VA Clinicians' Perspectives on Low-Value Health Service Use in the Veterans Health Administration: A Qualitative Study

Zachary A. Cupler, DC, MS[1,2], Kristina L. Hruska, MS[3], Nicole M. Beyer, MA[3], Loren J. Schleiden, MS[3], Keri L. Rodriguez, PhD[3,4], Liam Rose, PhD[5,6], Aimee N. Pickering, MD, MS[3,4], Carolyn T. Thorpe, PhD, MPH[3,7], and Thomas R. Radomski, MD, MS[2,3,4]

[1]Physical Medicine and Rehabilitation Services, Butler VA Health Care System, Butler, PA, USA; [2]Institute for Clinical Research Education, School of Medicine, University of Pittsburgh, Pittsburgh, PA, USA; [3]Center for Healthcare Evaluation, Research, and Promotion (CHERP), VA Pittsburgh Healthcare System, University Drive (151C), Pittsburgh, PA 15240, USA; [4]Division of General Internal Medicine, Department of Medicine, School of Medicine, University of Pittsburgh, Pittsburgh, PA, USA; [5]Health Economics Resource Center (HERC), VA Palo Alto Health Care System, Menlo Park, CA, USA; [6]Stanford Surgery Policy Improvement and Education Center, Stanford Medicine, Stanford University, Stanford, CA, USA; [7]Division of Pharmaceutical Outcomes and Policy, University of North Carolina at Chapel Hill Eshelman School of Pharmacy, Chapel Hill, NC, USA

ABSTRACT

BACKGROUND: Low-value health services adversely affect outcomes and unnecessarily increase the cost of care. Approximately 10% of Veterans receive at least one of 29 low-value services delivered or paid for by the Veterans Health Administration (VA) annually. However, determinants of and potential solutions to reduce low-value service delivery are poorly understood.

OBJECTIVE: To characterize the drivers of and approaches to reduce low-value service delivery across VA Medical Centers (VAMCs) from the perspective of VA clinicians.

DESIGN: Qualitative study using semi-structured interviews conducted from October 2022 to November 2023.

PARTICIPANTS: 65 VA clinicians, including 32 generalists and 33 medical and surgical specialists, at 46 VAMCs.

APPROACH: We used deductive analysis based on a priori categories and definitions structured by the Theoretical Domains Framework to identify predominant themes related to drivers of low-value service delivery. We used inductive analysis to identify clinician-suggested approaches to reduce low-value services.

KEY RESULTS: We identified three overarching domains as drivers of low-value service delivery at VA: 1) environmental context and resources; 2) social influence; and 3) belief about consequences. Regarding key subthemes, social pressure from Veterans emerged among generalists and specialists. Generalists were more likely to identify referral parameters or requirements compared to specialists, while specialists were more like to identify negative consequences compared to generalists. We identified four overarching domains as approaches to reduce low-value service delivery at VA, which were consistently identified by both generalists and specialists: 1) improving quality and access to VA health care; 2) dissemination of best practices; 3) optimizing use of the electronic health record; and 4) instilling an organizational culture on value.

CONCLUSIONS: We identified the most salient drivers of and approaches to reduce low-value services from the perspective of VA clinicians. These findings may inform the design of future de-implementation interventions and policy to reduce VA-delivered low-value services.

KEY WORDS: low-value care; Veterans Health Administration; qualitative

Abbreviations

CBOC	Community-based outpatient clinic
CDW	Corporate Data Warehouse
COREQ	Consolidated Criteria for Reporting Qualitative Research
EHR	Electronic Health Record
TDF	Theoretical Domains Framework
VA	Veterans Health Administration
VACC	Veterans Health Administration Community Care
VAMC	Veterans Health Administration Medical Center

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BACKGROUND

Low-value care, defined as the use of a health service whose harms or costs outweigh its benefits, is common in the United States. Low-value health services adversely affect patient outcomes and unnecessarily increase the cost of care.[1,2]

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Low-value services are common in the Veterans Health Administration (VA), which is the largest integrated healthcare system in the United States and provides medical care to over 9 million Veterans.[3] In fiscal year 2018, 20 low-value services per 100 VA-enrolled Veterans were delivered by VA or through VA Community Care (VACC), affecting one in ten Veterans at a cost of $205 million.[4] This is contrasted with a fee-for-service Medicare population during the same year, that saw 63 low-value services per 100 patients.[5] Veteran exposure to low-value services also results in downstream care cascades, causing Veterans to receive additional unnecessary care both within and outside VA that may result in harm and complications.[6,7]

In a prior study evaluating VA Medical Center (VAMC) level variation in low-value service use, no VAMC-level factors (e.g., facility size, complexity, or ratio of sub-specialists to generalists) were independently associated with low-value service delivery in VA, making it challenging to develop targeted policies or interventions to reduce the delivery of such services.[8] Understanding the drivers of and clinician-suggested approaches to reduce low-value service delivery in VA is critical to developing policies and interventions to reduce low-value service delivery and improve the overall value of care that Veterans receive. To address this gap, we conducted semi-structured interviews with VA clinicians, with the objective of identifying key drivers of and potential approaches to reduce low-value service use across VAMCs.

METHODS

Design

From October 2022 to November 2023, we conducted semi-structured interviews of VA clinicians, including physicians, nurse practitioners, and physician assistants, who practice primary care (i.e., generalists) or a medical or surgical subspecialty at either VAMCs or Community-Based Outpatient Clinics (CBOCs). We chose semi-structured interviews as our method of data collection to capture the detailed perspectives of participants who may be the recipients of future interventions to reduce low-value service delivery in VA.[9,10]

The study protocol was approved by the VA Pittsburgh Healthcare System Institutional Review Board (Pro00003098). The content of this manuscript was informed by the Consolidated Criteria for Reporting Qualitative Research (COREQ) reporting guidelines.[11] Informed consent was obtained prior to interviews for all participants.

Participants

We took several steps to purposively recruit participants with diverse perspectives on low-value service use. First, we sought to recruit a roughly equal mix of generalists and medical and surgical sub-specialists. Second, we sought to achieve roughly equal participation of clinicians from VAMCs belonging to three different latent classes of low-value service use by Veterans identified in our previous research[12]: 1) VAMCs where Veterans have relatively high rates of low-value service use within VA, 2) VAMCs where Veterans have lower rates of low-value service use within VA but relatively high rates of low-value services from non-VA providers through VACC,[13,14] and 3) VAMCs where Veterans have lower rates of low-value service use within VA but relatively high rates of low-value services from non-VA providers through Medicare benefits.

We used the VA Corporate Data Warehouse (CDW) to identify VA generalists and sub-specialist clinicians. We then randomly selected participants within the sampling strata described above to invite them to participate in the study by e-mail. We sent a follow-up e-mail one to two weeks later if no response to our initial request was received. Participants were screened by phone or Microsoft Teams and were eligible to participate if they spoke English, were a physician, nurse practitioner, or physician assistant, and were currently practicing at a VA facility.

Interview Guide

The research team developed the interview guide (Appendix 1) with oversight from the study's qualitative expert (KR). Before data collection, the guide was refined based on input from the VA Pittsburgh Veterans Advisory Board and pilot-tested with a primary care physician, medicine subspecialist (endocrinologist), and general surgeon.[15]

The interview guide explored participants' perspectives on the drivers of and potential approaches to reduce Veterans' receipt of low-value services from VA, as well as non-VA providers through VACC and Medicare. To inform each participant's responses, we presented them with a list of the low-value tests and procedures (Appendix 2) we wanted them to consider, along with data on patterns of low-value service use at their VAMC relative to other VAMCs (Appendix 3).

Data Collection, Codebook Development, and Analysis

Two trained interviewers (LS and KH) conducted the interviews using Microsoft Teams. Each interview was approximately 30 min in duration. Interviewers followed the interview guide and asked additional clarifying questions as needed. Each interview was audio recorded, transcribed verbatim, and de-identified. A priori target sample sizes were set at nine to 15 interviews per subgroup to reach saturation.[10,16]

We employed a constant comparison approach and engaged in simultaneous transcription, codebook development, and analysis. The research team, which included members trained in qualitative methods (KH and NB), developed a codebook through group discussion. Saturation was assessed overall and within the subgroups. To identify

overarching domains related to drivers of low-value service delivery, we used deductive analysis, starting with preliminary codes based on a priori categories and definitions from the Theoretical Domains Framework (TDF). We used inductive analysis to code clinician-suggested approaches to reduce low-value services.[17] The TDF was used as the theoretical lens through which we viewed the cognitive, social, and environmental influences on clinician behavior related to low-value service use among Veterans. Interpretation of the data and linkage coding was an iterative process. The entire research team ensured the codes reflected the data as it emerged.

We used NVivo 12 (Lumivero, Denver, Colorado) for data management and analysis. The primary coder (KH) coded 100% of the transcripts, and the secondary coder (NB) independently coded 20% of the transcripts for reliability and to correct any potential coding drift of the primary coder. Coding differences were resolved through negotiated consensus with input from the research team as needed.[18] The results of the coding were summarized as frequencies of various codes and informed the thematic analysis. We then considered the organized data (i.e., the coding reports) to conduct a final content analysis to identify salient themes and subthemes.

To facilitate comparisons of participant responses from VAMCs with relatively higher rates of low-value care at VA (latent class one), we combined the latent classes of VAMCs with relatively lower rates of VA-delivered low-value care and high rates of low-value service delivery through either VACC or Medicare (latent class two and three). First, we compared codes between participants from VAMCs with higher versus lower rates of VA-delivered low-value services (latent class one versus latent class two or three) and second, we compared codes between clinician classification: generalist, medical specialist, and surgical specialist.

RESULTS

Participants

We interviewed 65 VA clinicians, including 54 physicians, nine nurse practitioners, and two physician assistants. These participants possessed a mix of clinical expertise (32 generalists, 21 medical specialists, and 12 surgical specialists) and practiced at 46 unique VAMCs and CBOCs. Most participants were male ($n=41$, 63%), non-Hispanic ($n=58$, 89%), or White ($n=49$, 75%) (Table 1). Their median time practicing medicine was 19 years (IQR, 10.5–28.5 years) and their median time practicing medicine at VA was eight years (IQR, 5–16.5 years).

Predominant drivers of low-value service delivery at VA

Of the 14 domains of the TDF,[17] 11 were identified by at least one participant as drivers of low-value service delivery directly by VA (Table 2). The three domains most commonly identified were environmental context and resources, social influence, and belief about consequences (Table 2).

Environmental Context and Resources. Among all drivers of low-value service delivery, environmental context and resources emerged most strongly. The three subthemes within this domain to emerge most frequently were: referral parameters or requirements, support tools, and culture, policies, or systems (Table 2).

Referral Parameters or Requirements Required work-up and testing prior to specialty consultation was commonly mentioned as a driver of low-value service delivery. This means ordering a test so the consultative service would accept the referral, even when the ordering clinician perceived the test to be of low value. Referral parameters or requirements emerged as drivers of low-value service delivery similarly by participants at VAMCs with both high and low rates of VA-delivered low-value care. Generalists were far more likely to highlight referral parameters and requirements as drivers of low-value service delivery compared to medical or surgical specialists.

Support Tools Support tools are electronic-human interfaces to promote clinical decision-making. Examples include electronic pop-up alerts or reminders embedded in the electronic health record (EHR) to prompt a specific action by the clinician and dashboards that draw information from the EHR that are used to monitor specific patient populations. Participants noted that pop-up alerts at VA influence their behavior, indicating they frequently encounter alerts that prompt them to order a potentially low-value service. Support tools emerged as drivers of low-value service delivery more commonly by participants at VAMCs where Veterans more commonly received low-value services within VA, relative to other VAMCs. Generalists and medical and surgical specialists reflected on support tools as a driver of low-value service delivery in similar proportions.

Culture, Policies, or Systems Culture, policies, or systems refer to a set of behaviors, beliefs, and influences that are the context for all interactions between Veterans, clinicians, support staff, and administration. As a federal health system, VA's relationship to policy and politics is unique relative to other non-federal health systems. Policies and standardized processes may also cause duplication of services for Veterans dually-enrolled in VA and non-VA care and potential low-value service utilization (e.g., repeating annual lab work or repeating testing because documentation of results is not shared). Veteran benefits are intertwined with VA care, such that a Veteran may request repeat imaging that is not medically necessary to support a service disability rating claim. Culture, policies, or systems emerged more commonly as

Table 1 VA Clinician Participant Characteristics

	Total (n = 65)	Generalists (n = 32)	Medical Specialists (n = 21)	Surgical Specialists (n = 12)
Clinician, n (%)				
Physician	54 (83%)	26 (81%)	17 (81%)	11 (92%)
Physician Assistant	2 (3%)	0 (0%)	1 (5%)	1 (8%)
Nurse Practitioner	9 (14%)	6 (19%)	3 (14%)	0 (0%)
Gender, n (%)				
Female	24 (37%)	12 (38%)	10 (48%)	2 (17%)
Hispanic/LatinX/Spanish origin, n (%)				
Yes	6 (9%)	4 (13%)	0 (0%)	2 (17%)
No	58 (89%)	28 (88%)	20 (95%)	10 (83%)
Prefer not to answer	1 (2%)	0 (0%)	1 (5%)	0 (0%)
Race[*], *n (%)*				
White	49 (75%)	26 (81%)	15 (71%)	8 (67%)
Asian	14 (22%)	5 (16%)	5 (24%)	4 (33%)
Other	3 (5%)	1 (3%)	0 (0%)	2 17%)
Prefer not to answer	1 (2%)	0 (0%)	1 (5%)	0 (0%)
Total Years Practicing Medicine[†], median (Q1-Q3)	19 (10.5–28.5)	23.5 (14.5–30.5)	16 (8–24)	18 (10.5–24)
VA Years Practicing Medicine[†], median (Q1-Q3)	8 (5–16.5)	9 (5.5–15.5)	7 (4–15.5)	9 (5.5–22)
Facility Complexity Level[‡], *n (%)*				
1a	25 (38%)	10 (31%)	8 (38%)	7 (58%)
1b	14 (22%)	6 (19%)	5 (24%)	2 (17%)
1c	10 (15%)	6 (19%)	3 (14%)	1 (8%)
2	15 (23%)	8 (25%)	5 (24%)	2 (17%)
3	1 (2%)	1 (3%)	0 (0%)	0 (0%)
Facility Type[§], *n (%)*				
VA Medical Center (VAMC)	58 (89%)	26 (81%)	20 (95%)	12 (100%)
Community-Based Outpatient Clinic	7 (11%)	6 (19%)	1 (5%)	0 (0%)
Facility Low-Value Care Latent Class, n (%)				
High Rates of Low-Value Care in VAMCs	22 (34%)	11 (34%)	4 (19%)	7 (58%)
Low Rates of Low-Value Care in VAMCs[‖]	43 (66%)	21 (66%)	17 (81%)	5 (42%)
Practices in outpatient VA clinic, n (%)	61 (94%)	30 (94%)	20 (95%)	11 (92%)
Practices in inpatient VA service, n (%)	25 (38%)	3 (9%)	14 (67%)	8 (67%)
Performs procedures or operates, n (%)	25 (38%)	3 (9%)	11 (52%)	11 (92%)
Patient Care in Non-VA Setting, n (%)	12 (18%)	3 (9%)	6 (29%)	3 (25%)
Medical School Faculty Appointment, n (%)	38 (58%)	17 (53%)	14 (67%)	7 (58%)

VA: Veterans Health Administration; VACC: VA Community Care; VAMC: VA medical center

[*]Could endorse multiple selections. [†]Excluding residency. [‡]Facility complexity level: VA medical centers (VAMCs) with higher volume, higher risk patients, more complex clinical programs, and larger research and teaching programs are level 1a and smaller, lower volume, lower risk patients, few or no complex clinical programs, and small or no research and teaching program medical centers are level 3 medical centers. [§]VAMCs is an independent full-service hospital facility and a community-based outpatient clinic is a smaller, freestanding outpatient clinic affiliated with a VAMC and offers limited services that include primary care and at times some specialty care services. [‖]Low VAMC represents the combined latent classes for low rates of low-value care at VA and high rate of low-value care in non-VA (VACC or Medicare) previously identified. [12]

a driver of low-value service delivery by participants at VAMCs where Veterans more commonly received low-value care from VA sources, relative to other VAMCs. Generalists were more likely to identify culture, policies, and systems as drivers of low-value service delivery at VA compared to medical or surgical specialists.

Social Influence. Social influences emerged as the second most commonly perceived drivers of low-value service delivery. The two most common social influence subthemes were social pressure from Veterans and social norms (Table 2).

Social Pressure from Veterans Veterans' influence on clinicians' decision-making emerged as the most common subtheme identified as a driver of low-value service delivery. Participants reported that they found themselves weighing the risks and benefits of low-value services with ensuring patient satisfaction and often defaulted to a customer service approach over the application of best practices. For example, even after educating the patient, participants commented that they often found it necessary to proceed with ordering a low-value service due to the persistence of the patient.

Veterans' social pressure emerged more commonly as a driver of low-value service delivery from participants at VAMCs where Veterans received less low-value care within VA, relative to other VAMCs. Generalists and medical specialists more frequently identified Veterans' social pressure as a common driver of low-value service delivery at VA compared to surgical specialists. For example, generalists

Table 2 Quotes Representing Predominant Drivers of Low-Value Service Delivery at VA

Construct subtheme	Quote
Environmental context and resources—"any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence and adaptive behavior" [16]	
1.1 Referral parameters or requirements	*"…many consultants require valueless tests to get the consult approved. Even though they know they're not gonna use it, they just don't trust us to not order a foot X-ray."* (generalist)
1.2 Support tools	*"…there are some things embedded into templates as well…Like automatic order sets for things. And that kind of ties the provider's hands up to order things that they may not think is necessary…"* (surgical specialist)
1.3 Culture, policies, or system	"*At the VA there's a very unique relationship. It's not just a doctor and patient, it's a doctor and Veteran. It's also administrative and political in that Veterans, unfortunately, sometimes see VA providers as medical service vending machines,".* (generalist)
Social Influence—"…interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviors" [16]	
2.1 Social pressure from Veteran	*"I think sometimes the patients request certain tests, and if they are felt to be, you know, noninvasive, maybe fairly inexpensive, a lot of providers probably do it to maintain patient satisfaction."* (medical specialist)
2.2 Social norms	*"…we get pressured into it by other doctors or by veterans…there's kind of the anxiety of, 'What if I'm way out of line if I don't wanna do that test? All my colleagues are surely doing this test, so you know, I guess I better too. I don't want to stick my neck out.' That's that happens a lot," stated one clinician.* (generalist)
Beliefs about consequences—"acceptance of the truth, reality or validity about an ability, talent or facility that a person can put to constructive use." [16]	
3.1 Fear of negative consequences or reprimands	*"A patient has a strong opinion about wanting to have something done. And that also makes us concerned around litigation. And like, 'What if something does happen, and I miss this, and he's brought it up or she's brought it up several times?" (medical specialist)*
3.2 Anticipated regret	*"Emotions are very strong, and fear is one of the strongest emotions. So when you tie fear into, 'I may miss something with all these tests,' their knee jerk reaction is 'just order it. Just order it, just order it.' You know what I mean?"* (generalist)
3.3 Previous negative consequences or experience	*"I think like all providers will probably get burned, then burn it indelibly into their memory- 'Never to do that again'…once bitten, twice very sensitive to it."* (surgical specialist)

emphasized the social pressures associated with patient satisfaction and the desire to avoid negative interactions as drivers of low-value service delivery. Meanwhile, medical specialists focused on balancing the time required to educate a patient about why a service was low-value and unnecessary relative to the patient's expectation about why they felt a service may be indicated.

Social Norms Social norms, or the implicit or explicit standards and rules clinicians follow to guide values, behaviors, and decision-making, emerged frequently as drivers of low-value service delivery. Participants reported that low-value service delivery was, in some cases, the status quo. For example, some consultative clinics utilized standardized work-up processes (i.e., preoperative testing) without considering whether the required services constituted low-value care in an individual patient. Social norms similarly emerged as drivers of low-value service delivery by participants at VAMCs with both high and low rates of VA-delivered low-value care. Generalists and surgical specialists more commonly highlighted social norms as a driver of low-value service compared to medical specialists. Generalists indicated concern with pressure from other clinicians or patients that, at times, caused them to second-guess their case management.

Beliefs About Consequences. Another driver of low-value service delivery at VA that commonly emerged was beliefs about consequences. The three most common beliefs about consequences subthemes at VA were: fear of negative consequences or reprimands, anticipated regret, and previous negative consequences or experiences (Table 2).

Fear of Negative Consequences or Reprimands Fear of negative consequences or reprimands is defined as intense emotion due to concern of imminent threat resulting in a clinician's concern, fear, or preoccupation with detrimental future outcomes based on clinical decision-making resulting in disciplinary action.[19] Participants expressed concern with missing a key diagnosis (i.e., terminal diagnosis or diagnosis that contraindicates current management plan), internal VA checks and balances (i.e., routine peer review), or potentiating litigation (i.e., medical malpractice). Fear of negative consequences or reprimands as a driver of low-value service delivery emerged similarly from participants at VAMCs

with both high and low rates of VA-delivered low-value care. Medical and surgical specialists more commonly identified fear of negative consequences or reprimands as drivers of low-value service delivery compared to generalists. Specialists reported concerns about fear of negative consequences or reprimands, such as malpractice litigation and medicolegal repercussions, in higher proportions compared to generalists.

Anticipated Regret Anticipated regret related to clinicians' experiences with strong emotional turmoil (i.e., fear, worry, angst) by imagining a current clinical scenario and how decisions about appropriate procedures or tests may result in various future possible outcomes (i.e., diagnosed sooner, missed diagnosis, covering their bases).[19] Participants lamented how emotions enter clinical decision-making and may result in decisions to order low-value services. Many were concerned with missing a diagnosis and believed that it is better to do something than to do nothing (i.e., commission bias). Other participants suggested the fear of missing something is the sign of a good clinician, indicating a balancing act is necessary to maintain clarity of judgement for clinical decision-making. Anticipated regret emerged more commonly as a driver of low-value service delivery from participants at VAMCs where Veterans received less low-value care within VA, relative to other VAMCs. Generalists and medical and surgical specialists identified anticipated regret as a driver of low-value service delivery in similar proportions.

Previous Negative Consequences or Experience In contrast to fear of consequences, previous negative consequences or experience is a concern, fear, or preoccupation specifically informed by a past experience (e.g., missed diagnosis, wrong diagnosis, malpractice litigation). Clinicians noted past exposure to litigation and punishment even outside of VA as impacting their clinical decision-making about ordering low-value services in VA. This type of experience can result in overcorrection to avoid a reoccurrence of the past consequence happening again. Previous negative consequences or experiences as drivers of low-value service delivery emerged similarly from participants at VAMCs with both high and low rate of VA-delivered low-value care. Generalists, medical specialists, and surgical specialists similarly identified negative consequences as drivers of low-value service delivery.

Clinician-Suggested Approaches to Reduce Low-Value Health Service Delivery at VA

There were 20 approaches that emerged by at least one participant to reduce the occurrence of low-value service delivery at VA. We organized these approaches into four overarching domains: including improving quality and access to health care, dissemination of best practices, optimizing use of the EHR, and instilling an organizational culture on value (Table 3). In addition to these approaches, although rare, some participants suggested that there were no observable solutions to reduce low-value health service delivery at VA (Table 4).

Improving Quality and Access to Health Care. Focusing on quality and accessibility to care commonly emerged as an approach to reduce low-value service delivery at VA. The three most common suggestions to do this were applying checks and balances in the ordering process; audit and feedback systems; and more staffing and time (Table 3). Specifically, interventions to develop oversight mechanisms (i.e., utilization boards, performance feedback report cards, or peer comparisons reports), reinforce or modify VA clinicians' clinical decision-making, and enhance control systems for ordering tests, medications, and procedures were recommended.

Checks and Balances to Ordering Processes Checkpoints in the ordering process emerged as a suggestion to reduce clinical decision-making variability that leads to low-value service delivery at VA. For example, a real-time peer clinician reviews a potentially low-value service order for appropriateness before the performance of the test or procedure. Implementation of a novel checks and balances system in the ordering processes to reduce low-value service delivery emerged similarly from participants at VAMCs with both high and low rate of VA-delivered low-value care. Generalists and medical and surgical specialists suggested the addition of checks and balances in the ordering processes to reduce low-value service delivery in similar proportions.

Audit and Feedback Systems Improvement or deployment of a routine audit and feedback system, also known as performance feedback (i.e., care report cards, utilization rates compared against peers), was suggested to provide retrospective support and guardrails when VA front-line clinicians deviate from best practice. This suggestion emerged similarly from participants at VAMCs with both high and low rate of VA-delivered low-value care. Generalists and medical and surgical specialists suggested audit and feedback systems to reduce low-value service delivery in similar proportions.

More Staffing and Time Additional resources to support front-line staff in the form of time or additional staffing were suggested to reduce low-value service delivery at VA. More time or additional staffing is likely to present clinicians and clinical support staff the opportunity to judiciously discern the application of tests or procedures, such as those male Veterans who are most appropriate for prostate-specific antigen testing as opposed to broadly testing all male Veterans. More staffing and time resources as a strategy to reduce low-value service delivery emerged similarly from participants at VAMCs with both high and low rate of VA-delivered low-value care. Generalists and medical and surgical specialists

Table 3 Quotes Representing Predominant Acceptable Approaches to Reduce Low-Value Health Service Delivery at VA

Construct subtheme	Quote
Improving quality and access to health care	
1.1 Checks and balances to the ordering process	*"That may be through the use of utilization review board…if a VA provider wants to deliver a specific testing or services, and it's deemed low value, it can be discussed with maybe a VA sponsored utilization review board to approve the testing or to fund the testing or service."* (surgical specialist)
1.2 Audit and feedback systems	*"… a lot of those performance metrics have never really been shared with me as a provider. So I've never gotten a bad grade or an email saying that I'm ordering too many tests. If there was some data that would say that maybe I should be ordering less tests, maybe that could be helpful…whether it's on a quarterly or case by case basis, I would be open to any kind of criticism if it was thought that we were ordering a particular test inappropriately."* (surgical specialist)
1.3 More staffing and time	*"After three years of Community Care, now they started changing things. [Specialists] are coming to the CBOCs. The specialists are coming two days a month or one day a week or whatever some specialists can afford."* (generalist)
Dissemination of best practices	
2.1 Education to the clinician	*"So brief in-services, journal clubs, or brief emails with summaries of literature. Brief discussions during routine, regularly scheduled meetings…especially if there are certain tests or procedures that are low value that we as a group are doing more than we should be or more than others, and then education around that I think is always good. And specifically why they're low value."* (generalist)
2.2 Education to the Veteran	*"I think just the same kind of consistent with educating the providers of the newer guidelines, educating patients of the newer recommendations. You know, if all of a sudden an ICD 10 code comes up for low back pain, then maybe the VA automatically does a patient mail out on, 'Hey, we heard you had low back pain. Here's some current guidelines or recommendations'."* (generalist)
Optimizing use of the EHR	
CPRS reminders or pop-ups	*"… certainly if there was a way to have like a decision tree, like in a pop up box when you're ordering stuff, that may influence what you do. Because we don't necessarily have that with, for example, lab testing. And again, I hate saying pop up boxes because they drive me insane all day long, but they do make you think about things when you're ordering them."* (generalist)
Instilling an organizational culture on value	
4.1 Facilitate culture change	*"…there is an expectation that we deliver customer service that the patients are happy with the experience they get, and we often feel like if we make them mad, it's uncommon that our management's gonna have our back. That we're gonna have to call the patient and apologize and respond to a letter and those congressionals and stuff like that. And so if that culture was different and the expectation was that we're not ordering unnecessary tests that are high cost or potentially even dangerous, and we were all supported across the board in that, then I think people would be more willing to say no when a patient's the one insisting on it."* (generalist)
4.2 Building trust through the patient-clinician relationship	*"…especially in primary care settings where having a strong therapeutic relationship with the patient based on mutual respect and mutual trust is so important…So there are certainly situations where I am in professional disagreement with a patient, so to speak, about, 'Hey, I don't think we need this,' and the patient says, 'But I really want it.' You know, in most situations, if it's absolutely inappropriate, I'll stand my ground."* (generalist)

suggested more staffing and time to reduce low-value service delivery in similar proportions.

Dissemination of Best Practices. Educational efforts for Veterans and clinicians commonly emerged as an approach to reduce low-value service delivery at VA. This is defined as sharing the best available evidence with patients and clinical staff while incorporating low-value service delivery de-implementation approaches at locations with relatively high low-value care service delivery. The two most common subthemes that emerged within this domain were education to the clinician and education to the Veteran (Table 3).

Education to the Clinician Clinician education emerged as the most common suggestion to decrease low-value care delivery at VA across all domains. Enhanced education for clinical staff may take the appearance of more focused and targeted education for work groups or individuals performing more low-value tests or procedures relative to their peers (i.e., in-services, journal clubs, literature summaries, team meetings, face-to-face). Education to the clinician to reduce low-value service delivery emerged similarly from participants at VAMCs with both high and low rate of VA-delivered low-value care. Generalists and to a lesser degree surgical specialists identified education to the clinician to reduce low-value service delivery in far greater proportion when compared to medical specialists.

Table 4 Quotes Representing Other Approaches to Reduce Low-Value Health Service Delivery at VA

Construct subtheme	Quote
No suggestions	
5.1 Difficult to answer; unsure of suggestions	*"I'm not really coming up with much other than finding ways to improve patient compliance, to have them actually come to the doctor's office once a year for their annual physical. If there was some way to incentivize patients to do that. But that doesn't always happen. They tend to go to the ER when they have an issue. [Pause] Yeah, I don't know. I'm not really coming up with much."* (medical specialist)
5. 2 Keep doing what you're doing, no suggestions	*"So I do not know what the VA can do, but if anything, the VA I feel should, you know, if I'm given a choice, I'll choose the VA over private care because I think the VA always goes by the validated practices and norms which help the patient without overindulging in unnecessary testing or procedures."* (generalist)
Subthemes not otherwise classified	
6.1 Create disincentive program	*"… maybe we make it where they can write it if they really insist on it, but we're not gonna just make it easy. You could even do, require prior authorizations for low value medications. You could say, 'Well, you can order it, but you're going to have to run it through this form.' Which goes back to what we said earlier about making it hard to do the abnormal act."* (generalist)
6.2 Narrow focus of low-value health care system	*"… there are some very high dollar low value and there are some low dollar high value. So is there a plan to target the high dollar ones? To try to reign those in. Specifically like MRIs, CT scans, which are multiple thousands of dollars versus the colorectal screening, which might be $100…Like, pick the top three most expensive and target those to get it down to below national levels."* (generalist)
6.3 VA oversight of non-VA providers	*"…ultimately and unfortunately this will come at the cost of patient satisfaction. And the reason why is because if your doctor, regardless of whoever that person is in the community says, 'Mr. Smith, I think you should get X,' and then the VA says, 'Well, X is low value care. So we do not approve that.' The provider is going to simply say, 'Ohh well the VA is not letting me provide you good care.' And so the veteran – this is not a free market system where practices are transparent. This is a closed system where the information that the veteran gets or the patient gets is very limited, and their understanding of the services and what as a customer, what they're receiving is also very limited. So that's the biggest challenge is that the VA can implement some hard stops, and the VA has done this for certain very expensive care. Transplant referrals, for instance. Those need to come back to the VA for review, but anything short of incredibly expensive care, for the sake of not delaying care is simply not done, right?"* (medical specialist)

VA: Veterans Health Administration

Education to the Veteran Participants suggested Veterans should be empowered with up-to-date information and guidelines that go beyond being told that a test or procedure is not a recommended service. Participants indicated that VA does well in encouraging recommended tests like colonoscopy, but more effort can be given to advising against low-value services. VA may consider implementing educational strategies to educate patients about the reasoning and purpose of performing or not performing a test or procedure. This will optimize and foster the use of shared decision-making. Education to the Veteran to reduce low-value service delivery emerged more commonly from participants at VAMCs where Veterans received less low-value care within VA, relative to other VAMCs. Generalists and medical specialists identified education to the Veteran to reduce low-value service delivery in greater proportion when compared to surgical specialists.

Optimizing Use of the EHR. Optimization of the EHR emerged as an approach to combat low-value service delivery at VA. Participants contextualized this suggestion as they are faced with a large volume of complex patient information, administrative pressure to increase productivity, and limited time to make decisions (Table 3). A suggestion to improve the EHR was point-of-care reminders or alerts integrated into the EHR, although participants also acknowledged their downsides (e.g., potential for overreliance, reminder fatigue). Optimizing use of the EHR was more commonly suggested to reduce low-value service delivery by participants at VAMCs where Veterans received less low-value care within VA, relative to other VAMCs. Generalists and medical specialists identified optimizing use of the EHR to reduce low-value service delivery in greater proportion when compared to surgical specialists.

Instilling an Organizational Culture on Value. Value and customer service, although viewed as opposing forces at VA, commonly emerged as an approach to reduce low-value service delivery at VA. For example, participants suggested that low-value tests may be ordered because Veteran complaints are submitted to management (e.g., patient advocate, congressional mechanisms) and management's response is to order the test to address the customer service concern rather than assess the value of the test. Participants commented that VA's knee-jerk customer service response

needed to be changed so that providing high-value care is thought of as consistent with great customer service to Veterans. The two subthemes that emerged for this domain were facilitate culture change and building trust through patient-clinician relationship (Table 3).

Facilitate Culture Change Facilitating a shift in VA organizational culture where *value* is prioritized emerged as an approach to reduce low-value service delivery at VA. Participants indicated prioritization by executive leadership and executed by clinical supervisory management and front-line clinical staff may result in addressing low-value health service delivery at VA. For example, participants suggested that various mechanisms drive customer service requests and decisions to minimize low-value health service delivery as opposed to "the customer is always right" mentality is needed to make the culture shift at VA. Facilitating culture change was more commonly suggested to reduce low-value service delivery by participants at VAMCs where Veterans received more low-value care within VA, relative to other VAMCs. Generalists and surgical and medical specialists identified facilitation of culture change in similar proportions.

Building Trust Through the Patient-Clinician Relationship Instilling trust in Veterans and Veteran's support systems to enhance the reputation of VA emerged as an approach to reduce low-value service delivery at VA. There is a desire among VA clinicians to make VA the preferred healthcare delivery system built on trust and shared decision-making. For example, a clinician may choose to explore Veterans' insistence to order a low-value tests or procedures and thoroughly discuss risks and benefits with the Veteran. Building trust through the patient-clinician relationship to reduce low-value service delivery emerged from participants at VAMCs with both high and low rates of VA-delivered low-value care. Medical specialists identified building trust through the patient-clinician relationship in greater proportion when compared to generalists and surgical specialists.

DISCUSSION

Among a cohort of VA generalist and specialist clinicians, the most common drivers of low-value care delivery in VA derived from the TDF were environmental context and resources, social influence, and beliefs about consequences. A social influence subtheme, social pressure from Veterans, emerged commonly and consistently among generalists, medical specialists, and slightly less so among surgical specialists. An environmental context and resources subtheme, referral parameters and requirements, emerged more commonly among generalists compared to medical or surgical specialists. In contrast, fear of negative consequences or reprimands, a subtheme of beliefs about consequences, emerged commonly among medical and surgical specialists when compared to generalists. The most common clinician-generated approaches to reduce low-value service delivery in VA that emerged were improving quality and access to health care, dissemination of best practices, optimizing use of the EHR, and instilling an organizational culture on value. While commonly identified by all clinicians, generalists were more likely to suggest dissemination of best practices to reduce low-value care delivery at VA compared to medical or surgical specialists, whereas surgical specialists suggested improving quality and access to health care, and instilling an organizational culture on value in greater proportions than generalists or medical specialists.

This work represents an important step in addressing low-value service delivery in VA by characterizing the drivers of and clinician-suggested approaches to reduce low-value service delivery from the perspective of VA clinicians. Studies have quantitatively characterized system-, hospital-, provider-, and patient-level factors that are suspected drivers of low-value service delivery within and outside VA.[20] Non-VA system-level factors predictive of low-value care use includes systems without a major teaching hospital, with fewer primary care physicians, larger non-White patient populations, geographic location, and areas with higher health care spending.[21] Using Medicare claims, physician-level practice patterns substantially contribute to low-value service use, though it is poorly predicted with observable physician characteristics.[22] Regarding VA, Schwartz et al. found VAMCs with a greater proportion of Veterans seeing non-VA clinicians via VACC predicted higher rates of low-value care, but this facility-level characteristic as well as all others evaluated were not independently associated with low-value service use.[8] To further elucidate system- and clinician-level factors suspected as drivers of low-value service delivery within VA, we applied the TDF to characterize VA clinicians' perspectives on low-value care delivery. Choice of the TDF to guide this exploration was intentional, to allow us to identify potential solutions by mapping to the Behavior Change Wheel.[23]

Performing this mapping suggests several implications for the development of interventions or policies to address low-value service delivery in VA (Table 5).[17,23] At the hub of the Behavior Change Wheel are three key components: 1) capability, 2) opportunity, and 3) motivation. Our findings most closely align with interventions that address opportunity and capability.[23] To maximize uptake, clinician-suggested approaches to reduce low-value service delivery in VA that align with identified drivers of low-value service delivery at VA should be considered. For example, the Behavior Change Wheel suggests "restriction" (i.e., using rules to reduce the opportunity to engage in the target behavior) as an intervention approach well-suited to address the identified key driver of culture, policies, or systems that contribute to low-value

Table 5 Mapping of Drivers of Low-Value Health Service to Potential Policy or Intervention Using the Behavior Change Wheel [22]

Source behavior (low-value health service)		Intervention or policy[22]	Definition[22]	Example approaches proposed by VA clinicians that align with policies or interventions informed by the Behavior Change Wheel
Environmental context and resources	Referral parameters or requirement	Guidelines (Policy)	Creating documents that recommend or mandate practice. This includes all changes to service provision	Require prior authorization process to evaluate and approve pre-defined low-value health services (*Create disincentive program*)
	Support tools	Environmental Restructuring (Intervention)	Changing the physical or social context	Point-of-care decision support alerts pull in patient-specific information to ensure alert relevance to reduce low-value health service delivery at VA (*Optimizing use of EHR*)
	Culture, policies, or system	Restriction (Intervention)	Using rules to reduce the opportunity to engage in the target behavior	VA-sponsored utilization review board to evaluate low-value testing or interventions (*Checks and balances to the ordering process*)
Social influences	Social pressure from Veteran	Education (Intervention)	Increasing knowledge or understanding	Automated informational mailings for Veterans when new guideline present updates to best practices including stopping use of low-value services. (*Education to the Veteran*) OR Counsel Veterans on expectations of no longer needing to perform testing or procedures (*Education to the Veteran*)
	Social norms	Environmental Restructuring (Intervention)	Changing the physical or social context	Create access to on-station care that was previously purchased with care in the community (i.e., MRI and chiropractic care) (*Improve access to VA care*)
Belief about consequences	Fear of negative consequences or reprimands	Persuasion (Intervention)	Using communication to induce positive or negative feelings or stimulate action	Routine individualized feedback on low-value service usage rate compared to their peers in the same VISN such as a report card to evaluate for outliers (*Audit and feedback systems*)
	Anticipated regret	Enablement (Intervention)	Increasing means/reducing barriers to increase capability or opportunity	Leadership cultivates a culture of active listening to empowers clinical staff to raise questions about practices for that involve low-value services (*Support from leadership*)
	Previous negative consequences or experience	Training (Intervention)	Imparting skills	Ongoing In-services, journal clubs, or brief emails with summaries of literature to communicate and reinforce the evidence base for avoiding the ordering of low-value services (*Education to the clinician*)

EHR: Electronic health record; *VA*: Veterans health administration

service delivery. The clinician-generated strategy of implementing a VA-sponsored utilization review board to evaluate low-value test ordering is aligned with this approach. The implementation of our findings have the potential to support the Senator Elizabeth Dole 21st Century Veterans Healthcare and Benefits Improvement Act which calls for a 'Strategic plan on value-based health care system for VA'.[24] Likely, this will require national top-down policies with complementary bottom-up approaches directed toward culture change at the local facility level.[25]

Our results also suggest that different strategies to reduce low-value care may be needed for generalists versus specialists, as well as different facilities based on whether current rates of VA-delivered low-value services are higher or lower. For example, in designing a targeted strategy to address beliefs about consequences, our findings indicate that interventions should have an intentional focus to address fear of negative consequences or reprimands for both medical and surgical specialists in comparison to generalists (Table 5). This type of approach may be more appropriate for surgical specialists who were more keen to suggest audit and feedback systems for reducing low-value care compared to medical specialists. It remains unclear if the proposed clinician-suggested approaches to reduce low-value service delivery are a worthwhile investment (e.g., time, money, staffing needs) relative to the potential reductions in low-value care. Careful consideration regarding cost must be taken when determining intervention priorities to reduce low-value service delivery. Other approaches to de-implementation, such as *unlearning* for reflective cognition processes and *substitution* for automatic cognitions, may also be considered for intervention design.[26] Finally, some clinician-suggested strategies have the potential to enhance care delivery bureaucracy and some participants acknowledged this limitation. There are novel opportunities for system re-design teams to re-imagine consult workflow, pop-up alerts, and decision support tools applying human-centered and user experience designs.[27,28]

Our study has important limitations to consider. First, participants were restricted to VA clinicians and did not consider the views of VA clinical support staff and administrators. Second, although our sample was comparable to the larger VA medical officer workforce with regard to percent male, female, Asian, and Hispanic/LatinX,[29] our sampling yielded a cohort without representation of Black/African-American or American Indian/Alaskan Native perspectives. Therefore, our findings may not generalize to all VA clinicians of diverse backgrounds. Third, almost all participants practiced at VAMCs with a level one or two complexity rating; thus, our findings may be less generalizable to less complex VAMCs. Fourth, because we discussed clinician behaviors, social desirability bias may have played a role in their responses. Fifth, we did not include clinicians who care for Veterans outside of VA who may have different views on drivers of low-value care for Veterans. Sixth, given our focus on VA-delivered care, comparing drivers of and potential strategies for low-value care delivered to Veterans in VACC and Medicare was beyond the scope of this paper.

CONCLUSION

VA clinicians perceived low-value service delivery to be driven by environmental context and resources, social influence, and beliefs about consequences. The most common suggestions to reduce low-value service delivery in VA focused on improving quality and access to health care, dissemination of best practices, optimizing use of the EHR, and instilling an organizational culture on value. These findings may directly inform the design of interventions to reduce the delivery of low-value services at VA from the Veteran-, VA clinician-, and VA facility-level.

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Corresponding Author: *Thomas R. Radomski, MD, MS; Institute for Clinical Research Education, School of Medicine, University of Pittsburgh, Pittsburgh, PA, USA (e-mail: radomskitr@upmc.edu).*

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