Cyber Seminar Transcript  
Date: 10/01/15  
Series: QUERI Implementation Network  
Session: The Science of Implementation

Presenter: Ann Sales  
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Molly: And, we are at the top of the hour now, so I would like to introduce our presenter. Today, we have Dr. Anne Sales speaking. She is a research scientist at the Center for Clinical Management Research at VA Ann Arbor Healthcare System, and an adjunct professor in the Department of Learning Health Sciences at the University of Michigan School of Nursing. So, Dr. Sales, are you ready to share your screen at this time?

Dr. Sales: Molly, I’m sorry. I’m not. I’m sorry. I’m switching to a different computer. I’m probably going to have to log off and log back on. I’m…

Molly: No, that’s not a problem.

Dr. Sales: …going to do this as quickly as I can, and I’m very sorry about this.

Molly: No problem. How about we start with the poll question while you’re getting all set/

Dr. Sales: Sure. You could run through all of the poll questions if you wanted to, and I will let you know as soon as I’m back on.

Molly: Okay. Sounds good. Thank you.

Dr. Sales: Thank you. Sorry.

Molly: No problem at all. So, for our audience members, we do have a poll question that we’d like you to respond to. We are trying to get an idea of who’s in our audience and the experience that you have. So, as you can see on your screen, there is a poll slide and it says, “Who’s in the audience.” And, you can select all that apply, because we understand that many of these maybe be applicable to you. So, the answer options are I have previously done implementation research, I’m working on a newly funded QUERI program, I’m new to implementation research, I’m operations partner working with a QUERI team, or I have not done, I have not previously done implementation research. And, it looks like we’ve had about half of our audience answer, but the responses are still streaming in, so we’ll give you a few more seconds to get your reply in. We appreciate you providing this information. It will help Dr. Sales have a better idea of who to gear this talk towards. Okay. Looks like we’ve had just about 80% of our audience vote. So, I’ll wait for Anne to return to actually display the results. But, well, we can go ahead and share them now. So, looks like we have, of all of our respondents, 51% have previously done implementation research. About a quarter of our respondents selected working on a newly funded QUERI program. About a third of our respondents also selected new to implementation research. 2% are operations partners working with a QUERI team, and 29% have not previously done implementation research. So, this will be a great introduction for that group.

And, I do just want to pull up one other thing while we wait for Dr. Sales to come back to us. So, I’m not sure if you’re aware, but VA Pulse [PH] have now been launched and it’s a great way for you to connect with your community and continue discussions, whether it’s about this cyber seminar or other topics. So, I’m going to go ahead and share this with you now. So, what you have on your screen is a little bit about VA Pulse. So, not only does the implementation research group have their own site, but also we have a site for the HSR&D cyber seminars, and we encourage you to visit one or both of those after the presentation. All you need to do to create an account is to use your VA address that will help you set up an account, and then you can join us there.

Christine, would you like to take a moment and talk about what you’ll be featuring on your implementation research group site?

Christine: Sure, Molly, thank you. Can you hear me?

Molly: It’s a little bit quiet, but you’re there.

Christine: Okay. I’m sorry. I’ll try to speak out. But, yes, so we have launched the new site for our implementation research group. We hope it’ll be a really good resource. As Molly said, we’re going to coordinate and have links to all of our future cyber seminars there. One of the great powerful tools about Pulse is that people can start blogs and discussions. And, so in addition to posting things such as notes from our monthly events calls and upcoming events, we will also plan to feature new implementation articles that we think are relevant. We hope to eventually have a little section for some of the specialty care groups that are starting. For example, some of the work that Edward and Julie had talked about, about qualitative comparative analysis, we can have a separate section for them, where people can host their questions and then get live answers from the group.

So, I did send invitations to everyone that I had on our distribution list. So, if you haven’t had an opportunity to do that yet, it would be great if you could join up and make sure that you’re a member so you can access all of the, the wonderful tools that we’ll have for you there.

Molly: Thank you, Christine. I apologize. My mic wasn’t muted through that, so you might’ve been hearing some typing. We do actually have a question that just came in regarding your page on VA Pulse. Is the implementation research group only open to VA researchers or can others join?

Christine: Others can join. We’d like it to be open. The one caveat to that is in order to join VA Pulse, you have to have a VA email address, unfortunately. So, what you can do, if you’d like the information, we do have some people that are a core part of our group that don’t have VA email addresses. So, I have a separate contact list for them, and so what I’ll do is like periodically send updates through emails to that group. So, if people want, they can email me at Christine, it’s c-h-r-i-s-t-i-n-e-.-[k-o-w-a-l-s-k-i@VA.gov](mailto:k-o-w-a-l-s-k-i@VA.gov). If you shoot me an email with your non-VA address, I can add you to my contact list, and that way I’ll periodically send an update and make sure you, you received a summary of the information that’s been posted there.

Molly: Thank you for that, Christine. We do have another question that’s come in regarding Pulse and this is great. We do want to get you oriented to it. It’s pretty up and coming right now. So, does Pulse require a login and password since we are not permitted to save passwords on VA computers, having a login can be another barrier to joining, another username, another password to remember and look up. So, a couple of things. You will require a VA login—I’m sorry, a VA address and that will actually be your login user. So, it won’t be a new username to remember, so it’s just going to be your VA email address, and then you can create a password. I use Internet Explorer, which is the approved Web browser of the VA, and it actually does let me remember, or it does remember passwords and let me save them. But, also you don’t have to ever log out of VA Pulse. It doesn’t mean you always have to have it open, but when you click on a link, it will allow you to stay logged in. That’s been my experience. Christine, I don’t know if you’ve had others.

Christine: Yeah, I would say, again, just like you said, it’s very easy to use, because you don’t have to have, make up a user ID. It is your VA email address. You can use a very basic password, just easy to use. They don’t have these strange requirements with, you know, numbers and things like that. So, you could do a fairly simple password, and as you said, when you log in the first time, there’s a little icon where you can select keep me logged in at all times, and then that way it’ll do it. So, whenever you open it back up, you’ll already be logged in. So, and it is a really, really powerful resource, so we hope that people will do the little extra effort that it takes to sign up, set up a really brief profile and then you can have access to all of our great tools, and a really great way to collaborate in real time. As I said, post questions, poll, start your own little blog on there. You’ll be able to do that and have people with similar interests respond to you. And, hopefully, you can get really timely feedback to any implementation science question you may have.

Dr. Sales: Hi, Christine and Molly, this is Anne. I’m back on and I apologize for the problems. I think I’m okay now.

Molly: Not a problem at all. I was just putting up Christine’s email address up on the screen for people that want to email her for more about VA Pulse. But, we are set to go, so I’m going to take just a moment. I did want you to be able to see the poll results. Hold on a second here, having a little techie issues. Okay. So, do you see the poll results up there?

Dr. Sales: Yeah, I see it, thank you. Yep.

Molly: Okay. Excellent. Well, now I’m going to give, hand it over to you and, wait, one second. Getting way ahead of myself today. Thanks, everybody, for your patience. Okay. Now, you should see the pop-up, Dr. Sales.

Dr. Sales: Okay. Yes, I do. Thank you very much. And, again, my apologies for the technical issues. Hopefully, this \_\_\_\_\_ [0:09:32]. So, what I wanted to do today was to do a very brief overview of some key, fairly new things in implementation science. Molly, you can see my screen, right?

Molly: Yep.

Dr. Sales: Great. Okay. So, I’m going to skip the Pulse since we’ve already done that. And, first thing I want to do is just say a couple of notes about what I’m not planning to talk about today, because often when we talk about implementation science, a lot of the conversation moves very quickly to methods of, and study defined issues around evaluation of the implementation. And, in the hybrid context, evaluation of both the effectiveness of the innovation and the implementation component, which are being done in parallel or simultaneously. I’m also going to focus on work outside the U.S. as well as within the U.S., because one of the concerns that I have in the discourse around implementation science and implementation research in the U.S. is it tends to be very focused on what is happening within the U.S. And, there’s a lot going on in the U.S. It’s a good reason for that. But, I think that sometimes we miss some of the things that are happening outside the U.S., and some of those, I think, are quite important to the work that many of us are involved in and engaged in.

So, I’m going to start off with just a brief definition of implementation in healthcare. And, so it’s interesting, because I, the definition I’m going to use here is going to focus on evidence-based practices. There is in fact another discussion that is mostly within mental health and behavioral health around implementation of evidence-based programs. And, I’m not going to talk about that, because that discussion is a little bit different, and has some somewhat different nuances to it. But, the focus I have coming from the background I have from \_\_\_\_\_ [0:11:31] heart disease QUERI program which ran for many years, and working with a QUERI program over the last 15 years in the VA as well as outside of the U.S., it’s really focused on thinking about practices that have an evidence base to them and implementing these into routine care. And, I say this because sometimes it’s about adoption of new ways of doing things that may or not have strong evidence to them, that may or may not have strong clinical, direct clinical import, so that what you’re doing may have a strong basis in organized, organization of care and delivery of care may not have as much to do with clinical practice. So, what I’m going to talk about today in here is about implementation of evidence-based, largely clinical practices into routine care. And, what this connotes is that there’s a requirement that there is a change in behavior, that’s the practice piece. So, the way that people are doing things is not optimal and that there’s been prior work to ascertain that, and to ascertain that there is an evidence-based way of doing things that is preferable. And, sometimes, that preferableness is a matter of policy and increasingly in the discussions we have within the U.S. and outside, we can be talking—I’m sorry. I just realized that I \_\_\_\_\_ [0:13:13] system than I thought I was using. So, my apologies. Okay, so the focus here is on things that require behavior change, a need to understand those practices and behaviors and thinking about routinization and sustainability as the goals. And, that’s what I’m going to focus on.

I’m not going to spend much time on this slide, except to say this is also in the space of complex interventions and complex implementation. And, there, the distinction between those two things is complex, and it’s also not very well made in the literature. So, often people talk about complex interventions as though they are exactly the same as complex implementation. I think they are different, but there is considerable guidance, particularly outside the U.S. and the United Kingdom on developing complex interventions in healthcare, which imply implementation. And, I think it’s important to think about whether that implementation is complex or not, and to think about the implementation as separate and different from the intervention.

The other thing I’d like to just focus on, and this was an important focus of the discussion that Forest [PH] Caribean [PH] had in, earlier this summer. And, I think this is an important paper that is referenced at the end of the slides, but Rachel Tabak and colleagues did a systematic review that was published in 2012, where they reviewed the literature and dissemination implementation sciences and found—first of all, they found over 100 frameworks. They focused on 61 of them, because they felt that they really were dissemination implementation frameworks. And, then they did some categorization of those as whether they were primarily dissemination, primarily implementation or both. And, then the level at which they focus. So, whether it was at the individual level, the organizational level or the more social policy, society kind of level, the point I want to make here, and this is where the paper, the systematic review kind of stopped, was they said basically there are all these frameworks and people could make decisions about using any of them. I’d like to say that not all frameworks are equal, and I think this is an important point that we, so far in implementation science, have not yet fully come to terms with. Because, people have favorite frameworks, people have frameworks that they themselves developed and they created, and I think that those are all valid and useful things. But, some frameworks, I think, have more utility than others and partly, this has to do with the level of focus and the match with what you are trying to do. So, whether you’re trying to change provider behavior, for example, or trying to change patient behavior, or trying to change an organization, I think, is very different from if you’re trying to change a social system or a broad policy that has to do with insurance, for example. And, the mental health parity piece, I think, is an interesting piece of this, that in a sense, the entire discussion around what kind of mental health services can be provided to people has to do with whether or not they have access to mental health services and how those are paid for. That’s in a very broad social level, and most of the work that we do, particularly in the VA and in QUERI is, tends to be more at the organizational or individual level, primarily at the providers, focus on providers, sometimes on patients. So, the two frameworks I'm going to talk about in more detail are the Consolidate Framework for Implementation Research, which is very familiar to many people in the VA. I won’t say everyone, because I suspect it’s, for some people, still new. But, it was originally, the original paper was published in 2009. Laura Damschroder, who is a colleague of mine and very experienced implementation researcher here at Ann Arbor, was the lead author on that, and continues to be the person who is most associated with it and is working very closely with others, many of whom I suspect are on this call, to develop, broaden and most importantly for what I’m going to talk about today, create linkages to a different literature that’s about implementation strategies. And, so that, for me, is the other piece of why not all frameworks are equal. Some frameworks, particularly the Consolidate Framework for Implementation Research, or CFIR, have, are beginning to develop linkages that are actionable and take you in a specific direction to do design of implementation interventions. The other one that I’m going to talk about today is called Theoretical Domains Framework, or TDF, and that may be less familiar to people, because it’s been developed primarily in the U.K., although it’s being used fairly widely around the world, particularly in Anglophone countries, so, U.K., Canada, Australia, and somewhat within the U.S. But, in the U.S., the uptake is still fairly small. And, I’m going to talk about why I think both of these are valuable and important and are actually quite complementary to each other.

I’m not going to focus on this slide, except to say that this is all within the framework of a systematic approach to getting Step 5 on this slide, which is the focus of a lot of my interest in implementation research and implementation science. I think there are legitimate \_\_\_\_\_ [0:18:48] well before Step 5, but Step 5 is my particular area of interests, and I’m going to focus for this discussion on Steps 3 and 4, and less on Step 1 and 2, although I do have some slides that talk about those. So, I’m not going to spend much time on this, because within QUERI, we have, we have discussed this a lot over the years.

The question of how do you decide what you’re going to work on and what’s important, and I’ll just say I think there need to be clear criteria. I think those criteria need to be stated. I talk a little bit in a different place about evidence-based, but figuring out how you understand what a gap is is an important thing to do. This is where the evidence, I think, really becomes important is on Step 2, when you think about so what, how do you fill this gap. You’ve determined that there is a gap, you’ve determined that there’s a need to do something, so how do you actually put things into place around that? And, here’s where I’m going to spend a little bit more time, intervening to implement the new practice, and let me just say for those of you who have not yet seen the guide to implementation, which is a Web-based resource available through the QUERI website, I would strongly recommend that you go there. I think I have a link to it later on in the slides. And, take a look at it. It is being revised, but much of the core understandings and these step-wise pieces are actually laid out quite well in that guide. And, if you’ve not heard about some of these things and would like to learn more, there are many resources in the guide.

The first piece that is really important is to really understand what practice it is that you are changing. And, I think is an area where in QUERI, we have not always been as clear and as precise as I think might be helpful. So, understanding the bundle of behaviors and the decisions that constitute that practice. I think this is important, because as most of you who are within the VA at least know, one of the major priorities for the Office of Research and Development is understanding provider behavior. And, this is very consistent with that priority, this notion of process mapping and mapping out the behavior so that you understand the practices clearly and with precision is a very important piece to intervening, to implement a new practice. Often, we go in with a very sort of gestalt view of barriers and facilitators that we often derive in a sort of a very ad hoc way. And, I’m going to suggest through the next few slides that we don’t need to be that ad hoc and that we can actually use what are now becoming quite well developed tools and instruments that allow us to be more precise, and to think about our implementation interventions in, in more targeted and focused ways. And, mapping the practices, and this, understanding the behaviors and where the decision points are that, where people decide what it is they’re going to do is really important. So, these are just some different ways of thinking about mapping and doing mapping.

The next piece about systematizing and designing implementation interventions is a piece, I think, that is not well-discussed in the literature at this point, but is, as I said, a focus of what I’m personally interested in and the work that I have been working on. And, I think in many ways, the RFA for the QUERI programs that were just recently funded and the RFA that’s back up for January submission points to some of these that in ways I think is very helpful and important. So, I’m just going to sort of walk through them and add a bit to what’s already in the RFA and is emerging in the literature and work that many of you are familiar with. Because, what I’d like to say is that part of the issue here is that we are almost always working in multiple levels. I think that there is almost always an individual level that we need to attend to and focus on, and that’s because behavior is an individual thing. Organizations don’t behave. We have, there is a whole field of organizational behavior and the organizational theory, but the behavior of organizations is an aggregation of the behavior of the individuals within the organizations. And, I think it is important to keep both of those levels in the frame as you think about implementation. Because, not doing that means that you miss often important issues that you need to attend to at one level or the other. And, I think a legitimate critique of most of implementation research in the last 15 years is it has either been at the individual level or at some other level, seldom at both. And, so one of the things I would urge all of us to be thinking about is multilevel thinking about implementation interventions. I think we also need to think about designing these and not simply figuring them out and putting them in place and testing them. But, instead, really thinking through what is achieved through and how much do we have to do to be parsimonious and to do it efficiently. Because, there is a serious issue of not being able to scale up what we do, because it is expensive and too hard to do. So, I’m going to talk about the individual level and here I’m going to talk about the theoretical domains framework or TDF, and then I’m going to talk about the organizational level and possible above the organizational level to more systems, and particularly in the VA, I think we have the opportunity sometimes to work at a higher level than single organizations, single facilities or clinics. We can sometimes work at a higher level than that. And, I’m going to talk there, use there the CFIR, consolidate framework for implementation research as the primary approach to think about.

So, I’m first going to talk about the TDF and focus on development of what are called behavior change techniques, and I have the reference at the bottom of this slide. There is a website that actually gives you direct access, and in fact, there’s a training website for how to code these, the, first of all, the domains in the TDF and then link them to the behavior change techniques that link to the domains of the TDF. I’m not going to have time on this, on this cyber seminar to go into much detail on this, but there are a lot of resources out there and many things that you can look at. So, an example of this, and I’m, I’m going to hopefully have time to walk through a very brief example, is as you ask providers what are the reasons why you would not adopt this new practice or change the way you do things to do it a different way. One of the really frequent things people say to you is, “Well, essentially, it’s not, what I’m doing isn’t broken, so why should I fix it?” Often that is because there’s a lack of awareness at a group level, at the level of their panel of patients or of the population as a whole, of what the real, their real practice is, and the fact that there may be a significant gap with current practice and current evidence. And, so, giving people tools to self-monitor, which is slightly different from audit with feedback, for example, but may include an audit with feedback upon it where people get a feedback report that gives them a view of their panel or their aggregated patient population and says, “You know, you think you’re prescribing statins to 100% of your patients who qualify for them, but in fact, 30% of your patients appear to be appropriate for statins and they’re not getting them.” That’s, that’s , that’s the kind of technique and behavior change piece that gets them to be thinking differently, possibly addressing cognitive biases that they may have, and possibly helping them to, to think about their behavior and, and think more broadly about it. The other thing that I’d like to stress here is that in the TDF and in health psychology in general, there’s an awareness and understanding that often the problem is not that people don’t know what to do, but that they find it hard to do what they should do for a whole bunch of reasons. Some of that is if you have to learn a new way of doing things, sometimes there’s a self-efficacy component to that of, of not feeling as though you’re comfortable doing things a different way. And, so some pieces of what you might do that link to what might be a knowledge deficit or gap is on how to perform a behavior and not focusing so much on what it is you should do, but more how do you do it.

Now, I’m switching gears and going to more of the organizational level, or least a broader level where you’re thinking about not a single individual, but groups of individuals. So, perhaps a clinic, perhaps a group of providers, maybe a whole facility. And, this is the implementation strategies literature that is really, has been fairly new on the scene. The original papers were published in 2010, 2011, and they, and new papers are coming out quite regularly. And, this is a group that involves people across multiple institutions in this country. Byron [PH] Powell is at the University of Pennsylvania, but did his doctoral work with Enola Proctor at Washington University in St. Louis. He’s working with Tom Walz [PH], who’s at Eastern Michigan University, and they’re both collaborating with Laura Damschroder at VA Ann Arbor. So, there, there’s a lot of very, very active work here and I’m hoping that one of our early cyber seminars in this series will actually be that, some component of that group describing that work and giving people more detailed information about what’s happening and how it could be used by the programs that you’re working on. In this literature, there is, the first paper established a group of implementation strategies that came from the literature and that have been described as ways to implement new practice, evidence-based practice. And, they’re quite variable across the 73 that are now in the most recent paper. There is active work going on that Laura, Tom Walz and Byron Powell are working on and leading to link to the 39 CFIR constructs. And, this is all information that is still not actually published, but is very much active in and in work in process. An example of a strategy is audit and provide feedback, and it makes sense that this is probably easily linked to goals and feedback within the CFIR so that as you diagnose what it is that may be holding people back from changing practice or might present a barrier to their changing practice, similar to what I talked about on the last slide and sort of thinking about a single individual, you may have a group or, again, individuals within practices for whom they don’t know what their performance is in the particular areas. So, providing feedback and then helping them to establish goals can be an effective strategy if you design the feedback intervention in a way that would meet those needs. And, I’m going to talk in a few minutes about how you could actually take both the behavior change techniques and the broad strategy of audit provide feedback and perhaps design a feedback intervention that includes more than just trying to increase people’s awareness of their performance. There may be other things you could do with it. Another example might be the importance of actually mandating change, and saying this is a change that needs to happen, that this is not a voluntary thing and it’s not just because a group of researchers thinks this is important. But, leaders within the organization endorse it and say this needs to happen. That, in all likelihood, links to the CFIR construct of leadership engagement where without leaders being engaged and being concerned and interested in these issues, it’s unlikely that you’re going to find people changing.

So, this brings me to the notion of designing interventions, and here I’m talking about implementation interventions, not clinical interventions or policy interventions, not the innovations of practice, but how do we get those innovations into practice. And, I think this is very much on sort of the leading edge, although there is an emerging literature in this area, and several recent publications in implementation science and other journals are describing approaches to doing this kind of design. What I would suggest might make sense, although this is not, this is not work that is very streamlined or at this point necessarily easy to do. But, to think about linking barriers that are assessed using a tool like the theoretical domains framework to behavior change techniques at the individual level. And, then thinking about barriers assessed at more the clinic level, organizational level, levels above the individual that could be assessed through the CFIR, linked to strategies and then designing, taking a strategy that makes sense given the higher level issues that are there, and thinking about techniques that could be built into that strategy that come from the psychology literature in the behavior change techniques. So, this is a conceptual idea. I have not yet see it done. I will be honest and say that, that we wrote a proposal to try to do this, that went to the STP panel last year and wasn’t approved for funding. So, we will be going back to the drawing board on that one, and I’m going to talk a little bit about that, because that’s the one where I’ve done the most thinking this through. Although, this is what we will be using in the long-term care QUERI work in terms of designing an audit with feedback strategy and linking that to learning collaborative. Part of the reasoning for particularly choosing that strategy and declaring it initially was that it will allow us to build in the behavior change techniques both into the feedback interventions and into the learning collaborative as we do the barrier assessments that we need to do within CLCs and home-based primary care teams.

So, I’m just looking at the time. I’m going to run through this example very quickly and not spend much time elaborating it. But, this is about an implementing evidence-based practices in the particular bundle of evidence-based practices in an intensive care unit setting or a group of intensive care units. So, the problem here is that patients are on mechanical ventilation for longer than is ideal for their wellbeing. And, in, as with most things that we see in VA and in healthcare, there’s variation across units. Some units have much longer duration of mechanical ventilation than other units. When people stay on mechanical ventilation for a long time, when they could be weaned off of it, the long-term outcomes are poor. There’s higher mortality, loss of functional status, long-term impairment and all of this is very evidence-based. There’s a very large literature in this area and in this work, I’m working closely within a group of intensivists, intensive care nurses who know this literature far better than I do, and who are context experts on this. And, they all assure me and I, from literature, I believe that there’s a strong evidence base here. And, there is an evidence-based bundle for improvement that’s, has the acronym ABCDE, standing for spontaneous awakening trials, spontaneous breathing trials, coordination of awakening and breathing, delirium assessment and early mobilization. And, I won’t spend time going into detail on that. But, suffice it to say this is a very complex intervention as a bundle, and each of these things potentially have complex and different types of practices that have to be mapped and thought through. Because, spontaneous awakening, just to use that, because it’s kind of the basis of all of this that needs to be done first, is a complex process. It takes training, it takes skill, it takes coordination of teams, and it takes individual attitudes and beliefs that the provider really strongly believes that it is an important thing to do for a patient. And, their, in fact, counter belief and attitudes held by many providers that spontaneous awakening can cause discomfort and distress to patients and is not necessarily in their best interest. So, even though people believe the evidence about getting people off of mechanical ventilation, when you get to the specific actions and behaviors they need to do, spontaneous awakening is not simple or trivial.

So, focusing on spontaneous awakening, one of the barriers from work that’s been done in the past in the literature is that nurses are not sure they have the skills to handle these initial attempts to spontaneously awake patients. So, this requires decreasing the sedation, which is usually intravenously delivered to patients who are mechanically ventilated. It requires assisting and supporting the patient who may be disoriented and may be struggling against having a breathing tube down their throat while, yeah, their—and, still be on the ventilator even while they’re awake. And, yeah, I won’t go into more detail, but this is a, again, a complex and difficult process, and patients often, the initial decreasing of sedation and their waking up can be a lot of thrashing, a lot of kind of moving around and trying to figure out what’s going on. It’s, it can be a fairly violent process, actually, depending on the patient’s status. So, it takes skills, it takes self-efficacy, and it takes action planning at a minimum. And, so the behavior change techniques actually have a lot of ways of addressing these particular issues. I won’t go into detail here, but I’ve listed some of them on this slide.

And, then there’s a problem of knowing what their actual performance is. So, if you talk to a team in the intensive care unit and ask them, “What’s, how, how fast are you able to get patients off of mechanical ventilation once it’s appropriate given their health status?” People will usually say, “Oh, we do it as quickly as we can, and our average length to stay on mechanical ventilation is very, very short.” But, they don’t actually know how many days it is and for each patient that they’re taking care of, there are reasons why doing all of these things and particularly the spontaneous awakening, spontaneous breathing trials get deferred shift to shift to shift, because there may not be the resources or the energy or the time to get it all together. So, there is often a lack of—I wouldn’t say motivation. Providers are very motivated to do this, but they may not have clear goals about how often they want to do it, actually really doing it every shift, and really specifying what it is that they need to do. Again, there are a number of behavior change techniques within this group of 93 behavior change techniques that have been aggregated together as part of the TDF work that can address this lack of motivation and goals.

And, then there are issues around the strategies and thinking about the organization as a whole. How important is this to the hospital and to the unit? How does it fit with issues around staffing and continuity of care, staff morale? How much does leadership support this and is this an organization that’s ready to change? All of these are things that can be assessed quite readily through the CFIR.

And, so putting all of this together and designing and intervention around them, that’s a strategy of audit with feedback makes sense, because there’s a lack of knowledge or performance. And, that can also be coupled with goal setting or action planning, perhaps through a learning collaborative, perhaps not. The action planning could come from other sources, and the feedback can be designed to really use social processes of encouragement, incorporate action planning within the feedback intervention and do goal setting as part of the feedback intervention so that it’s more than just giving people a sheet of paper and saying, “Here’s how you did for the last month with mechanical ventilation. Figure out what to do with it.” Mandating change on the part of leadership of the organization or the unit is almost certainly an important component and leadership engagement and coaching, which could be another component of an intervention could be part of this as well.

So, I’m going to wrap up now so that we’ve got some time for discussion, even though I know that this is typed discussion, not spoken discussion. But, I’d like to just stress that we have knowledge about key factors and we have some emerging standardized approaches that we can use. I think there’s still a lot of value in innovating instruments and tools and approaches. But, I also think that we should look carefully at what’s already out there that has some level of experiential evidence as well as some level of validation and trying to systematize approaches so that we’re not just sort of randomly recreating wheels when there may be wheels already existing that could be perhaps adapted to particular areas and issues. And, all of these tools, I think, promote adaptation. I don’t think any of them are rigid boxes that you have to fit what you’re doing into. There are the set of frameworks that link to action, and I think that this is more useful for the, for building the science part of this than using purely descriptive frameworks, which the vast majority of the 61 frameworks that are in the Tabak, et al, paper, I would argue are mostly descriptive and have little that really cues action and that can be built in and designed into implementation intervention. And, the last thing I would say is planning is essential and this is the one thing. I’m not a great planner on my own. But, planning is, doing this kind of work without factoring in the need to plan and the time for planning is, I think, one of the reasons why we failed more than we’ve succeeded. And, I think that we need to move beyond failure that can be prevented.

So, I’ve got a couple of slides of references that I won’t dwell on now. Just for a minute, just talk a little bit about the resources that are on this slide. These are all websites. The dissemination-implementation.org website is the one that Borsica [PH] talked about a couple of months ago. The gem-measures site, which he discussed and which is sort of embedded within the dissemination-implementation.org site is currently being blocked by OI&T in the VA. We have requested that it be unblocked and as soon as we get some action on that, we will let people know. Because, I think this is actually a really important place for people to go looking for what’s already been designed and is public and has some level of validation to it. So, but for now, you need to use a non-VA computer to get there. The queri.research.va.gov website is important. The implementation guide is a link below that with implementation in it. And, as I said, it will be updated within the next few months and some of what I talked about today will be included in what’s in there now. And, then there’s a methods selection tool that comes out of work done by Lisa Rubenstein and folks at Greater Los Angeles that I think has a lot of utility in terms of thinking through, again, selection that what’s the basis and criteria for selecting different tools to use when you do quality improvements or implementation work.

But, I also want to talk a little bit about resources outside the U.S. and the clearinghouse dot, ktclearinghouse.ca, which is part of the knowledge translation Canada initiative, or KT Canada, actually has a banner across it saying it’s being updated now. Some of it is accessible, but I think more will be brought back online. The Center for Behavior Change at University College, London, is where most of the work around the TDF is, and the behavior change techniques, taxonomy, which I gave a link earlier, is available through that website as well as numerous resources, books, articles, things like that. The website for *Implementation Science*, the journal, which I suspect most of you are familiar with. Then this, the second to last resource here is from the Fogarty International Center at NIH, so I think it’s worth looking at, because even though it’s an NIH website, it’s really focused on international research and particularly on low resource settings, low, middle income countries, and I think that there is an emerging wave of implementation research that’s about places that don’t have a lot of resources. In the VA, frankly, we are almost always working in research-rich settings, even though we don’t believe that ourselves much of the time. VA has a lot of resources and the settings in which we work offer us many different ways of doing things. So, all of these are useful, and the final link here is a site in Australia that I ran across as I was putting these together. And, I don’t have a lot to say about it, except that I think there’s some interesting resources there and I’m, again, encourage people to look broadly, globally at what’s going on, because there is enormous amount happening both inside the U.S. and outside the U.S. And, I think that it’s to our benefit not to focus just on the U.S.

And, then finally, I just want to note that there are, at this point—12 years ago, there weren’t any books in this area—but, we do have books now and many of them, I think, are very relevant. Most people know that the Dissemination and Implementation Research in Health book that Ross Brownson and Graham Colditz and Enola Proctor edited. There is a shorter and recently updated second edition book that comes from Canada, but includes non-Canadian U.K. and European work as well, called Knowledge Translation in Health Care that was edited by Sharon Straus, Jacque Tetroe and Ian Graham. The Improving Patient Care textbook, which is also in its second edition, Richard Grol, Michel Wensing, who is with me the co-editor in chief of *Implementation Science*, the journal, Martin Eccles, has a lot of very, very practical and empirically-based and experientially-based work on implementation of change in health care. And, then a book by Susan Michie and colleagues on behavior change theories in, that are applicable to this work.

So, that’s really kind of it for me, and I think we can go back to the, to the main presentation stuff, or do I need to leave that slide up, Molly? Hello?

Molly: All right, Anne, can you hear me?

Dr. Sales: Yes.

Molly: That was so interesting. My microphone just decided to stop working. I’ll go ahead and put up my screen, which has this Pulse information. So, before we get started on the Q&A, I just want to let people know that if you download these slides, all the hyperlinks will be live in the PDF version you download. A lot of people have been writing in wanting to get these links and the links you provided. So, those are available. And, for those of you that joined us after the top of the hour, to submit your question or comment for Dr. Sales now, please go ahead and use the question section of the GoToWebinar dashboard that’s on the right-hand side of your screen. You can expand that just by clicking the plus sign next to the word questions, and we’ll get to those in the order that they are received.

So, the first, this is a comment, Anne, and you may have just mentioned this, but somebody tried to follow the link to the map for behavior change, but the website was blocked by the VA. Was that the one you were just referencing?

Dr. Sales: Mapped behavior change, I think, if it was a gem, the grid-enabled measures, yes, that one is blocked and as I said, we’re working on trying to get it unblocked. And, we will—Christine has put in a request to OI&T to allow VA researchers to access it through VA computers. So, that’s one that, unfortunately, for right now, you need to—and, some of the others may not be accessible on VA computers. I’ll be honest and say that I was doing most of this at home. So, some of those other links—if there are other links that are blocked by OI&T, please send Christine or myself an email about that and we will ask that it be unblocked.

Molly: Great. Thank you. Okay. So, given the multitude of theoretical frameworks, strategies and techniques at the micro and macro level, it appears that implementation science is lacking in parsimony. What are your thoughts on the notion that all this complexity can be scaled down to the three goals of implementation, those being education, to quote sell the idea that practice value added. Number two, training and coaching to develop and sustain practice. And, number three, measuring all practice and rewarding good practice.

Dr. Sales: You know, I guess my response to that is I’m sure those things work some of the time in some places. And, I know they do. But, they don’t work all the time in all places and any single intervention that uses those three things consistently is likely to fail in some places. I think the issue around parsimony within the science of implementation is probably not necessarily what we should be striving for. This is a science in its infancy, and I think that we’re just at the beginning of trying to understand and put boundaries around it and begin to learn what does and doesn’t work under what conditions. So, I’m not worried about parsimony here. I think, in fact, you know, the number of flowers blooming is great. Trying to discern among those flowers is more complex and I think particularly for people who are beginning the work of implementation have not had a lot of experience themselves. I think working with some principles around what makes more sense. This is why I’m suggesting out of the 61 frameworks and actually, to be honest, the theoretical domains framework was not in the Tabak, et al, systematic review for fairly technical reasons, so call it 62 frameworks. I’m saying if those 62 frameworks, I think these two have an advantage over and above the others. And, so I think there is a reason to be working more closely with those, which is not to dismiss the others. There’s utility in many of them, but I think that we need to be thinking about, less about parsimony and more about science building. Because, I don’t think we actually have great answers at this point, and I do think that there are some interesting opportunities.

Molly: Thank you very much. We have had a lot of people writing in saying thank you, thank you for the references, thank you for the resources, this is great. A couple of people are asking where to download the slides. You have a reminder email you received four hours ago from HSRD Cyber Seminar and in that is the hyperlink to download the slides, and this is being recorded and we will send you a follow-up email two days from now with a link leading directly to the recording so you can view that, view the transcript, listen to the audio and pass that link along to other colleagues.

The next question we have, have you published on implementing the ABCDE bundle? If so, could you provide that citation?

Dr. Sales: No. And, that’s because we’re still trying to get it funded, the research project. So, we actually are planning to resubmit the proposal later this year, and if it is funded, then we will certainly publish the protocol. But, I have to say right now, it’s still in development and until it’s funded, I don’t think that we will be publishing it. Because, even though I think it’s an interesting thought exercise, I’ve actually, this is something I actually really like to do. So, stay tuned. I can tell you that there, in the reference list, there is a reference by Simon French, the lead author, and that actually is a very nice paper that uses the TDF, not the CFIR, but the TDF to do intervention design. And, so I would say that that’s probably the reference I would point people to at this point.

Molly: Thank you for that reply. Can you give your thoughts on the challenge presented by the scientific need for executing and measuring dissemination and implementation strategies, and the operational need for responding to changing conditions and adapting strategies to the local context?

Dr. Sales: This is part of why implementation research is hard, because there is an operational imperative and the reality is folks in operations who have to deliver care will do what they have to do. And, I have enough experience personally on the operations side as well as lots of experience on the research side to know that this isn’t about in the immediate short term providing things that will make people, lives of people in operations better. And, it’s not necessarily about improving quality today. This is one of the dividing lines, I think, between quality improvement and implementation research, where the implementation research is about trying to design a generalizable knowledge that may take some time to develop, test, and understand, put into the kinds of tools that can be picked up and used. So, I think it’s very important to say both are important. And, I think this is one of the tensions for the QUERI program. It certainly has been for the last 13 to 15 years and I think it will be ongoing into its future. But, we are funded using medical care dollars and we are working in partnership, and so we have to be sensitive to and support the needs of operations. And, bring to that the best knowledge we have, the best available evidence from implementation research as well as other areas of science. But, I also think we have to build the science as we do it, and to do that requires some level of agreement on the part of folks in operations that there will be measurement that will impose some burden. But, that there is good to come out of it in terms of new knowledge and new opportunities and perhaps more efficient ways of doing things in the future. I think that’s always the issue with science. It is future-oriented. It’s not about fixing things today. And, so although this is a very applied area, making the tensions very complex, because they’re very intertwined. I think we need to, to say we have to do both and figure out from time to time the adjustments on the waiting of what’s most important, whether it’s more the science or more the operations. And, I don’t think there’s a single answer to that. That’s very much something has to be worked out individually.

Molly: Thank you very much for that reply. We do have lots of good pending questions. This is a comment. “This has been very good. I love the resources and knowing that others still believe we can make changes within the healthcare system.” Thank you for that comment. “Any advice on proposal writing where you have to describe your intervention before you have completed your barrier assessment, how to describe this for reviewers?”

Dr. Sales: That’s a great question. And, I would probably, I’ve, I may not be the best person to answer it, because I haven’t always been successful. And, I’ll just say that. But, I just want to go back to the RFA for the QUERI program that was issued earlier this year, has been reissued now for January submission. Even if you’re not planning to apply for one of those QUERI programs, I would encourage you to read it. Because, I think that the approach that is described there about saying, essentially declaring a strategy based on some degree of evidence that you have about what it’s going to take to get some things done, but then also saying that you will enhance that strategy after you’ve complete the barrier assessment I think may be a way forward on this. And, hopefully, I’ll know more after our revised proposal gets reviewed. But, I think I have certainly said in the past, you can’t design the intervention until you know what all the barriers are. But, I am persuaded that that’s, that that may be too purist an approach and that perhaps we need to be more pragmatic and say we have good reason to think that these strategies are probably, at least in an initial path, the right ones to start with, and we will enhance those strategies and perhaps add new components to them or new elements as we complete the barrier assessment. It’s, it’s a bit of a middle road between a full—we can’t do anything until we’ve assessed barriers, to we’ve got some ideas and thoughts and here’s how we plan to proceed.

Molly: Thank you very much. The next question we have, “I’m a psychologist and non-implementation scientist, but one issue I see in intervention…” sorry, one second, I am getting a little popup here. Okay. “I’m a psychologist and non-implementation scientist, but one issue in seeing intervention to promote…” I’m sorry. “I am a psychologist and not an non-implementation scientist, but one issue I see in intervening to promote behavior change is the distinction between intentional behavior change versus involuntary behavior change. Often healthcare providers are required to change behavior and the strategies to promote that behavior change may be quite different from those that can cause people to change behavior intrinsically.”

Dr. Sales: That’s a really good point and the first thing I would say is that I think that the work that’s coming out of the University College of London Behavior, Center for Behavior Change, is probably a great place to go. Susan Michie, who is the lead on that center is a health psychologist and she is working with a very strong group of health psychologists in the U.K. So, what I would say is I think it’s really important to look at that. We are talking about really essentially voluntary behavior change, although that, it’s not always as voluntary as people would like. The issues about autonomy and professional behavior are complex. But, this is in many ways, for the most part, about trying to persuade people that behavior change is in the best interest of their patients.

Molly: Thank you for that reply. I do see we’re at the top of the hour, but Dr. Sales, do you have time to stay on and answer the last four questions?

Dr. Sales: Yes.

Molly: Okay, excellent. If anybody needs to drop off, because it is the top of the hour, we are going to record these Q&A and it will be in the archive recording that you’ll receive a link to, so don’t worry if your question’s still pending. We will get to it. And, if you do log out, please note that there is a feedback survey that’s going to pop up on your screen and we do appreciate it if you’d answer those few questions. We do look closely at your responses and it helps us decide further sessions to support.

So, the next question we have, “This was a wonderful and thoughtful summary of implementation science for those wanting to do funded implementation research. However, it seems to operate in a separate universe from the changes going on in an increasingly massive way in real life. No managers/leaders I know, and maybe the VA is different, would be willing to approach implementation through this lens or its seemingly impractical complexity.”

Dr. Sales: I think that’s a very good point. And, they are parallel universes. Let me just say that that’s a good way of summing up what I said in answer to an earlier question. The universe of research is very different from the universe of operations, and I think that if we feel like our job is to always at all times be responsive to operations, then I think we will lose the opportunity to do research. And, research is forward thinking and it is about the future. I think that what I’ve presented sounds very complex and I, and it is, and I’m not going to trivialize the complexity. But, it also is available and I think it can be made digestible for operations people. So, for example, just as an example, in the work that we will be doing in community living centers in the VA, long-term care settings, we aren’t going to go in and say, “Here are a group of behavior change techniques that we plan to try to figure out which ones we need to use.” We’re going to be using some, some fairly standardized and developed interview guides and questionnaires that will elicit from people statements that we will then translate into what are the behavior technique, what are the domains and barriers that exist and what behavior change techniques could be done. We’re not going to be asking the providers to do that kind of work, that’s the work we do. So, I think it—I’m presenting this for a research audience and not for an operations audience. If I were going to talk about this to operations, I’d talk about it in quite different terms. I might still try to present kind of here’s the back engine, but I would talk about what the frontend pieces might look like, which may mean answering questions and talking to people. But, we certainly, and this is work I’ve done plenty of times before. We would, we always work within the constraints of the setting and are very respectful of people’s time and energy. What we find, and I’ll just this, we find that people actually like to be engaged. They like to be able to talk to us about the things that they find frustrating and difficult. And, when we say, “Okay, we’ll take that away, do some analysis on it and then bring it back to you and say, ‘Is this what you were telling us, and if we try to do these things, let’s see how they work.’” That generally works pretty well, but it’s, we don’t present in this sort of way that I did just now.

Molly: Thank you for that reply. “You say that not all frameworks are created equal. In general, how do you go about choosing specific frameworks for specific studies? Specifically, why do you highlight the two that you did as generally useful?”

Dr. Sales: The reason I highlighted those two is because of the link to action and, and the link to strategies for the CIFR and behavior change techniques for the TDF. To my knowledge, none of the other frameworks that exist have those links. They may be being built and I’m not aware of them. That’s quite possible. There’s a lot of work going on in a lot of places, and I find myself constantly impressed by innovation and novelty from places where I didn’t even know people were doing implementation research. So, there’s plenty of that. But, for right now, my rationale for choosing these two frameworks is because of the link to design that’s feasible as a result. And, I think that that’s a reasonable rationale to consider.

Molly: Thank you. “You mentioned a Simon article, that’s the only word I caught. Is that in your reference list, and if not, can you repeat that article?” Dr. Sales?

Dr. Sales: Okay. Sorry. I did something stupid just a minute ago and so I’m back.

Molly: Did you hear the question?

Dr. Sales: I did not. I’m sorry.

Molly: Okay, no problem. “I heard you mention an article, but the only word I caught was Simon. Is that listed in your reference slides, or can you direct us to that article?”

Dr. Sales: Yes, it’s in the reference slides and the last name is French, R, F-r-e-n-c-h, Simon French is his name.

Molly: Thank you. Just two more pending questions. “Your introductory comments clarified that this presentation was specific to evidence-based practice and made a distinction between it and evidence-based programs. Where would you recommend we look for information on implementation specific to evidence-based programs, particularly for guidance in matching conceptual frameworks?”

Dr. Sales: That’s a really good question. I think that actually there are a number of good resources. As I said, the evidence-based program approach is quite dominant in the mental health literature and behavioral health literature. So, I think that there’s good work there that is a potential guiding post, and also the National Cancer Institute has done a lot of work on program development, much of which is focused on communities and prevention, cancer prevention and control activities. So, the NCI site, Cancer Control Planet, I think is another place to go to. The frameworks that have been, that are specific to programs include, for example, the replicating evidence-based programs framework, which I think comes out of NCI. Amy Kilgorn [PH] has used that, so looking at Amy’s work, I think you can find references to the rep framework. Re-aim, I think also is, has a lot of utility in the evidence-based program space. And, I’m sure that there are others, but those are the ones that come to the top of my head.

Molly: Thank you. Very useful. Final question, “Can you recommend a paper that demonstrates an elegant application of implementation science in clinical practice that might serve as a model for us to consider, or a paper that is your all-time favorite?”

Dr. Sales: That’s a very good question. I’ll be honest and say I don’t an all-time favorite. I have a list of 10 to 20 all-time favorites, so I won’t go into those. And, many of those are actually on the reference list. But, I think for that sort of exemplar paper, I think the one by Simon French that I have mentioned a couple of times already is a good model, because I think it’s, it does take a systematic approach and attempts to really align a systematic and methodologically sound way of doing the barrier assessment to design intervention. And, there are a couple of others that are out there in the literature as well that are also very nice, and I can, we can use the VA Pulse site, actually, to post some others of those. But, I would certainly take nominations from other people as well, because my guess is that other folks have favorites that they think make a lot of sense. I’ll just say that the literature on implementation science is highly variable, and a lot of it is still in the more sort of what should you do rather than this is what we’ve done. And, this particular approach I’m talking about is still in its very early phases, so, in fact, there have not been a lot of published reports about how does this really work. So, yeah, I would suggest that probably many of the people on this call, still on this call and were on this call are probably going to contribute strongly to that literature. And, I look forward to that, yeah. At this point, I think it’s still a very emerging area.

Molly: Thank you. That was our final pending question, but I do want to give you the opportunity to make any concluding comments if you’d like to.

Dr. Sales: I think the only thing I would say is I really don’t want people to think that I’m trying to be prescriptive here. I think this is the way I’m thinking about this and I think it is based in the literature and I think it reflects a lot of very interesting work that’s going on right now. But, there are still many other ways to go about this. And, so I would encourage people to do experimentation and particularly, to do some comparative effectiveness testing of different ways of doing implementation research. We don’t have very much of that, and I think we need more of it. So, that’s, I think the last thing I would say.

Molly: Thank you so much. Well, we really appreciate you lending your expertise to the field today, and of course, we appreciate our attendees for joining us. I am going to close out the session in just a moment, and please wait for the feedback survey to populate on your screen. It’s just a few questions, but we do look very closely at your responses and it helps us to improve sessions we’ve already presented, as well as gives us ideas for new sessions to support. So, thank you once again to Dr. Sales and to Christine Kowalski for helping us get this session coordinated, and for all of our attendees for joining us. So, thanks once again, and this does conclude today’s HSR&D Cyber Seminar presentation. Thanks.

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