Dynamic Diffusion Network: Advancing moral injury care and suicide prevention using an innovative model

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ABSTRACT

Healthcare providers across a wide variety of settings face a common challenge: the need to provide real time care for complex problems that are not adequately addressed by existing protocols. In response to these intervention gaps, frontline providers may utilize existing evidence to develop new approaches that are tailored to specific problems. It is imperative that such approaches undergo some form of evaluation, ensuring quality control while permitting ongoing adaptation and refinement. "Dynamic diffusion" is an innovative approach to intervention improvement and dissemination whereby care practices are delivered and continuously evaluated under real-world conditions as part of a structured network experience. This "dynamic diffusion network" (DDN) promotes cross-pollination of ideas and shared learning to generate relatively rapid improvements in care. The pilot Mental Health and Chaplaincy DDN was developed to advance suicide prevention efforts and moral injury care practices being conducted by 13 chaplain-mental health professional teams across the Veterans Health Administration. Lessons learned from the pilot DDN include the importance of the following: geographic and cultural diversity among innovation collaborators to ensure the broadest possible relevance of solutions; leadership support to facilitate engagement of frontline providers in quality improvement efforts; and participation in a community of practice to motivate providers and offer opportunities for direct collaboration and cross-pollination of ideas.

1. Background

Suicide prevention is currently the top clinical priority for the Department of Veterans Affairs (VA).[1] Concerted efforts are underway to curtail what has been described as a suicide "epidemic" among service members and veterans. These groups are significantly more likely than the U.S. general population to die by suicide (prior to statistical demographic adjustments.[2,3] while also likely being subject to the broader increases in suicide rates affecting the entire U.S. population.[4] Researchers and clinicians are striving to identify and deliver best practices for addressing a problem that is exceptionally complex. Some efforts at suicide prevention have focused on addressing moral injury, which can result when a person experiences a profound violation of their sense of what is right.[5,6] This can occur as a result of acts of perpetration (e.g., killing in combat), omission (failing to prevent something from happening to someone else), or witnessing acts of perpetration or omission. Moral injury is distinguished by distress stemming from moral emotions,[7] such as guilt, shame, outrage, disgust, and betrayal. Moral injury has been associated with suicidality among veterans and service members and is linked to other suicide risk factors such as PTSD.[8,9] Like suicidality, moral injury is an existential struggle without a singular "best practice" for reducing the distress it entails.

There are extensive evidence-based protocols being utilized to mitigate suicide risk across VA, such as placing suicide flags in charts of high-risk veterans[10] and employing the Standardized Comprehensive Suicide Risk Evaluation.[11] These system-wide efforts tend to focus on evaluation and risk management. Efforts to address moral injury are much less present or coordinated by comparison. Uncertainty about

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how to address these complex problems can be perplexing for those on the frontlines of care. Accordingly, many frontline providers have taken the initiative to develop new care approaches that bridge the gap between what their current repertoire of care offers and what their patients appear to need. Within the Veterans Health Administration (VHA), these frontline providers include mental health professionals as well as clinical chaplains who have received intensive training in integrating evidence-based psychosocial modalities with their spiritual care.[12–16]

These pioneering frontline providers are located at different medical facilities across the VHA system, which has resulted in multiple care approaches being developed independently and concurrently. In this paper, we will describe a "Dynamic Diffusion Network" that was developed to offer these frontline providers a mechanism for exchanging ideas, evaluating and iteratively improving their care practices, and simultaneously preparing for and responding to dissemination requests from others across the VHA system. We will explain how this innovative method of refinement, implementation, and evaluation enhances care, empowers frontline providers, and balances dissemination with ongoing improvement.

2. Organizational & Personal Context

VHA is the largest integrated healthcare system in the country, serving nine million veterans at over 1200 care sites.[17] VHA provides veterans with health care to address health problems that are prevalent across the broader U.S. population (e.g., diabetes, cardiovascular disease, cancer), while also specializing in the provision of healthcare services that address health care challenges with distinctive manifestations and prevalence in veteran populations (e.g., posttraumatic stress disorder, traumatic brain injury, prosthetic limbs, suicidality, moral injury). Accordingly, VHA has sought to structure the organization of its care services to meet the needs of the veteran population. Examples include: the Mental Health Hiring Initiative [18] which added over 1000 mental health jobs to improve access to care for veterans and to expand suicide prevention and mental health care to those with Other than Honorable discharges; the Whole Health program, which encourages holistic care driven by veterans' personal values and priorities[19]; and Mental Health and Chaplaincy, which seeks to address the dynamically interconnected psychological, emotional, and spiritual needs of veterans via a more collaborative system of mental health and chaplaincy care.[20]

A major offering out of VA Mental Health and Chaplaincy is the Mental Health Integration for Chaplain Services (MHICS) training, which equips VHA and Department of Defense (DoD) chaplains in the integration of evidence-based psychosocial modalities along with spiritual care to more optimally address common mental health problems among veterans and service members, including moral injury and suicidality.[13,14,21] Over 150 chaplains have completed the MHICS training program to-date.

The network of MHICS alumni presents at least two unique opportunities within VHA. First, MHICS chaplains collectively interact with service members and veterans across the spectrum of military service – from active duty to Guard/Reserve to post-military civilian life, across branches of service. This enables VHA chaplains to have firsthand knowledge of the struggles faced by current service members, struggles that can evolve and even be exacerbated as service members transition to being veterans.[22] Second, VHA chaplains who regularly interact with DoD counterparts are reminded of the unique relationship of trust that military chaplains share with service members under their care. For some veterans, the chaplain was the only person they could talk to in confidence during their service; VA chaplains by contrast tend to operate more as part of clinical teams, with different expectations around confidentiality based on this different context.[23] Thus, while not all veterans will be interested in seeing a chaplain, VHA chaplains may be, for many veterans, the preferred point of contact for multiple forms of distress. MHICS equips chaplains to be prepared to address the wide range of psychosocial distress that they regularly encounter among service members and veterans.[14,21] Given that chaplains are the preferred and trusted point of contact for many,[23] chaplains are uniquely suited to inform the rest of the healthcare system about profound struggles some veterans face, including moral injury and suicidality. Furthermore, chaplains are distinctively suited to lead the way in addressing those struggles, especially when equipped with training in evidence-based psychosocial approaches to care.[24]

3. Problem

Healthcare providers across a wide variety of settings - including but not limited to the VHA - face a common challenge: the need to provide real time care for complex problems that are not adequately addressed by current protocols, workflow, or systems of care.[25,26] The COVID-19 pandemic that hit global healthcare systems in early 2020 is a prime example. Evidence-based practices and processes exist for addressing elements of the web of problems presented by COVID-19 (e.g., frequent handwashing as a primary intervention), but the problem is multifaceted enough to necessitate more than a single intervention (e.g., handwashing plus social distancing) and novel enough to merit further care adaptations or new ideas to most optimally address it (e.g., multifaceted guidance to identify healthcare professionals and patients with suspected illness in diverse settings).[27] The goal is to expand the utilization of existing evidence-based solutions that have been demonstrated to be effective for similar, yet distinct, problems (e.g., other virus outbreaks). However, even in instances when the problem or solution being applied is similar to something that is well understood or is an accepted best practice, it remains imperative to evaluate the appropriateness of the new application of a solution and adaptations that must be made to encourage implementation in new settings and situations.[26,28,29]

Furthermore, when the challenge is especially pressing, such as when a problem threatens the safety and wellbeing of those afflicted (e.g., suicide), generating solutions *rapidly* is also important. Urgency can lead to inventiveness on the frontlines of care, where providers are removed from the controlled environments of randomized controlled trials (RCTs) that are critical to establish underlying evidence for practices. When a problem is widespread, it is likely that frontline providers in various locations within a healthcare system would be simultaneously striving for solutions. However, when these efforts are disjointed, opportunities for peer support, peer review, collaborative learning from successes and failures, and coordinated dissemination may be hindered.

In the specific context of the VHA, the problems of moral injury and suicide are pressing.[30,31] Suicide stems from a web of interacting factors, including mental health diagnoses. Another factor that has been shown to be associated with suicidality for some veterans is spiritual distress.[32] Spiritual distress is associated with hopelessness and mental health problems in veterans, including PTSD and major depressive disorder.[33] The experience of spiritual distress can overlap with and be distinct from mental distress. While mental health professionals should be and occasionally are trained in religious and spiritual competence,[34] clinical chaplains are the only subject matter experts within VHA qualified to conduct spiritual assessments, which may be informative in understanding the spiritual dimension of distress in the context of suicidality or moral injury.[35,36] Furthermore, clinical chaplains are mandated to provide the spiritual dimension of care in relation to suicide prevention, mental health (including PTSD explicitly), and moral injury.[35]

Since spiritual dimensions of suicidality and moral injury have been clearly identified [37–39] it is appropriate for mental health and spiritual care providers to work independently and collaboratively with those suffering from these forms of distress. However, we are still early in our understanding of these complex problems, and even more so our

knowledge of effective solutions. Yet as the need for care grows, so too does the sense of urgency. To fill this gap, an approach is needed that simultaneously promotes refinement and dissemination of knowledge and practices in a manner that meets care needs in local contexts while also advancing the level of care provided by the healthcare system collectively.

4. Solution

The sections that follow outline key components of an innovative approach to refinement and dissemination, characterized as a *dynamic diffusion network (DDN)*, which is a diverse, collaborative network of open and willing professionals who have demonstrated commitment to advancing progress around a common theme. This section concludes with a case example that touches on each of these components.

4.1. Variations on a theme

The DDN was developed to be organized around a single complex or chronic problem, or closely related problem areas. Focusing on a common problem provides necessary parameters and structure within which innovative clinical and programmatic practices can be collaboratively discussed, then evaluated, then refined, and finally disseminated. The innovations should be "clustered" so that they are similar enough that comparisons and contrasts are meaningful without being wholly redundant.[40] If the innovations are too dissimilar, network participants will likely struggle to relate to and benefit from one another's work.

4.2. Diverse collaboration

To develop new solutions rapidly, forward thinkers must be able to communicate and collaborate with one another. Diversity of perspectives is an asset when trying to solve a novel problem, and thus innovators should be drawn from as many contexts as is feasible.[41] This includes geographic diversity and the cultural differences represented therein, which is of utmost importance in a system as widespread as VHA; diversity of disciplines to allow for multiple viewpoints on the conceptualization of the problem and possible solutions; and diversity of perspectives within disciplines to promote a more generalizable solution. While the Mental Health and Chaplaincy DDN described here addresses the topics of moral injury care and suicide prevention efforts involving both mental health and chaplain professionals, the DDN model has been developed to be applicable to a wide range of clinical and healthcare administration challenges.

4.3. Openness and willingness

Participation in a DDN requires a fundamental orientation toward *openness*.[41] Openness begins with agreeing to share about the full range of experiences with a new care practice, including successes and failures. As each practice is presented, openness requires willingness to be questioned about one's work, to receive constructive feedback, and to trust in the experience of others enough to try out their ideas when appropriate. Participants should be willing to do this on an ongoing basis, seeking continual refinement in response to lessons learned, both personally and vicariously. DDN participants should be willing to loosen their grip on prior ways of seeing the problem, carrying out the practice, and evaluating progress. Importantly, the objective is not necessarily for all practices in a network to look and function the same way, sacrificing their individual flavor for a uniform taste. Rather, DDN participation involves seeing and appreciating the value in different approaches and consequently becoming even more discerning about one's own practice.

4.4. Commitment

While the network experience is designed to occur during a finite period, developing a mindset of continuous quality improvement and collaboration is intended to last indefinitely as a defining practice. A DDN provides tools and skillsets that can be applied with new groups and to new problems, but it also allows for continual expansion of the network as new innovators are brought into the fold. Seasoned participants become models for continuous quality improvement as their practices are disseminated to others. This approach encourages the development of true expertise and leadership in an area, which can provide motivation and encouragement to continue striving after even better solutions.

4.5. Structure, support, and accountability

The execution of a DDN is organized around three operational elements: structure, support, and accountability. Each of these components must be carried out on an individual team level and a group level. In developing the structure, an important consideration is how to balance individual practice evaluation with opportunities for group engagement and cross-pollination of ideas. A DDN should commence with a planning phase, followed by several implementation phases. The planning phase allows DDN facilitators and participants to clarify goals and objectives for each implementation phase, develop or modify tools and reporting mechanisms, and adjust to the expectations of network engagement. Each phase is assigned a focus area to unite the teams around a common theme. Focus areas should be determined based on the content and objectives of the specific DDN. The duration of a DDN experience must allow enough time for iterative evaluation and adaptation.

Each phase follows the same organizational sequence, consisting of a call structure and various reporting mechanisms. The dynamic nature of a DDN allows for the details of this structure to be determined based on the needs and capacities of the network participants. However, consistency of processes is important for establishing clear expectations regarding how and when support is available and how accountability will occur. A primary form of accountability is reporting, and the selected reporting mechanisms should be reasonable, timely, and useful to both network participants and DDN facilitators. The essence of a DDN is the network aspect, and it should be emphasized that the community of practice is paramount. This is done in part by bookending the experience with in-person gatherings. The initial gathering is to help foster collective understanding of the mission and promote interpersonal engagement throughout the process; the conclusory gathering is both a celebration of what has been accomplished and an intentional planning period for next steps. Each team also receives a consultation visit at some point during the network experience with two specific foci: 1) contextual variables that could influence practice improvement, implementation, and evaluation; and 2) intensive review of practice content.

4.6. Engagement cycle

The DDN process is a cyclical model that functions on a macro level for the network as a whole and a team level. The overarching objective that guides the teams and the network overall is pursuit of *quality* - defining quality and evaluating whether a practice meets that standard. This process unfolds across five steps, which comprise a continuous cycle. The steps are: 1) identifying values and goals based on defining quality using the Donabedian concepts of structure, process, and outcome[42–44]; 2) describing practices with an eye toward identifying core and adaptable components of the practice[45]; 3) defining measures of practice implementation and effectiveness; 4) conducting rapid cycle quality improvement based on the concepts of plan-do-study-act cycles[46]; and 5) telling the story of the practice so that other facilities can

learn how to improve their own work.

4.7. Case example

The DDN model was developed by VA Mental Health and Chaplaincy and the Center of Innovation to Accelerate Discovery and Practice Transformation (ADAPT), a VA Health Services Research & Development (HSR&D) Center of Innovation. This was done in partnership with the VHA Innovation Ecosystem's Diffusion of Excellence Initiative. Mental Health and Chaplaincy, in collaboration with evaluation capacities provided by ADAPT, has a demonstrated track record of effectively training and equipping chaplains in integration with mental health, on both an individual provider level[12,14,15,47–50] and systems level.[16] This capacity building across VHA has optimally positioned Mental Health and Chaplaincy and ADAPT to develop a DDN bridging the disciplines of chaplaincy and mental health around the closely related, yet distinct, problems of moral injury and suicide prevention. This process also aligns with the VHA Innovation Ecosystem's Diffusion of Excellence program, which seeks to 1) identify, 2) facilitate early expansion, and 3) promote system-wide spread of innovative healthcare practices that have shown an impact on care, employee engagement, and/or administrative processes within VA facilities.[51–53]

Drawing from a network of over 150 MHICS alumni, 13 were invited to participate in the DDN, along with their mental health partners, based on review of their practices. Of the 13 practices selected, three had previously received recognition and endorsement from internal VHA mechanisms that identify promising practices from the field (i.e., VHA Diffusion of Excellence Shark Tank competition[53]; and VA's National Chaplain Center). Yet despite earning those seals of approval, the developers of those practices recognized that their practices could be enhanced as part of the DDN.

To ensure that the 13 teams invited to participate would be supported in the process, official approval was solicited from local medical center leadership, including service line chiefs, the facility chief of staff, and the facility director. The success of the teams in developing original practices in the first place was evidence of facility environments that were open to innovation; however, explicit support from leadership was considered critical for teams to be able to invest effort in evaluating and refining their practices as part of the DDN. Teams then completed preliminary reporting about their practices in preparation for the in-person kickoff event.

Fig. 1 provides an overview of the operational structure for the Mental Health and Chaplaincy DDN. A timeframe of 16 months was selected for teams to have adequate time to carry out multiple iterations of their practice (the longest timeframe needed for a single iteration was 15 weeks). The 16 months were then evenly divided into 4-month phases: a planning phase and three implementation phases. Each 4-month phase consisted of individual team calls occurring in months 1 and 3, a large group call with all teams in month 2, and small group calls based on content area (i.e., moral injury and suicide prevention) in month 4. The agenda for these calls balanced the components of structure, support, and accountability. Large group calls were used primarily for dissemination of information relevant to all teams, such as how to make distinctions about research vs. quality improvement and information pertaining to data collection tools and processes. Small group calls provided a venue for focused discussion around successes and challenges faced by teams, which promoted cross-pollination of ideas as well as offered encouragement and support. Individual team calls offered personalized attention focused on problem-solving and planning. Teams consistently reported that these calls kept them engaged and energized to carry out the work. Reporting mechanisms include a pre-survey report, brief weekly reports, and phase summary reports.

Based on review of preliminary reporting, appropriate focus areas were determined to be: Systematic Measurement, Participant Engagement, Facilitator Considerations, and Next Steps. Teams were guided, through prompts and consultation with DDN facilitators, in the process of identifying aspects of their practices that fell into each focus area, that would be feasible to address, and that would benefit from evaluation and potential adaptation. Within the overarching frame of each focus area, teams were free to decide what they needed to hone in on to improve their practice. For example, during the Systematic Measurement phase, team activities included: conducting qualitative interviews with stakeholders to measure attitudes about the practice that would shape decisions about group content and branding; developing a database for tracking quantitative symptom measures pre- and post-moral injury group to assess group impact; and surveying group participants for feedback related to specific intervention components to help determine which aspects of the intervention were most impactful. Notably, several moral injury teams reported improvements in veteran recruitment and retention for their groups as a result of adaptations inspired by other teams.

5. Unresolved questions and lessons from the field

The Mental Health and Chaplaincy DDN has been successfully executed, and efforts are underway to evaluate the clinical impact of individual practices. The DDN functions as a model for the very iterative improvement it espouses by responding flexibly to new information and making changes in real-time. Participant feedback suggests that
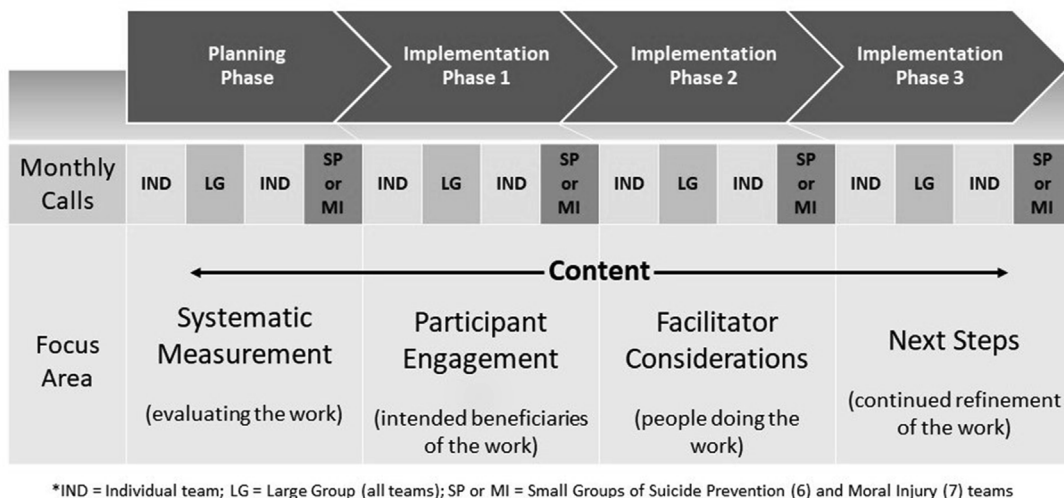

	Planning Phase			Implementation Phase 1			Implementation Phase 2			Implementation Phase 3		
Monthly Calls	IND	LG	IND	SP or MI	IND	LG	IND	SP or MI	IND	LG	IND	SP or MI	IND	LG	IND	SP or MI

	Content →
Focus Area	Systematic Measurement (evaluating the work) — Participant Engagement (intended beneficiaries of the work) — Facilitator Considerations (people doing the work) — Next Steps (continued refinement of the work)

*IND = Individual team; LG = Large Group (all teams); SP or MI = Small Groups of Suicide Prevention (6) and Moral Injury (7) teams

Fig. 1. MHC DDN structure.

network involvement helps to hold teams accountable for continuously improving their work, rather than settling for the status quo. Participants also consistently reported that receiving individualized attention and feedback regarding their practice from network facilitators and other team members helped them generate new ideas and think more critically about their work. Some team members noted that they wanted more opportunities to hear directly from other teams, such as on the small and large group calls. In the spirit of modeling iterative improvement, Mental Health and Chaplaincy DDN facilitators are considering adaptations to the network structure, such as joint individual team calls, that would facilitate deeper engagement among teams.

DDN participants reported feeling generally supported by stakeholders, with a few exceptions due to unresponsive facility leadership. However, while teams feel supported in the general idea of their practice and participation in the DDN, several reported struggling to find time to devote to the practice. For teams conducting moral injury therapy groups, such activities fall easily into typical job duties. As such, moral injury team members generally were able to execute their practices and engage in evaluation and refinement activities without much difficulty, though they still expressed that additional time devoted to the administrative tasks of evaluation would be helpful. By contrast, the activities of the suicide prevention teams tended to involve time and effort investment that was beyond their typical job duties (i.e., community outreach, training/consultation with other providers). As a result, these teams had more difficulty fitting practice execution, evaluation, and improvement into their work schedules. Suicide prevention teams consistently reported that FTE dedicated to their practice would help empower them to carry out these activities. This was especially true in the case of a systems-redesign consult development practice, which nearly a dozen other VHA facilities are seeking to implement.

The strength of a DDN lies primarily in its ability to foster promising, evidence-based ideas in a manner that responds to the urgency of pressing problems while honoring their complexity. At the same time, practices that are being improved and disseminated through a DDN should be rooted in available empirical evidence to the greatest extent possible. Furthermore, ongoing evaluation can and should be undertaken throughout the process. Improvement and spread through a DDN should not be a substitute for more traditional research approaches with controls and comparisons, such as RCTs. However, participation in a DDN may provide strong evidence of external validity en route to rigorous empirical investigation.

By fostering 13 practices at one time, the Mental Health and Chaplaincy DDN is advancing moral injury care and suicide prevention much more rapidly than would be possible if only one practice was prioritized at a time. Moving forward, it will be important to consider new ways to foster direct team-to-team collaboration. Potential ideas include joint individual team calls, increased structure on large group calls with devoted time for each team, and direct referrals for collaborations among teams by DDN facilitators. Another challenge is helping teams navigate requests from others in VHA to share their practices. The volume of requests is indicative of the growing need across the system for the types of practices being fostered by the DDN. While each team retains autonomy over their practice, DDN facilitators have and will continue to prioritize education and training regarding dissemination of strong practices.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

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