POTENTIAL TITLE
What’s the Bottom Line Up Front? Translating Public Health Recommendations Using the Army Design Methodology

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INTRODUCTION

Military leaders have historically used the Operational Planning Process (OPP) to facilitate decision-making for military operations. OPP tends to be highly-structured, linear, and functions via a formalized methodology that includes analyzing information, inferring a conclusion, and summarizing results. However, OPP has been criticized since it limits the freedom of decision makers, consumes too much time, and demonstrates a consistent disparity in what is written in doctrine versus what is used in practice (1). As a result, more dynamic and naturalistic approaches have been investigated.

System Operational Design (SOD) is a naturalistic approach that was developed by the Israeli Defense Force (IDF) following the resolution of the 1973 Arab-Israeli War. Although the IDF achieved a tactical victory in the war, they were outperformed on a strategic level. The strategic failure led to the re-evaluation of the planning methods used by the IDF. Based on Systems-Thinking (2), SOD was developed with the recognition that relationships are constantly shifting in a given environment. SOD allows for a decision-making process that incorporates discourse (i.e., framed discussions), iteration, knowledge, experience, and intuition. SOD was formally adopted by the IDF as the main decision-making tool in the year 2000 (1).

Senior U.S. Army leaders (SALs) and their staff similarly recognized that they had difficulty understanding and solving complex, ill-structured problems (3). Recognizing the advantages of SOD in the mid-2000s, the U.S. Army adopted The Army Design Methodology (ADM) as its problem-solving technique. Army Technical Publication (ATP) 5-0.1 was released in 2015 which describes ADM in the context of the Army’s operations process (3).

Army Design Methodology (ADM) is a systematic way to “think about the situation before developing ways to solve problems” (3). The Army Design Methodology is separated into
three discrete stages: 1) frame the environment, 2) frame the problem, and 3) develop an operational approach (Figure 1). ADM is the primary resource SALs use to methodically engage in problem-solving. Given the wide acceptance of ADM throughout the Army, it is useful to determine how other disciplines who routinely work with Army populations can adapt their discipline-specific framework to ADM.

**Figure 1 – Army Design Methodology**

Public health is one such discipline which could greatly benefit from adapting their recommendations to an ADM framework. Public health espouses the need to present scientific findings in a manner that is readily understood by the intended audience (4). The U.S. Army routinely conducts numerous public health activities (e.g., mandatory annual medical wellness screenings, mandatory vaccinations, health promotion and educational trainings) to ensure the safety and well-being of Soldiers, but introducing novel public health recommendations presents challenges. While public health practitioners who work for the Army take the time to meticulously design, analyze, and report data and results, less care and attention is spent on translating that information using Army doctrinal language to “tell the story.” SALs have limited
time due to competing priorities and the ADM's use of the “Bottom Line Up Front” (BLUF) allows presentation of information in a way that is familiar. The BLUF is similar to an executive summary in that it is a succinct description of conclusions and recommendations placed at the beginning of text or a presentation to facilitate rapid information sharing and decision making. Having the ability to use ADM in this manner can immediately create buy-in from SALs and other Army decision makers. Most importantly, the enhanced understanding provided by the ADM framework leads to a greater chance that the public health recommendations will be executed by SALs.

The objective of this paper is to briefly describe the tenets of ADM and then present a public health case study as an example for how public health practice can be translated into the ADM framework.

METHODS

The ADM Process

In most public health projects, a multi-disciplinary team of subject matter experts (SMEs) is convened. Similarly, in ADM, the planning team includes SMEs from various disciplines. The diversity of the team allows for differences in perspectives and contributes to the richness of the creative and critical thinking processes.

Ideally, planning team members should have been involved in the initial stakeholder negotiation/project planning and/or the analysis of project data. For the purposes of public health projects, there are three main assumptions to keep in mind when using ADM: 1) data analysis for the project will still be conducted in accordance with the standards of each SME’s discipline, 2) information obtained from stakeholder negotiation/project planning should be used to inform ADM (e.g., background/contextual information to help inform the project design), and 3) the
starting point for when to use ADM is after preliminary analysis has been conducted. The next section describes the three major ADM activities.

*Step 1: Frame the Environment*

*Step 1a: Define the Current State and Desired End State*

Framing the environment is putting the event/situation/illness into the proper context. The current state defines and characterizes the current conditions of the operational environment (e.g., what is going on in present day) and the desired end state is the ideal scenario. That is, a set of desired conditions that if achieved, meets the objectives of policy, guidance, and directives issued to and by the commander. Conditions can be tangible or intangible, military or non-military, physical or psychological, perceptions and/or relationships between individuals or organizations (3). Tables 1 and 2 provide ADM-specific guiding questions and examples of comparable public health guiding questions that planning teams should attempt to answer when framing the operational environment. Planning teams have several tools to aid in framing the operational environment. Tools that are most applicable to the field of public health include brainstorming, researching, and mind mapping.

**Table 1. Current State: ADM Questions and Comparable Public Health (PH) Guiding Questions**
### Table 2. Desired End State: ADM Questions and Comparable Public Health (PH) Guiding Questions.

<table>
<thead>
<tr>
<th>ADM Guiding Questions</th>
<th>Comparable PH Guiding Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Why has the situation developed?</td>
<td>• What is the PH problem as defined by the US Army stakeholder(s)?</td>
</tr>
</tbody>
</table>
| 2. Who are the relevant stakeholders (those able to influence the situation)? | • What population(s) are involved (e.g., Soldiers, civilians, veterans, SALs, government officials)?  
  • What populations are able to influence the PH problem? |
| 3. What is currently occurring in the operational environment? | • What are the metrics (data, statistics, interviews, focus groups) that define/characterize the problem?  
  • Has the stakeholder identified the right problem/issue based upon the available data/information? |
| 4. Why is the situation undesirable? | • Why is this a problem for the organization under assessment (e.g., health, political or social implications, mission readiness etc.)?  
  • What are potential organizational implications if the problem is not addressed? |

ADM Guiding Questions from (ATP 5.0-1; p3-2)
Step 1b: Summarizing the Data

Upon determining the current state and the desired end state, the planning team creates a presentation diagram. The presentation diagram is high-level information summary in the form of a graphic and narrative that is used to explain the main ideas to individuals who are outside of the planning team. The graphic and narrative should be a clear and concise depiction of the main components that characterize the operational environment. Project teams should work collectively to determine the appropriate imagery to use, and if available, consult with graphic design experts to develop the final product.

Step 2. Frame the Problem

To frame the problem, the planning team has to understand how a problem is defined. In the general sense, a problem exists where there is a noticeable difference between the current state and the desired end state (3). However, not all problems are created equal. Understanding the type of problem that the team is assessing is important to framing the problem and developing an operational approach.

Problems can be well-structured, medium-structured, or ill-structured. While ADM is typically used for ill-structured problems in the warfighting setting, its use can be expanded to the other types of problems for public health related projects. Definitions and the execution of solutions for each type of problem vary and should be considered when characterizing the problem frame (3). Table 3 defines the three types of problems and examples using public health-related issues.
Table 3. Types of Problems with Public Health-Related Examples

<table>
<thead>
<tr>
<th>Type of Problem</th>
<th>Definition</th>
<th>Public Health Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well-structured</td>
<td>clearly defined and a simple, straightforward solution exists</td>
<td>A unit needs more doses of flu vaccinations and orders more doses.</td>
</tr>
<tr>
<td>Medium-structured</td>
<td>clearly defined but no single solution applies to all circumstances</td>
<td>Rate of motorcycle injuries may be high at an installation, but solutions are multifactorial and include enforcement of helmet and speed laws, and educating other drivers to look for motorcyclists</td>
</tr>
<tr>
<td>Ill-structured</td>
<td>problem is neither clearly defined nor is the solution clear</td>
<td>Behavioral healthcare stigma is often hard to define and thus solutions for addressing healthcare stigma are not always clear or attainable.</td>
</tr>
</tbody>
</table>

Adapted from Table 4-1 in ATP 5.0-1

Once the problem structure is determined, the planning team can frame the problem. Framing the problem is accomplished by 1) determining the differences between the current state and the desired end state, 2) determining the obstacles that are preventing the organization from getting from the current state to the desired end state, 3) determining what needs to change and what needs to be sustained, and 4) identifying the problems and mapping out their relationships (3). Tools that can be used to frame the problem include Strengths, Weakness, Opportunities, and Threats (SWOT); Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy (DOTMLPF-P) (5); and Mission, Enemy, Terrain and Weather, Troops and Support Available, Time Available, and Civil Considerations (METT-TC) (6).

Step 3. Develop an Operational Approach

The operational approach is a broad conceptualization of “what needs to be done” to solve or manage identified problems (3). During this process, it is important for public health practitioners to collaborate with the main project stakeholder(s) to ensure that potential recommendations are feasible and relevant. In synthesizing the earlier work (framing the current state, problem, and desired end state), the planning team should seek to answer the following questions when crafting an operational approach:
1) How does the organization transition from the existing conditions to the desired end state?

2) What broad actions help achieve these conditions?

3) What type of resources are required?

4) What are the associated risks (if any)?

The operational approach in ADM is akin to the actionable recommendation that public health practitioners provide to stakeholders for their projects. However, an operational approach is not a course of action (as defined by Army doctrine). A course of action is more detailed than an operational approach and includes information that describes task organizations, unit boundaries, and tasks to be completed (3).

While not required, the operational approach typically has a time component associated with the recommended actions. Adding a time component helps the stakeholder to prioritize when actions should be completed. Planning teams should also consider whether the operational approach should be described using lines of efforts (LOE) that summarize relevant themes that emerged from the above mentioned framing activities. Defined in part, a LOE is a line that links multiple tasks using the logic of purpose (ADRP 3-0). Doing so can help the project stakeholder and other SALs see where the proposed recommendations align with current Army or installation specific efforts like the Commanders Ready and Resilient Council (CR2C). The CR2C is the strategic platform used to operationalize the Ready and Resilient mission – “the Army’s strategy for strengthening individual and unit Personal Readiness and fostering a culture of trust” (7). To the extent possible, having an understanding of current or proposed initiatives is important when developing the operational approach. This reduces the chances of recommending redundant actions and leads to a greater likelihood that actions will be taken seriously.
Traditionally the “design” component of ADM stops after the development of the operational approach. Additional steps include the military decision making process (MDMP) (3). While beyond the scope of this paper, the MDMP is a detailed, step-by-step process that demonstrates how to implement the operational approach.

The goal of the remaining sections is to describe a case where public health practitioners at the U.S. Army Public Health Center (APHC) used ADM to translate a public health problem and provided readily understandable solutions for military leaders. APHC provides public health services to Army and Department of Defense customers around the world. Headquartered at Aberdeen Proving Ground, Maryland, APHC offers standardized practices and procedures used throughout the public health enterprise, provides unique technical assistance tailored to each stakeholder, and oversees quality assurance of public health missions. APHC personnel have expertise in a variety of fields including almost 70 scientific and technical disciplines.

RESULTS

Real World Use of ADM: Fort Wainwright, AK (FWA) Behavioral Health Epidemiologic Consultation (BH EPICON)

ADM Planning Team

Following a perceived increase in suicides at Fort Wainwright, Alaska (FWA), FWA leadership requested that APHC’s Behavioral and Social Health Outcomes Program (BSHOP) conduct a behavioral health (BH) epidemiological consultation (EPICON). BH EPICONs are leader-requested holistic assessments that characterize the behavioral and social health of units and examine how the military community and geographic environment affect Soldiers and their Family members. The FWA BH EPICON was completed by a multidisciplinary team of over 30 professionals including epidemiologists, social scientists, program evaluators, clinical and
research psychologists, a social worker, a public health nurse, a data manager, data technicians, and a health risk communication specialist.

Step 1a: Frame the Environment

BSHOP used eight scientific methods to identify FWA’s current state and desired end-state. These methods included the following:

1) Clinical record review of index cases (n=16)
2) Serious Incident Report analysis (n>800)
3) Focus group facilitation (n=45) with 534 Soldiers
4) Key leader interviews (n=30) and Command Team interviews (n=4)
5) Analysis of population-level behavioral health care encounters
6) Survey data (n>4,000)
7) U.S. Army Alaska, Garrison, and MEDDAC Command policy reviews
8) Geospatial analysis

Figure 2 depicts the current state and desired end state as determined by the data analysis conducted from the project team.

Figure 2. Current State and Desired End State for FWA BH EPICON
In the current state, the puzzle pieces illustrate a disconnect between the unit and the community which are interdependent and mutually supportive. The Soldier is alone and on one knee. In addition to the lack of connectedness, this is symbolic of the perception of limited resources, the feeling of isolation and a lack of support, and how the burden of psychosocial stressors have threatened their well-being. In the desired end state, the unit and community are engaged and connected, as symbolized by the joined puzzle pieces. The three Soldiers standing together represent the receipt of world-class resources to aid in better training and mission preparedness, improved community and unit support, and a cohesive team of Arctic Warriors. The prevalence of psychosocial stressors may not go away, but when Soldiers have the resources and support to address these issues, they can still thrive personally and professionally.

**Step 1b: Summarizing the Data**

In the month prior to taking the online survey, 10.8% of Soldier respondents at FWA reported suicidal ideation. Soldiers identified isolation, stigma, limited resources (e.g., limited
gym hours and difficulties in transportation), poor coping skills, alcohol use, insufficient sleep, and poor quality of life at FWA as factors they perceived as contributing to suicidal behavior. These issues were compounded by stressors associated with living in the arctic environment, which is unique to Fort Wainwright, AK.

Step 2: Frame the Problem

In the problem frame graphic (Figure 3), individual icons were used to illustrate the unit and community level stressors that were prevalent. Unit level stressors included; long work hours and high OPTEMPO (clock); leadership challenges (people); constraints of funding that impact mission readiness (tank), and hazardous drinking (bottle). At the community level, quality of life indicators included — housing (house), financial instability (dollar bill); food environment (assorted food items), and barriers to important resources (healthcare, recreation) have also been strained. The disconnection between these important components of Soldiers lives has contributed to the feelings of isolation and loneliness as depicted by Soldier floating away from the mainland on the horizon. The problem frame was characterized as, how can FWA promote connectedness to enhance well-being?

Figure 3. Problem Frame for Behavioral Health Epidemiological Consultation at Fort Wainwright, Alaska
Step 3: Operational Approach

The overall purpose of the BH EPICON was to identify opportunities to inform risk mitigation and health promotion strategies for Soldiers stationed at FWA. Findings provided the basis for actionable recommendations to leadership with support from the community.

The proposed recommendations were nested under two LOEs: Stabilize the Unit and Strengthen the Community. Recommendations and supporting findings were presented in an order that maximized their impact to the Soldiers and community while considering the time needed for planning and implementation. The recommendations under quick-wins (i.e. feasible actions that can occur in 30 days or less and require minimal resources) were discussed in ongoing collaboration with the respective stakeholders. Additionally, relationships for consultation and sharing of data had already been established. The second set of recommendations (short-term recommendations) built on positive actions that were already occurring within the community and/or required more time for review and consideration with the new FWA leadership team that took command during the assessment. The third group, mid-term
recommendations, were meant to inform comprehensive leader development and training, and allows for improved quality of life for Soldiers and Family members upon arrival to FWA. The fourth set of recommendations had potential for the broadest impact. However, they were more long-term because planning and implementation may take 6 months or more. The study team suggested that implementation of recommendations within each recommendation set occur concurrently to maximize the utility of the data and information obtained from each effort in order to have the greatest likelihood of achieving the desired end-state. Figure 4 depicts the Operational Approach in the form of actionable recommendations that was presented to the FWA leadership team.

Presenting such comprehensive data in a way that resonated with FWA leadership allowed for 1) easier digestion of scientific data, 2) a succinct description of environmental challenges, and 3) a clear path forward to counter identified problems.

**Figure 4. Actionable Recommendations for the Leadership Team at Fort Wainwright, Alaska**
Public Health Implications

Since the release of the BH EPICON report, numerous changes have been implemented at FWA. Soldier quality of life was degraded by the difficulty of winter vehicle maintenance and insufficient operational funding. In response, the Army funded construction of eight Winter Maintenance Facilities. They will be complete by the end of the year, allowing indoor maintenance and storage for about half the Stryker fleet. The Army assessed the financial needs of 1/25 SBCT and increased their annual funding by $7M, which will enable a higher state of readiness. In response to frequently cited transportation issues, the SALs established a shuttle system so that Soldiers could more easily travel from the barracks to the gym and dining facilities (8). Space for Soldier physical fitness was another chief concern, so USARAK SALs increased the quality and quantity of indoor gym space. They expanded the gym hours so that Soldiers could access the facility 24 hours a day, installed over $900,000 worth of new gym equipment.
equipment in existing physical fitness facilities, renovated half of Hangar 1 for Army Combat Fitness Test training, and are adding four new Combat Readiness Training Facilities. In addition, the basic daily food allowance was increased by 44% so that Soldiers could select healthier options when using the dining facilities, and the main dining facility (DFAC) was renovated. A dining facility kiosk was built in remote barracks Building 1001, so Soldiers can use their meal cards to purchase healthy meals without travelling to the DFAC at the far side of the airfield. Other barracks improvements included installation of blackout shades to enable dark sleeping rooms during long summer days. Light boxes to combat seasonal affective disorder during the dark winter months were purchased and are available for checkout at no cost. Leadership training was revised and augmented, and every supervisor completed ENGAGE training for more meaningful leader-Soldier connections. The behavioral health clinic now offers intensive outpatient care, and conditions have been set for better military and civilian staffing of health care positions. Most notably, in March 2020, the Army announced that Soldiers assigned to Forts Wainwright and Greely or Joint Base Elmendorf–Richardson will receive one-time payments of $1,000 to $4,000 as part of a Remote and Austere Conditions Assignment Incentive Pay to improve the quality of life for Soldiers and Families stationed in Alaska (9). SALs are currently planning the construction of additional barracks facilities as well as recreation centers to further strengthen FWA infrastructure and boost installation morale.

CONCLUSION

SALs rely on experts from a variety of disciplines to provide guidance on making decisions for their units. Presenting this information in a way that speaks their language is important. The use of ADM is a way to develop immediate rapport from SALs given that it is a framework that is taught at military educational institutions and is understood by SALs.
reframing public health problems and solutions through the ADM framework, public health leaders will be able to ensure that their messages are understood and their recommendations are appropriately executed.

REFERENCES