A National Mobile Medical Unit (MMU) Program to Address the Healthcare Needs of Veterans Experiencing Homelessness: An Evaluation Protocol

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ABSTRACT

BACKGROUND: Homelessness remains a public health concern in the United States (U.S.) and ending veteran homelessness has been a significant priority for the U.S. Department of Veterans Affairs (VA) for over a decade. However, veterans experiencing homelessness (VEH) have unmet healthcare needs and face numerous barriers to accessing and engaging in healthcare.

OBJECTIVES: The Veterans Health Administration's (VHA) Homeless Programs Office (HPO) implemented mobile medical units (MMUs) within the tailored primary care model established in 2011 called the Homeless Patient Aligned Care Team (HPACT) program to expand access to care for hard-to-reach VEH. This article outlines the evaluation protocol for the HPACT MMU program to examine the impact of MMUs on engaging and retaining homeless veterans in VA primary care and other supportive services.

DESIGN: Using the Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework, we will assess how mobile services engage VEH in VA primary care and preventive care. This 4-year program evaluation includes a plan to collect individual and organizational level quantitative and qualitative data.

DISCUSSION: The first stages of program adoption and implementation have been completed resulting in 25 MMUs being deployed across the U.S. that are fully operational and ready to serve VEH. Early outcomes demonstrate the significant impact of the ability MMUs in reducing barriers such as transportation for VEH, while increasing positive veteran health outcomes.

CONCLUSION: This evaluation will provide insight on the innovative ways in which mobile medical units (MMUs) may expand the boundaries of the VA and external health care systems in efforts to improve health equity and access among our most vulnerable populations. Preliminary outcomes show significant engagement with VEH in the community and interest in the model of care. The program has the potential to play an essential role in achieving VA's goal of ending veteran homelessness.

KEYWORDS: Homelessness, veteran, mobile medical unit, primary care, access, program evaluation

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Introduction

Background

Over half a million people experience homelessness on any given night in the United States (U.S.), and this number is expected to increase given recent economic downturns, the lack of affordable housing, and numerous other community shortfalls resulting from the coronavirus 2019 (COVID-19) pandemic.[1,2] U.S. veterans represent about 7% of the total U.S. population and account for about 8% of people experiencing homelessness. Ending veteran homelessness has been a significant priority for the Department of Veterans Affairs (VA) for over a decade[3] and requires engagement throughout the entire organization. The number of veterans experiencing homelessness increased by 7% between 2022 and 2023, which included a 14% rise in the number of unsheltered veterans.[1,4,5] In effort to mitigate the homeless crisis, innovative interventions that engage veterans in VA healthcare and services are warranted.

VEH have unique clinical and psychosocial needs.[6-10] Homelessness exacerbates existing health conditions and increases the risk for premature mortality.[11] VEH are associated with poorer health status, greater unmet healthcare needs, and increased hospital and emergency department utilization.[6-10] In addition to systemic and cultural barriers, VEH also face many unique challenges to finding healthcare services that fit their medical needs, including transportation barriers, service fragmentation, stigmatization, and lack of social support.[12-16] These barriers are further augmented by VEH low satisfaction with services, distrust of the system, and perceptions of low quality of care. The VA is committed to new approaches that serve VEH, for whom prior efforts have fallen short, including strategies

that aim to identify and remove barriers to healthcare and social services.

Homeless Patient Aligned Care Team (HPACT)

The Veterans Health Administration's (VHA) VEH medical home initiative, known as the Homeless Patient Aligned Care Team (HPACT) program,[17] was launched in 2011 as part of the Ending Homelessness Among Veterans Initiative.[3] Operated by the VHA Homeless Programs Office (HPO), HPACT is one of multiple homeless programs that provides a continuum of housing and employment services, legal assistance, outreach, and clinical care to homeless veterans. In 2023, HPO served over 200 000 VEH including over 30 000 veterans who were experiencing unsheltered homelessness.[4] Out of the total veterans served by HPO, the HPACT program served almost 22 000 VEH by engaging them in primary care and connecting them to other supportive services.

The HPACT model is designed to address the unique needs and distinct challenges VEH face when accessing and engaging in primary healthcare. The model includes interdisciplinary team members focusing on the principles of patient-centeredness, Whole Health,[18] and active communication and coordination among all care providers.[17] HPACT differs from traditional primary care by: (1) reducing barriers to accessing care through provision of open-access and outreach to engage disconnected veterans; (2) providing co-located, culturally sensitive integrated services including mental health, homeless services, and primary care; and (3) intensive case management that is coordinated with both VHA and in collaboration with community partners.[17] The HPACT model is associated with decreases in emergency room visits and hospitalizations,[17] increased engagement in ambulatory care,[19] positive care experiences,[20] timely access to permanent housing,[21] and to mental health care.[22] HPACT has been effective in reducing access to care barriers.[16] Prior research demonstrated that Veterans who are transported by HPACT to their first medical interview are more likely to engage in subsequent VA medical appointments.[19] It is likely that increased efforts may have a magnified effect.

Existing Mobile Medical Unit Models

Combining HPACT clinical encounters and HPO services with a mobile asset such as a medical unit (MMU) may provide one way to increase access to healthcare and permanent housing options among the most hard-to-reach VEH.[23] Previous studies have documented the effectiveness and feasibility of mobile interventions in engaging and retaining various marginalized populations.[24-26] In Chicago, MMUs were used to engage people in neighborhoods with the highest opioid overdose rates.[24] A variety of health services were provided including primary care and opioid use disorder (OUD) treatment such as buprenorphine initiation. MMUs integrated with a holistic approach offer significant opportunities to expand access to other medical services and public health efforts, including OUD treatment and infectious disease services that is otherwise inaccessible to vulnerable patient populations.[25] Another mobile COVID-19 vaccine unit demonstrated effectiveness by increasing access to and continuity of health services among adolescents and racial/ethnic minorities in underserved communities during the pandemic.[26] Access to MMUs has been associated with reducing non-emergent or lower acuity emergency department (ED) visits in underserved populations.[27] While studies have demonstrated the benefit of MMUs among a variety of disparate populations, the impact of VA MMUs which integrate medical care, mental health, housing, and other social services in delivering care to VEH is still unknown.

The subsequent paragraphs outline a planned evaluation protocol that uses the RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance) framework[28] to examine the impact of the national VHA HPACT Mobile Medical Unit (MMU) program. The future findings of the evaluation protocol will be essential to understanding the benefits of utilizing MMUs in efforts to increase the accessibility and continuity of care and improve health outcomes in this hard-to-reach population.

Methods

Program overview: Mobile medical units

In May of 2022, all 55 VA medical centers (VAMC) operating HPACT programs were offered the opportunity to receive a MMU equipped to provide healthcare and supportive services to VEH in the community. Each VAMC included and interested in adding a MMU to their existing HPACT program was required to complete a full application that involved a MMU staffing plan by discipline and role, available services to be provided, proposed travel locations and relationships with community partners, a MMU schedule (ie, days, hours per week), and a commitment from local VAMC leadership and stakeholders. After reviewing the applications, 25 VAMCs were awarded MMUs from the HPACT National Program Office based on the applications received (Figure 1). HPACT programs implementing the 25 MMUs were prioritized by cities or geographical areas experiencing high rates of VEH to ensure most efficient use of services and widespread implications. VAMCs were excluded if they did not submit a completed application including obtaining formal support from the VAMC executive leadership team.

The MMUs were available in 2 sizes and awarded to the VAMC and HPACT program depending on the needs of the community and facility preference. Option A is a large MMU that is 27-feet in length and similar in size and shape to a recreational vehicle that includes 2 private spaces and a bathroom (toilet and sink). Option B is a small MMU that is a 21-foot van with elevated interior height to allow for standing/walking

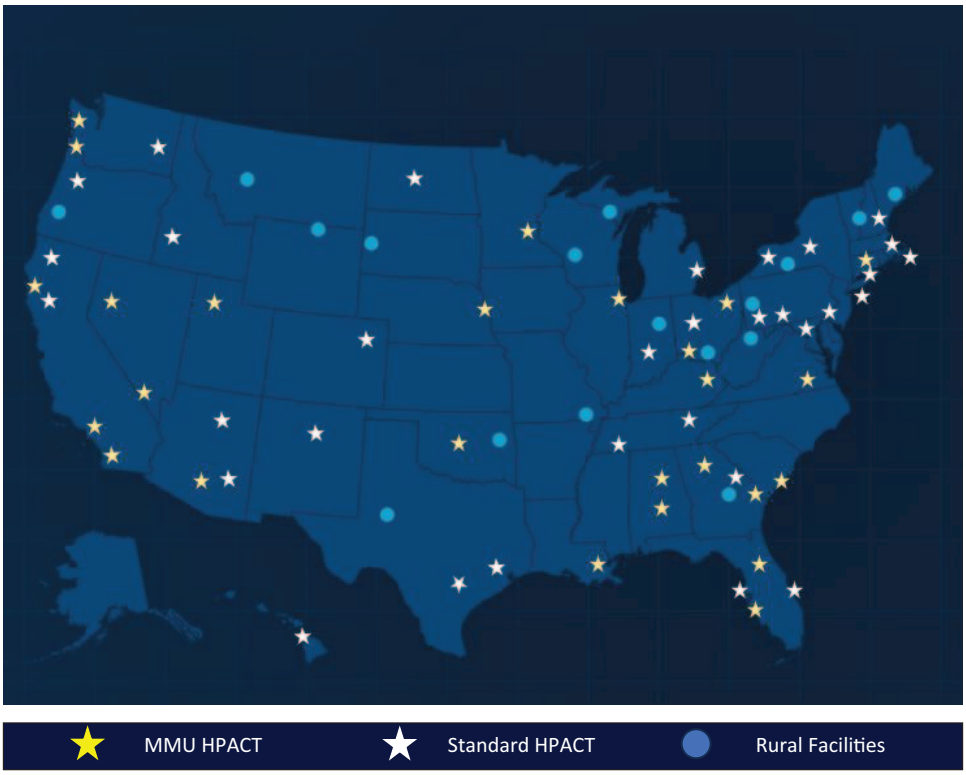

Figure 1. Geographical distribution of MMU HPACT, Standard HPACT, and Rural VA facilities.

inside the vehicle and 1 private space. Both MMUs include an outside retractable awning, electric wheelchair lift, 2 refrigerators (1 medical grade), and electricity to power computers and medical equipment by a generator. The following medical equipment was also included in both MMUs: exam table, wall mounted blood pressure (BP) cuff, thermometer, otoscope, ophthalmoscope, pulse oximeter, and point-of-care testing analyzer for Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), and Influenza A and B. Neither option A nor B require a commercial driver's license (CDL) allowing VHA HPACT staff to drive the MMUs. All HPACT staff have government furnished equipment such as a laptop and cell phone, that allow for access to the VA's Electronic Medical Record (EMR) in the community setting.

Setting and participants

The HPACT MMU program underscores equity to care, by ensuring that units were distributed to communities of diverse racial, ethnic, and sociodemographic characteristics. Of these 25 awarded sites (Figure 1), 10 facilities choose MMU option A and 15 chose option B. The services provided by the MMU staff reflect the needs of the local veteran population and consistency with the HPACT model of care. All MMU providers and facility stakeholders at the 25 sites will be invited via email to participate in various data collection steps throughout the evaluation process. Ideally, we will aim to have 100% participation, although participants may choose to opt-out of the data collection without penalty.

Medically eligible VEH and those at risk or facing the likelihood of homelessness can receive care on the MMUs, including those veterans who are not currently engaged in the VA healthcare system and/or homeless programs. The program will serve veterans across all age-categories and military eras. HPACT MMU staff will identify potential veterans though regularly canvassing known homeless locations in their respective geographical space, raising MMU awareness and partnering with community stakeholders, referrals from other VHA homeless program staff, and encouraging peer referral among veterans (ie, word-of-mouth). The MMU intake form will be used to identify and invite all VEH, who had at least 1 care episode via the 25 VA MMUs, to participate in a survey that solicits feedback and perceptions on their care experience. Because of the transient nature of the VEH population, veterans who consent to participate will be asked to complete a short survey on-site, following their care episode. Data gathering will be ongoing and/or until saturation is reached.

Data instruments

Data collection instruments specific to each RE-AIM component are summarized in Table 1 and are discussed in more detail in the subsequent paragraphs.

Data analysis

The evaluation plan incorporates a mix methods approach. First, descriptive statistics, bivariate, and regression analyses

Table 1. RE-AIM framework for MMU implementation.

FRAMEWORK ELEMENT	METRIC	DATA COLLECTION TOOL	TIMELINE
Reach (Individual level)	• # unique homeless Veterans who are directly touched[1]	1. Survey intake form	FY 2-3
	• # of encounters per Veteran served[1,2]	2. VA Electronic Medical Record data	
	• # of newly engaged Veterans[1]	3. Veteran interviews	
	• Veteran perspectives of barriers & facilitators of MMUs[3]		
Effectiveness (Individual level)	• Preventive care & services[1,2]	1. Survey intake form	FY 2-3
	○ # preventive service encounters		
	○ # of vaccinations		
	○ # Follow-up medical encounters	2. VA Electronic Medical Record data	
	○ # of new encounters with VA homeless programs services		
	○ # of encounters with VA homeless programs services		
	○ # of homeless services encounters		
	○ # of Veterans with stable housing		
	• Acute care[1,2]		
	○ # of acute care visits to the		
	○ ER and/or Hospitalizations.		
Adoption (Setting level)	• # of MMUs delivered[1]	1. Pre-implementation meeting minutes	FY 1-2
		2. Training/meeting attendance records	
		3. Monthly travel logs from MMUs	
	• Staff participation in training sessions/meetings[1,2]	4. Local stakeholder & staff interviews	
	• # of fully staffed MMUs being fully staffed with key HPACT team members[1-4]		
	• # of MMUs on the road; operational 2 days per week at minimum[3]		
Implementation (Setting level)	• Referrals made to regular care in more traditional healthcare settings[2-4]	1 Quarterly Meetings	FY 1-2
		2. VA Electronic Medical Record data	
		3. MMU staff interviews	
		4. Veteran interviews	
		5. Fidelity assessment	
	• Mobile team impressions/feedback[1,3,4]	6. Community Stakeholder Interviews	
	• Community presence[3,4,6]		
	• Fidelity of model[1,5]		
Maintenance (Setting level)	• MMU program specific issues, that foster collaborative learning.[1,2]	1. HPO quarterly practice call meeting notes	FY 3-4
		2. MMU staff interviews	
		3. VA Electronic Medical Record Data	
	• # of MMUs funded for FY5[1,5]	4. MMU contracts, costs, and maintenance services	
	• Positive outcomes on access to care for VEH[1,2]		
	• Veteran engagement in VA care after 12 months[3]		

will be conducted to examine the reach and effectiveness of the MMU program. To assess reach, we will examine the change over time in the number of MMU encounters and newly engaged veterans by MMU facility. Similarly, effectiveness will be explored through statistical models of the exposure (eg, MMU program) and the outcomes (eg, preventive, acute care). Second, the qualitative data (ie, Reach, Adoption, Implementation, Maintenance stages) will be independently coded, summarized, and consensus will be achieved among 3 qualitative coders so the underlying themes can be disseminated.

Program implementation

Implementation of the MMU program involved several VA key stakeholders including HPO executive leadership, Office of Emergency Management, and the HPACT National Program Office. The HPACT National Program Office hosts quarterly community of practice calls to provide guidance on MMU program specific issues, foster collaborative learning, discuss best practices, troubleshoot problems, and brainstorm common themes and issues.

The HPACT National Program Office in partnership with VHA's National Center on Homelessness among Veterans (NCHAV) is conducting the primary evaluation component of the HPACT MMU program. The evaluation team is implementing standardized protocols and data collection tools across the 25 MMU programs. Using VA's Corporate Data Warehouse (CDW) to obtain data, local MMU staff will complete a short intake form for each veteran patient encounter. The intake will include encounter date, the patient's name, date of birth, SSN, and patient status (new patient vs established). This intake assessment will not only allow us to identify and establish our cohort of interest across sites but will aid in following these same individuals longitudinally through the CDW. The intake is essential given that new veterans who utilize the MMU will not be formally enrolled in the VA, yet. The MMU staff will also be asked to complete a short survey that captures aggregate data for outreach encounters, services (ie, medical, housing services) provided, and any barriers and facilitators to implementation of the MMU program.

Ethics approval

This manuscript presents concepts and was not deemed human subjects research, hence does not require Institutional Review Board (IRB) approval. The preliminary data that is presented is limited to implementation site counts and staffing projections that the consenting parties agreed to share as part of the formative evaluation stages of this quality improvement project. This manuscript presents concepts and was not deemed human subjects research, therefore does not require informed consent. The VAMC sites who participated in the preliminary stages of this evaluation verbally consented to share the implementation site metrics and staffing counts which are not considered human subject data.

RE-AIM Evaluation Framework

The RE-AIM framework guides all aspects of this evaluation protocol and its subsequent outcomes (Table 1). RE-AIM is a widely adopted, robust implementation science (IS) framework used to inform intervention and implementation design, planning, and evaluation, as well as to address short-term maintenance.[29] RE-AIM identifies elements of the intervention or program that facilitate positive outcomes and extend reach to the targeted population, while ascertaining practices that may hinder or reduce health inequalities.[30] The framework's 5 evaluation components include, (1) Reach, or the absolute number, proportion, and representativeness that of individuals who are willing to participate in the MMU program, and reasons why or why not; (2) Effectiveness, the impact of the MMUs on individual-level outcomes, including quality of life and negative outcomes; (3) Adoption, number and representativeness of the settings and intervention agents (staff) who are willing to initiate the program; (4) Implementation, at the setting-level measures intervention fidelity, including how well the program delivered on what it was set out to accomplish, time, and costs; and (5) Maintenance, which examines program sustainability at both organizational and individual level over time.[31] Within the RE-AIM framework, we used a mixed methods approach to plan an evaluation protocol that will assess implementation of the MMU program across the 25 designated sites to determine its effectiveness in expanding access to VA healthcare among VEH.

Data Collection

Reach

We will examine the number of all Veterans reached across VHA HPACT MMUs. Reach will be defined as (1) number of unique homeless Veterans who are directly served or impacted by the HPACT MMU program [28]; (2) the number of encounters on the MMU; (3) number of homeless Veterans who are newly engaged in the VA system; and (4) Veteran perspectives on barriers and facilitators of the MMU program. The HPACT MMU program has capacity to reach a large volume of VEH. The MMUs have a broad geographic distribution and can be found in 18 different states and in 13 out of the 18 Veterans Integrated Service Networks (VISNs), covering both urban and rural locations across the system. To examine Reach, the evaluation team will use a secure web application such as Research Electronic Data Capture (REDCap), to build and manage a survey intake form and link to the VA's EMR to examine HPACT MMU encounters using a program specific 4-character code (HMMU) and encounter type (ie, in-person, telephone, follow-up call, etc.). Veteran level interviews will be conducted to ascertain the lived experience of using the MMU program. Reach will be examined in quarter-year increments

beginning in fiscal year (FY) 2 facilitating time for the MMUs to be staffed and operative.

Effectiveness

We defined Effectiveness as the number of VEH who were provided preventive and follow-up care through the HPACT MMU program. This includes veterans using the HPACT MMU program as their first access point to the VA system versus those already connected to VHA care and length of "time to housing" once engaged in care through the program. MMUs provide an additional access point to healthcare and supportive services for VEH as care is brought directly to them in community-based settings where they are (eg, emergency shelter, transitional housing site, permanent supportive housing site, etc.). The VA EMR also will be utilized to examine effectiveness through the preventive care provided by the HPACT MMU program at all 25 facilities and engagement with other VHA homeless programs. Of particular interest will be vaccinations such as influenza and COVID-19, health screenings, health education, and referrals for other VHA services.

To evaluate effectiveness at the local level, the team will analyze encounters and services (eg, medical, housing services) from the survey intake form. The aggregate data will provide a summary of the clinical and housing services encounters that is site specific. To understand the impact of the MMU program on the veteran's continuity of healthcare, the EMR will be used to examine any changes in access to VHA outpatient and acute care in the 12 months prior and after the initial MMU encounter. Of additional interest will be the number of VHA homeless service encounters since the Veteran's initial visit. In FY2 and FY3, cost effectiveness of the MMUs will be examined including costs of HPACT MMU encounters and utilization and costs of VHA acute care (emergency department and inpatient hospitalizations). Outcomes will be compared for VEH in before and after deployment. Sites with a more active (ie, greater days of utilization) HPACT MMU will also be compared versus sites with less active HPACT MMUs.

Adoption

Adoption is defined as (1) the delivery of the MMUs to each of the awarded VAMCs over an 8-month period; (2) MMU staff are fully trained in using the vehicle; (3) a MMU being fully staffed with key HPACT team members that includes a medical provider, nursing staff, social worker, and administrative staff; and (4) the MMU is on the road and operational 2 days per week at minimum. First, Adoption will be assessed by identifying common themes among various meetings with key stakeholders and MMU facilities during FY1 of the intervention. These transcripts will focus on coordination with community partners (eg, emergency shelters) to bring services directly to VEH, along with buy-in from key stakeholders (eg, facility director, chief of primary care, chief of social work, fleet management, etc.). Second, staff training will be assessed by meeting and training session attendance records. Third, qualitative staff interviews will be completed in FY1 and FY2 to examine variation in MMU team adoption across multiple domains, including team composition, staff responsibilities, resources, and retention. Lastly, we will assess MMU operational days and implementation through monthly travels logs, including distance from the parent VAMC and/or CBOC, area served, and unplanned outages.

Implementation

Implementation is defined as (1) fidelity or site adherence to the HPACT model of care and all core elements; (2) accurate use of the HPACT MMU program 4-character code to capture workload along with adherence to the MMU utilization guidance provided to sites; (3) the MMU teams' impressions and feedback; and (4) MMU community presence. A HPACT MMU Resource Guide will be provided during MMU deployment to all sites to assist with implementation of the program. Various guidance will be included on topics such as MMU utilization expectations, outreach, safety, vehicle cleaning, and staff workload. In FY1 and FY2, qualitative interviews will be conducted to assess feedback on barriers and facilitators to program implementation from VAMC leadership, HPACT MMU staff, and veterans. Of specific interest will be perceptions of MMU engagement, access, and overall program satisfaction. In FY2, adherence to the HPACT model of care and MMU utilization will be evaluated through a fidelity assessment at each VAMC site. The fidelity assessment will be conducted through secured survey data capture and will query respondents on staffing, operations, services available, partnerships, and MMU utilization days. Lastly, community presence will be examined through staff, veteran, and community stakeholder interviews, which will assess awareness of the MMU program at the local level, word-of-mouth referrals, and communication.

Maintenance

We define maintenance as (1) all 25 HPACT MMUs are fully operational within 2 years from initial deployment of the first MMU; (2) the number of MMUs that will be funded in FY5; (3) HPACT MMU stakeholder engagement and program investment; (4) VEH engagement in VHA care and services in the 12 months after their initial MMU encounter. First, maintenance will be evaluated through completion of a fidelity assessment in FY2, as noted under implementation. This assessment will aid in identifying any challenges that should be addressed and refined in future maintenance efforts. Second, the number of MMUs funded for FY5 will be identified through MMU contracts, operating costs, and maintenance services, along with quarterly HPO meeting notes. Third,

Image 1. Option A, large 27 foot MMU (right side image/background) and option B, smaller 21 foot MMU (left side image/foreground).

positive engagement and outcomes with the MMU program will be assessed through MMU staff and stakeholder interviews which will focus on local sustainability including staff retention, barriers, and facilitators to maintaining the HPACT MMU. Additionally, quarterly HPACT MMU community of practice calls will be launched in FY1 and offered the opportunity to all awarded sites to present on special topics, best practices occurring, and provide an avenue for discussing the program and bringing forward any questions or concerns. HPACT MMU site attendance and participation will be tracked FY1-3. Veteran engagement and care continuity will also be examined using patient level EMR data to assess subsequent VA healthcare and homeless programs service utilization in the months following the initial MMU encounter.

Results

Although preliminary results (FY1), the evaluation protocol has collected data on the adoption and implementation of the HPACT MMU. First, adoption outcomes all 25 MMUs were deployed during FY1 over a 9-month timeframe. Prior to the first MMU being deployed, the MMU Resource Guide was disseminated to assist sites with the implementation process including oversight on training staff and utilization metrics. Across sites, 3 pre-implementation meetings also took place over a 6-month timeframe prior to the first MMU being deployed. These pre-implementation meetings had at least 1 representative from each of the 25 MMU sites along with VISN level representation. Travel log data was also collected for FY1 showing 21 out of the 25 MMUs were fully operational serving VEH in the community and those 21 MMUs conducted over 2700 individual veteran encounters over a total of 718 days of operation. The MMU intake forms from these 2700 veterans have been utilized to establish an FY1 cohort.

Implementation outcomes include qualitative data from the quarterly HPACT National Program Office MMU calls conducted with VAMC MMU staff, VAMC leadership, VISN level leadership, and community partners in FY1. Attendance at these calls was on average 50 participants each quarter. Training topics covered include collaboration efforts with other VHA homeless programs, effectively engaging community partners to support veterans, maximizing and tracking MMU utilization, and highlighting individual site efforts for open discussion, learning opportunities, and feedback. Currently, this qualitative data is in the process of being coded and formally summarized.

Discussion

In the above paragraphs, we have outlined our RE-AIM evaluation protocol for the VHA's HPACT MMU effort to increase access and continuity of healthcare to the underserved VEH population and highlighted some preliminary evaluation protocol outcomes. Across 18 states, the VA will provide clinical and housing program services utilizing this model. Applying a RE-AIM framework as a guide, the team will collect comprehensive organizational and individual data. The program reach, effectiveness, implementation, and model fidelity will be evaluated through both quantitative and qualitative data collection in FY1-4.

The program has partially completed the adoption and implementation aims resulting in 25 MMUs deployed that are fully operational and ready to serve VEH across the nation. Interviews of MMU staff, local community stakeholders, and veterans along with EMR data and a fidelity assessment are still needed in FY2 to complete these elements as planned in the protocol. These units help reduce and, in some cases, eliminate significant access to care barriers, including lack of transportation.[12-16] Potential positive effects that also can impact VEH quality of life, include increased preventive care such as health screenings and vaccinations, physical assessments, medication management, housing resources, disability benefits, and specialty care referrals all that may not otherwise be accessible without MMU care delivery. This is evident by the over 2700 individual level veteran encounters from 21 HPACT MMU teams in FY1 when the units were also being deployed over 9 out of the 12 months. In addition, the visual appeal of the MMUs (see Image 1) facilitates "moving billboards" that create interest and help start conversations about VHA in community settings.

The formative stages of the MMU evaluation protocol have underscored lessons learned. First, the value of ensuring

coordination among VAMCs with multiple program offices and stakeholders in efforts to implement the MMUs, including logistics such as MMU parking space, day to day cleaning, vehicle maintenance (eg, oil changes, tires), a clearly posted MMU schedule, and designated staff to support available services on the MMU. Second, the safety of both staff and veterans when using the MMUs out in the community setting is of upmost importance. Ensuring there is always more than 1 staff member on-board and out with the unit (ie, buddy system), exploring the use of personal protective devices (eg, portable panic button), and collaborating with community police services.

Historically, VEH have reported trust and stigmatization barriers along with fragmentation when accessing healthcare and VA services.[16] The MMU program is designed to outreach to VEH in their communities. Therefore, MMU teams have taken care to address logistical and/or culturally based concerns prior to program implementation. The HPACT MMU program has sparked significant interest in the care model and the possibility of program expansion both internally and externally to the VA.[32-34] The RE-AIM evaluation is a key component to ensuring the sustainability of the current MMU program and provide guidance for future model expansion.

Limitations

As with any study, the proposed evaluation does come with a few limitations. First, the MMU program was implemented in 25 of the eligible 55 HPACT locations (at the time of the funding opportunity) in VHA. These locations were self-selected into the program and will be self-reporting on some of the data points that will be used in this evaluation, which could lead to a risk of selection bias. However, the investigators will supplement this self-reported collection with other data sources in effort to minimize bias. These evaluation findings may not be generalizable across all HPACT and/or VA primary care settings, although the findings will provide an understanding of a MMU implementation that may be applied across future VA and United States locations. Second, the size of each HPACT team is variable and dependent on the number of veterans experiencing homelessness in each community, therefore both the provider and veteran sample sizes from each VAMC will differ, although this variation will be considered in our data analyses. Third, since the MMUs were delivered at various times in FY1, some teams have had more time to implement a plan, staff, and use the vehicles to serve VEH thus utilization is variable by location and may to some extent impact veteran outcomes in the first year(s) of implementation. Finally, since this is a planned evaluation protocol using the RE-AIM framework, results are extremely limited currently and comprehensive outcomes are dependent on future research efforts and funding by the HPACT National Program Office, NCHAV, and other VHA affiliated researchers which are currently underway.

Conclusion

The VHA HPACT MMU program is the largest integrated mobile health program serving VEH in the United State. The RE-AIM framework is being utilized to guide the MMU evaluation protocol to ensure the program reaches its target population, is effective in what it intended to achieve, essential program elements are adopted, implementation is consistent across sites, and the program achieves long term sustainability. The findings from this evaluation will provide insight on the innovative ways in which MMUs may expand the boundaries of the VA and external health care systems in efforts to improve health equity and access among our most vulnerable populations. The MMU program has the potential to increase access to and the continuity of healthcare, housing options, and social services for some of the most vulnerable veterans in our communities. Lastly, the HPACT MMU program will be pivotal in addressing the VA's strategic goals of access to care and ending veteran homelessness.

Author Contributions

JJW: conceptualization; methodology; project administration; resources; visualization; writing original draft; writing review/editing. RLK: methodology; visualization; writing original draft; writing review/editing. JSR: methodology; visualization; writing original draft; writing review/editing. KB: methodology; project administration; writing review/editing. MD: conceptualization; supervision; writing review/editing. JA: conceptualization; supervision; writing review/editing.

Ethical Considerations

There was no human participants in this article and informed consent is not required.

Consent to Participate

Not applicable.

Consent for Publication

Not applicable.

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