PROGRAM PROFILE

Implementing Smoking Cessation Telehealth Technologies Within the VHA: Lessons Learned

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Background: Health care systems need to reach patients who are smokers and connect them to evidence-based resources that can help them quit. Telehealth, such as an interactive voice response (IVR) system, may be one solution, but there is no roadmap to develop or implement an IVR system within the US Department of Veterans Affairs (VA).

Observations: We describe the development and implemention of IVR at the VA Portland Health Care System in Oregon to proactively reach veterans who use tobacco and connect them with cessation resources. We coordinated with local departments to verify the necessary processes and strategies that are important. We recommend several questions to ask the IVR vendor and be prepared to answer before contract finalization. The Patient Engagement, Tracking, and Long-term Support (PETALS) initiative may be an excellent place to start for VA IVR-related questions and can be used for IVR initiation within the VA, but other vendors will be needed for nonresearch purposes. Finally, we describe the process timeline and steps to help potential users.

Conclusions: IVR systems, once they are developed and implemented, can be efficient, low-cost, resource-nonintensive solutions that can effectively connect patients with needed health care services. Developing an IVR system within the VA was challenging for our research team. We experienced a large learning curve during implementation and hope that our experience and lessons will help VA personnel in the future.

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Health care systems need practical, scalable methods to reach patients and connect them to available, evidence-based resources. Ideally, these systems need to be resource nonintensive to deploy, maintain, and use. They should also be low cost, have a relative advantage to the organization, be sensitive to patient needs, use available resources, and have rigorous evidence regarding their effect on patient-centered outcomes.[1,2] Phone service is one way to reach people that remains viable. More than 97% of Americans own a cellphone of some kind, and 40% still have a landline.[3,4] One intervention that has been increasingly used in routine care settings is an interactive voice response (IVR) system that uses phones for connecting to patients.

IVR systems are a type of telehealth that provides information or adjunct health services through use of a telecommunication platform and information technologies.[5] These systems are automated telephone systems that use prerecorded or text-to-speech–generated messages that allow respondents to provide and access information without a live agent.[6] Text messaging (SMS) is another modality that can be used to asynchronously engage with participants. IVR systems have been used successfully for many health conditions and services, such as improving veterans' adherence to continuous positive airway pressure, colorectal cancer screening, and cognitive behavioral therapy.[7-10] By building on existing technology and infrastructure, IVR systems can be a cost-effective option for health care system services.

A 2016 Cochrane review of IVR systems for smoking cessation identified 7 studies.[11] Although none used opt-out mechanisms (where individuals are automatically enrolled in programs until they decide not to participate) to engage people without an expressed motivation to quit, these interventions seemed safe and were promisingly effective. Among patients enrolled in primary care, a trial of an IVR system led to a higher quit rate: 18% vs 8%.[12]

In one study, patients in the emergency department, particularly older ones, preferred phone-based interventions over SMS.[13] IVR-based proactive tobacco cessation systems are cost-effective and have been successfully used in the US Department of Veterans Affairs (VA).[14,15] IVR systems using opt-out approaches are being studied, though their effectiveness in this setting has not been proven. The pros and cons of different interventions need to be explored since there is likely a tradeoff between feasibility and effectiveness. For example, intensive smoking cessation

interventions are more effective but often require more resources to implement and sustain.[16] Basing interventions that are not resource intensive within a reputable organizational system may amplify the effectiveness.[17]

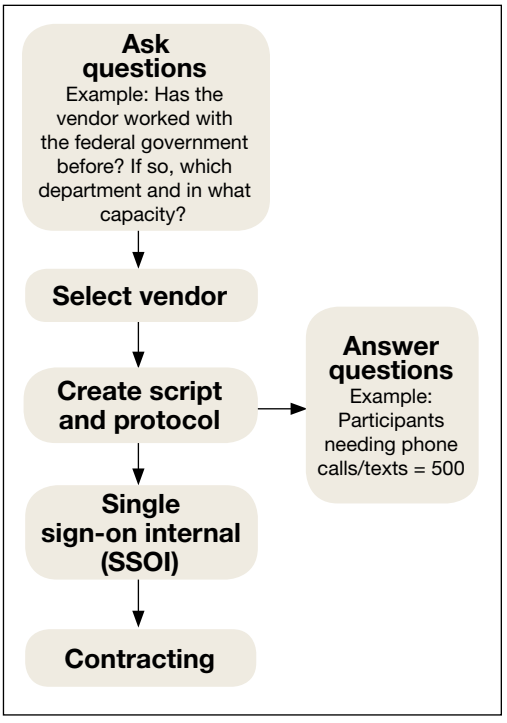
This endeavor to establish an IVR system was initiated as part of our research study, a randomized trial of the Teachable Moment to Opt-Out of Tobacco (TeaM OUT) intervention at the VA Portland Health Care System in Oregon. We measured the reach and effectiveness of a novel, proactive, resource nonintensive, and pragmatic intervention to engage veterans with a recently diagnosed lung nodule who smoke cigarettes.[18] Our research team extracted the contact information for patients currently smoking and found to a have a pulmonary nodule from the VA Corporate Data Warehouse.[19] We then manually uploaded those data to an IVR website where the system contacted patients to connect them to smoking cessation resources on an opt-out basis. In the research study, we measured the acceptability and effectiveness of the TeaM OUT intervention using quantitative and qualitative methods.

We developed and implemented an IVR system for use at 4 facilities: VA Portland Health Care System, Minneapolis VA Health Care System, Ralph H. Johnson VA Medical Center (Charleston, NC), and the Baltimore VA Medical Center. Setting up any type of wide-scale technology within the VA can be challenging. Due to our experience in developing and implementing the IVR system in the VA, we share what we have learned about the process of finding, contracting, developing, and implementing an IVR system. We share our experiences with developing and implementing this system to provide guidance for those who may want to establish an IVR system (or similar technologies) within the VA.

LESSONS LEARNED

During our development and implementation process, we learned several lessons about setting up an IVR system in the VA. It is important to note that VA facilities may have differing processes, and policies frequently change; thus coordination with departments (eg, contracting, finance, Office of Information and Technology [OIT], etc) to verify the following strategies is essential (Figure). The transition to the Cerner electronic health record will likely make it more challenging to find patients, but it should not affect the IVR development or implementation process.

FIGURE Interactive Voice Response Flowchart



Vendor Selection

Check with the local OIT and contracting offices to see if the facility has previously used any vendors for these services and for advice on selection. We compiled a list of questions that may be helpful based on our discussions with 4 vendors, prior to selection of a vendor already VA-approved (Appendix). There are also questions to think about in parallel with choosing a vendor. Contact your OIT, contracting, and privacy (if necessary) offices before choosing a vendor.

Online Security

After selecting a vendor, if you want an online portal to view, upload, or download data, then you will need to initiate the single sign-on internal (SSOI) process

(www.data.va.gov/dataset/Single-Sign-On-Internal-SSOi-/cber-kxf9). Other benefits of a website are to identify call patterns (eg, no one picks up after the 10th call) and track respondents' selections. The SSOI process can take up to 1 year. Notably, the website login at minimum needs to be created by the IVR vendor to start the process. After the SSOI is approved you can add more to the website beyond just the login capability. Note that the script needs to be finalized prior to SSOI initiation. You will need to initiate with the SSOI team, then the vendor will need to complete the process.

Contracting

Concurrent with the above steps, contact the contracting office to get a sense of the paperwork and timeline. Make sure you are comfortable with the vendor's responses to the questions in the Appendix, and view their written proposal or scope of work (SOW) to ensure they can do what the project protocol demands.

If the vendor has previously worked with the VA, contact your local contract office (usually part of the Finance Office) for updated forms. We needed the 6500.6 Checklist, Document Checklist for Service Requests, Single Source Justification, Research & Development Order (if research-related), and Vendor File Request forms. The vendor can help complete these forms. Review the proposal/SOW and budget first, knowing that budgets have a wide range and depend on the length and complexity of the script, number of calls, number of respondents, etc. For example, our quote was $110,000 over 4 years, including development, training, hosting on a secure server, and maintenance. Our IVR system will call about 5000 patients across 4 sites. Each patient will receive up to 15 calls over 2 weeks if they do not answer. We created 2 IVR lines (1 inbound and 1 outbound). Next, contact the lead of the local OIT and contracting departments by email to justify sharing veteran information with a contracted entity via approved methods. Finally, contact the privacy officer and information security officer. Discuss where software would be installed, whether cloud storage would be used, and what information can be shared/stored. Remember that the rules may differ for research vs nonresearch projects. Also, determine whether a data-use agreement between the VA and the vendor is needed and how the institutional review board (if research) gets integrated.

If using an outside vendor who has never worked with the VA, submit form 6550.6. Note that contracting requires several months. First, contact OIT and contracting departments. Again, you will need to justify sharing veteran information with a contracted entity. Next, complete the Project Special Forces Software and Privacy Threshold Analysis process to purchase the system. Set up a meeting with OIT to determine other forms and next steps. Business need/case use form and data security categorization may be needed. If the software needs to be installed on a VA computer, you will need to submit a Technical Reference Model request if it does not have an entry.

Vendors can answer technical questions from the contracting office, especially about the SOW, but the VA team needs to write the contract and manage all documentation and communication. You will also need sole source documentation (receive from contracting office) with justification for why you want to use a specific vendor. If you do not have that justification, in cooperation with the contracts office, you must solicit bids from other companies. Importantly, understand the staff support needed for contracting and build into your timeline and budget. Not surprisingly, we found that in-person or phone meetings were invaluable compared with email correspondence. Meet with all parties involved early and often. Once the contract is clear, this begins the build process where the vendor can program and record the script. This process usually takes 1 to 2 months.

Patient Engagement, Tracking, and Long-term Support

The new Patient Engagement, Tracking, and Long-term Support (PETALS) initiative is an excellent place to start with any VA IVR-related questions. PETALS is used for research.[20] We hoped to use this system for our study, but its implementation was delayed until 2022. The PETALS system is designed for VA investigators who conduct research studies and need a secure

platform that is compliant with VA policies for deploying SMS and IVR systems for research.[20] At this time, PETALS is for use only with veterans, so if research will occur outside the VA, you must use an outside vendor. Users who want to set up a new IVR system can ask their local contracting office whether any contracts have already been established for IVR development and support.

From our perspective as researchers who are not telehealth savvy, we encountered several delays from failing to ask the appropriate questions or inability to navigate complicated systems. For instance, there were several tasks that needed to be completed and were not included in the original timeline developed by the vendor and researcher. Therefore, it is important to have clear communication on both sides about who is doing what, when, and how. We tried to detail these unexpected steps to help researchers, administrators, or other VA employees in the future.

CONCLUSIONS

IVR systems, once they are developed and implemented, can be efficient, low-cost, resource-nonintensive solutions in a health care setting that can effectively connect patients with needed health care services. Our experience developing an IVR system within the VA was challenging and was a huge learning curve for our research team. We hope that our experience and lessons will help VA personnel in the future.

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Disclaimer

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Appendix IVR Implementation Questions

Vendor questions	Design questions
1. *Has the vendor worked with the federal government before? If so, which department and in what capacity?*	1. *What do you want the IVR system to say (ie, the script)? What is the skip logic (ie, what you want to happen next when respondents push certain numbers, eg, the respondent pushes "1" and goes back to the main menu)?*
2. *Does the vendor use an online or premise-based system?* Online systems are those that host services via the internet and are often cheaper and more flexible than premise-based systems.[21] However, the federal government needs to ensure the security of any such systems as they can be more vulnerable to misuse and data and access control issues.[22] When we searched for IVR systems, we ran into several concerns regarding sharing information outside VA regarding the type of information and how it would be stored and transferred. If any software is not approved, then it will need to go through the approval process.	2. *How many respondents do you anticipate needing phone calls/texts?*
3. *Can we see a demo? Is the demo something the vendor already has in place or is it still in development?* "Test drive" the system—is it functional and in line with the needs of the project?	3. *Do you want a 1-800 number or a specific phone number?* Specific phone numbers can look like it came from a local location since it might have the same area code and/or starting 3 digits. Some people might prefer a 1-800 number though since it is obvious as a company calling. You should determine whether your VA allows research and/or operational projects using IVR to make the phone number seem as if it is VA calling on a caller ID.
4. *Does the vendor use subcontractors or is everything done in-house? If subcontractors, who are they and how long have they been working together? Can the vendor provide references?* If the vendor has a reliable network of subcontractors they have used, there are benefits: the facility would not have to search for local vendors to do additional and/or specialized work on the project; the vendor usually ensures the subcontractors are fully insured and licensed. Downsides to subcontractors include frequently increased costs; the facility may not have direct communication with them, which could make 2-way discussions difficult; and subcontractors may not be able to answer overall project questions.	4. *Do you have a specific website URL in mind (usually the study name but can be anything)?* The website will be the dashboard where you can review respondents' selections and can upload/download data.
5. *What type of system testing is provided (eg, testing of the IVR system among a group of users, testing among the vendor, etc)? Will there be training for staff?*	5. *Do you want to verify that the respondent is the correct person? If so, how will you (eg, require the respondent to enter their date of birth, phone number, etc)?* You may want to verify the respondent if you need to ensure they are the correct person, for example, if your IVR system is offering medications or discussing medical issues.
6. *Is it possible to talk to both a salesperson and an engineer?* Ask as many questions as possible to the salesperson because they may not be able to meet your budget or timeline. Be clear with the engineer about what is needed to make sure the system will be functional for your specific project.	6. *What happens if the call goes to the recipient's voicemail?* Sometimes leaving a voicemail is desired, especially if there is a callback number option.
7. *How long will the development and build process take?* Be aware that development might include signing off on even small changes. This includes changes to the background coding script that your team may not assume is part of your purview. The actual build of the project cannot proceed until the script is finalized (see #8 under Design questions), so any time estimates need to account for how long writing the script (including the skip logic [see #1 under Design questions]) will take.	7. *How many times will the IVR system call? How often? How many phone numbers will it try (ie, call schedule)?*
	8. (This question is more specific to research-related IVR systems.) *How will you transfer data with the vendor for updating and analyses?* Outside vendors may require data (eg, respondent contact information) to be sent to them securely. You may be able to upload to a website, but you will need to verify with your local OIT, information security, and privacy offices. Currently, the VA only approves the use of flash drives or Box (a secure cloud content management and collaboration system) to be physically transferred for data inside/outside VA when secure email does not allow for large enough files or if the website is not approved.[23] The VA Portland Health Care System Institutional Review Board approved use of a flash drive.

Abbreviations: IVR, interactive voice response; OIT, Office of Information and Technology; VA, US Department of Veterans Affairs.