgeries.

The PTF held weekly meetings to help gain situational awareness of the different operational environments, attempt to synchronize efforts — especially with mitigation strategies — and advise on strategies. However, given the diversity of political and cultural ideology, once past the initial shutdown and reopening, there was little congruence in approach to mitigation of the pandemic. While there were attempts to have the region operate in a singular fashion, this was not possible. At a minimum, the group was able to share thoughts ideas and opinions about approaches to the pandemic and ensure that everyone was operating from a consistent set of data and recommendations from PTF health care systems.

As result of the formation of the PTF and the joint planning, the St. Louis Metropolitan area was able to better organize our response to Covid-19. This included:

**Coordinated policies and procedures:**

• PPE conservation policies

• A common date to cease elective surgical cases

• A common visitor restriction policy

• An agreed-upon tiering process for testing patients for Covid-19

• A common policy for health care worker exposure across all jurisdictions

• A common policy for vaccine distribution and eligibility

**Joint operational planning:**

• Coordinated placement of community testing assets ensuring that the distribution of resources for test collection sites covered the entire metropolitan area without duplication of services

• Primary point of contact with the Missouri Hospital Association and the State of Missouri for planning, selecting, and operationalizing alternative care sites
• Convener for issues such as testing supply requests to the state for the entire metropolitan area
• Convener of or contributor to multiple work groups tackling Covid-19–related issues such as education and sports
• Regular meetings with the members of the PTF, including facilitated discussions regarding policy decisions
• Regular coordination with area public health departments
• Coordinated reopening planning with multiple business groups

In addition to coordinating relevant health care operations, the PTF also became the trusted voice of the pandemic in the metropolitan area by performing daily press briefings via Facebook Live (Figure 6).

**FIGURE 6**

"Battle Rhythm” for the St. Louis Metropolitan Pandemic Task Force

The battle rhythm is an expression used by the military that describes meeting times and dates so that the entire battle staff understands what information is needed when. This figure depicts the schedule that has been in effect since the beginning of the Pandemic Task Force initiative.
The PTF reported hospital admissions and inpatient, ICU, and ventilator census for Covid-19–positive and patients under investigation (PUI) and, beginning in December 2020, the number of vaccinations and vaccine planning. In addition, the PTF discussed current issues about the pandemic, such as different types of testing, mitigation strategies, mask wearing, and other topics of interest. As the pandemic progressed, the briefings included updates to forecasting and addressing any public policies and other important issues related to the pandemic, as well as stories from frontline health care workers regarding the impact of Covid-19.

**Looking Ahead**

The 2019 SARS CoV-2 is a novel virus that, in mid-January 2021, continues to spread rapidly around the globe with substantial morbidity and mortality. The entire community continues to be at risk, but especially vulnerable populations. This makes it unique from other disasters, which are more geographically discrete. The breadth of this disaster from a societal and economic standpoint was beyond anything experienced with natural disasters, such as tornados or hurricanes. In addition, this disaster would have a considerable duration, a so-called long war and not a short low-intensity conflict. As such, this war was bound to go through various phases, each with its own set of issues and challenges, before reaching an end state (herd immunity). The development and deployment of vaccines beginning in December 2020 adds new complexities and challenges. The fractured nature of the sociopolitical response that has plagued health care efforts throughout the pandemic is also challenging the vaccine deployment strategy. The MDMP would offer a model for building a vaccine “campaign,” just as we used this for approaching the pandemic.

The pandemic shares remarkable similarities to military campaigns and war planning. We believe that using elements of the MDMP allowed the PTF to bring clarity in planning to the initial fog of war, and created an organizational environment to bring unity of effort across the metropolitan area and through the different phases of the pandemic that continue today.

As of February 2021, the Pandemic Task Force continues, and expects to maintain its operations until that end state is achieved.

The PTF has had multiple successes including assisting businesses with plans to decrease spread of the virus, reviewing and assisting local health departments with school and sports plans, as well as influencing local elected officials with the scientific and data resources to determine measures required to slow the enemy’s advance. This is especially concerning given that Missouri is one of the few states with a governor that has refused to enact a statewide mask wearing policy.8

As with military planning, once a single operation reaches end state, you move to the next planning scenario, so essentially you start over from the beginning of the MDMP. Understanding that the Covid-19 pandemic has now become an even more insidious enemy, it will require an updated campaign plan, in which the PTF is currently engaged.

**Alexander Gerard Garza, MD, MPH**
Chief Community Health Officer, SSM Health, St Louis, Missouri, USA
Wm. Claiborne Dunagan, MD, MS
Senior Vice President, BJC HealthCare, St Louis, Missouri, USA
Professor, Washington University School of Medicine, St Louis, Missouri, USA

Keith Starke, MD
Senior Vice President and Chief Clinical Officer, Mercy Health, St Louis, Missouri, USA

Disclosures: Alexander Gerard Garza, Clay Dunagan, and Keith Starke have nothing to disclose.

References

1. Eisenhower DD. Remarks at the National Defense Executive Reserve Conference. November 14, 1957. Dwight D. Eisenhower: 1957: Containing the Public Messages, Speeches, and Statements of the President, January 1 to December 31, 1957. General Services Administration, National Archives and Records Service, Federal Register Division. Record Creation Date June 8, 1999. Last updated December 2, 2019. Accessed December 18, 2020. https://quod.lib.umich.edu/p/popotpus/4728417.1957.001/858?page=root;rgn=full+text;size=100;view=image;q1=worthless.

2. Handbook MDMP. Lessons and Best Practices. Fort Leavenworth. United States Army Combined Arms Center. March 15, 2015. Accessed December 18, 2020. https://usacac.army.mil/sites/default/files/publications/15-06_0.pdf.

3. Army Doctrine Publication (ADP) 5-0: The Operations Process. Washington, D.C. Department of the Army. July 31, 2019. Accessed December 18, 2020. https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN18126-ADP_5-0-000-WEB-3.pdf.

4. Army Doctrine Reference Publication (ADRP) 5-0; The Operations Process. Washington, D.C. Department of the Army. May 17, 2012. Accessed December 18, 2020. https://www.globalsecurity.org/military/library/policy/army/adrp/5-0/adrp5_0.pdf.

5. Field Manual 6-0. Commander and Staff Organization and Operations. Washington, D.C. Department of the Army. May 5, 2014, Updated May 11, 2015. Accessed December 18, 2020. https://www.milsic.ucsb.edu/sites/secure.lsit.ucsb.edu.mili.d7/files/sitefiles/fm6_0.pdf.

6. Campaign Planning Handbook. United States Army War College, Department of Military Strategy, Planning, and Operations. Carlisle Barracks, Pennsylvania: 2019. Accessed December 18, 2020. https://publications.armywarcollege.edu/pubs/1660.pdf.

7. Longabaugh RM. Explaining the Army Design Methodology. Infantry Online. U.S. Army Maneuver Center of Excellence (MCoe). Updated March 15, 2019. Accessed December 19, 2020. https://www.benning.army.mil/infantry/magazine/issues/2014/Oct-Mar/Longabaugh.html.

8. Markowitz A. State-by-State Guide to Face Mask Requirements. Healthy Living. AARP. Updated December 17, 2020. Accessed December 19, 2020. https://www.aarp.org/health/healthy-living/info-2020/states-mask-mandates-coronavirus.html.