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Session: Organizational Cost of Quality Improvement for Depression Care

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Heidi: Today’s presenter is Dr. Chuan Liu. She is a core investigator at the Seattle HSR&D COIN at the VA Puget Sound Health Care System and a research professor in health services at the University of Washington School of Public Health. And Chuan I turn things over to you.

Dr. Chuan Liu: Well, thank you very much Heidi. So for today’s presentation I am going to talk about measuring organizational cost of quality improvement efforts for depression care model. Implementing evidence-based care has been a big emphasis in the VA and other healthcare systems. However, integrating the care model into routine practices is very challenging even when there are toolkits or materials available to support implementation process. The quality improvement effort to change clinical practices really require investment at the organizational level and the clinic level. It is important to understand what resources are needed in order to mobilize discretionary resources to support the QI efforts.

However, there is a lack of research in detailing what resources are needed to support the QI effort and there are several inherent challenges in quantifying QI efforts. The first one is the need to identify specific QI activities and participants. The second on is we need to account for all the efforts and activities evolving over the QI process. The third one is to link the cost to each of the QI activities and the final one is how do we obtain the data. Because most of the data are not normally collected in the process. How to get the data is actually the key.

So today I am going to present a study of depression quality improvement project. In the study we documented the activities and timelines of the implementation process. We also estimated the organizational costs for the process. In this study, we developed standard data collection methods and analytical approach to document, to really focus on the data collection process to capture the activities happen during this time period. We published this paper in Health Services Research in 2009 so I listed the reference at the bottom of the side. If you are interested, you can find the paper.

Before I get into our study, I have a couple of poll questions for you. I just want to know your interests and your involvement in quantifying QI effort. The first question is Have you been involved in measuring QI efforts? And the second question is Are you interested in measuring QI efforts for your current or future projects?

Heidi: So we will go through the two poll questions in order. The first one is on your screen right now. Have you been involved in measuring QI efforts? Responses are coming in nicely. I will give everyone just a few more moments before I close that out and move on to the next poll. And it looks like we have come to a stop. What we are seeing is 67% saying that yes, they have been involved and 33% no, they have not. For our second poll question Are you interested in measuring QI efforts for your current or future projects? Again we will give everyone just a few moments to fill that out. It looks like we have slowed down here. What we are seeing is 86% saying yes, they are interested in measuring QI efforts, 0 saying no and 14% saying maybe. Thank you everyone.

Dr. Chuan Liu: So it looks like a lot of people are involved in data collection to measure QI efforts so I appreciate your input in terms of how we can do this better, a different way of measuring QI efforts. At this time, I would like to give you a brief overview of our study. This is TIDES study Translating Initiatives for Depression into Effective Solutions. In this study we adapted and implemented a collaborative care model for depression into routine primary care. This care model we used telephone care management as the basic model. And the type of information we used an approach, the EBQI approach, evidence-based quality improvement approach. Establishing a research clinical partnerships. So clinical teams and technical support team. Clinical team consisted of VISN and local QI leaders and clinical managers. The clinical teams were the decision-makers of the QI process who determines sites and what key features of the care model. The technical expert team consisted of VA research staffs who provided support to the decision-making process and tool development. There were seven sites, intervention sites, in three VISNs. It is about two to three sites per VISN. The VISN leadership decided, they identified potential sites. These sites were medium-size primary care clinics and the clinic system mental health support. The TIDES and VISNs jointly provide salary support for depression care managers and there was one depression care manager per site. The implementation time period started from April 2000 and ended June 2004. When I referred to in terms of our data collection time period, that would be the time period. Near four years’ time period. The study design was a cross sectional descriptive analysis of the research/clinical partnership and so we basically did data collection for the entire process.

Next I would like to give you some layout of the data collection methods and how we estimate personnel time and cost. First we defined a key aspect of the QI process. The QI process here we refer to as adapting and implementing an evidence-based care model into routine practices. So it is not about developing new interventions. It is adapting an existing care model. We need to define three key QI aspects. First is timeline, second is participants and third is what other activities.

In terms of timeline, we needed a start data and an end date. When does this start and for the entire process. Then we need to figure out how we are going to breakup our timelines. So we identified some of the milestones of the QI process such as I think most of the things that would be helpful to document throughout the process is whether there is a kickoff meeting, whether there is a site visit date or first patient referral. This is the TIDES QI timeline. The Tides QI timeline was defined by three separate phases, implementation phases. We used four milestones of the TIDES in implementation process to define the phases. Three phases were preparation phase and design phase and implementation phase.

The preparation phase started with when the first contact date of the technical expert team and VISN leadership to talk about the participation of the TIDES program. The design phase begins with the design panel meeting that was the VISN level meeting to talk about design features. There were two phases in the design phase—the basic design and practice engagement. The practice engagement is at the clinic level that current sites already selected and that begins at the local planning meeting. Finally, the implementation phase begins at the day that the first patient was referred to our person care manager. There were two sub-phases in the implementation phase. One is the Plan-Do-Study-Act cycle and the second one is study state.

In the next few slides I am just going to briefly summarize what ease phase was and what is the goal. The preparation phase, the goal was to obtain the leadership buy-in to participate in the TIDES program and during the process we identified metal health, primary care and administrative leaderships. In the design phase the goal was to adapt the care model to clinical practices. In the basic design sub-phase which started with the VISN level planning meeting that made the decision about the basic feature of the care model that decided to have telephone care management. Then identify TIDES participating sites. An important activity in this phase is to establish the technical expert and clinical partnership and we have established the organizational structure. At the practice engagement sub-phase, most activities focus on really how to adapt the care model at the clinic at the routine care so most activities focus on providing education and informatic tools and protocol development. In the implementation phase the goal was to gradually transition the typed model into routine care. There were two sub-phases. The first sub-phase is Plan-Do-Study-Act sub-phase. That is the first six months. During this six months, the clinics and care managers would tried out and improved and tailored the care model. The second sub-phase would be routine care but basically primary care providers they adapted the basic elements of the care model. They referred their patients routinely to depression care manager and the depression care manager had a stable workload.

Once we decided the process and I’m sorry, let me come back here. The six months, the cut off is a little bit subjective I think. Some sites move a little bit quicker than others so this is a little bit subjective as defined as six months.

The next step is to define who are the QI participants. We defined QI participants as those individuals who directly participated in design and implementation of the care model. So they have to be either in technical support team or clinical team. Still we wanted to make sure that we capture all the right people so we can have categories of non-QI participants, for instance providers who simply refer patients to DCMs—depression care managers, did not constitute to be QI participant. Those participants need to be in the QI process to assist in the care model. Researchers who participated in the program evaluation such as myself is not looked as QI participants because we played a role of evaluation even though I attended many of the calls just to understand the process. Those are non-QI participants.

In terms of organizational structures, the TIDED technical expert and clinical partnerships were organized into five QI workgroups. The senior leadership, collaboration, provider education, clinical informatics, care management and patient self-management support. Each workgroup has their own activity regular calls. We ended up doing the data collection by workgroup.

The next step is to define QI activities. For our study we defined QI activities as all the communications, meetings, regular scheduled conference calls, protocols and materials development, QI manager trainings, provider education sessions and all other activities to facilitate the QI process. We also defined what are non-QI activities just to make sure that we don’t include non-QI activities in our counting process. So usual patient care is not QI activities. Evaluation and research activities and all the IRB and Human Subjects Reviews were not counted as QI activities.

We classify QI activities as I previously mentioned by workgroups so we collapsed leadership and collaboration because of the great overlap between the two workgroups. For instance, the design panel meeting at the VISN level that gets classified in the leadership and collaboration. For provider education materials, development and in-person educational sessions and ongoing seminars and academic detailing by clinical teams get included in provider education. Clinical informatics included software development and programming, licensing and server costs and pilot testing the informatic product. In care management and patient self-management support this really focused on care, the patient care management, so the training of care managers, marketing and involvement in the PDSA cycle. Finally, we have a group of project coordination that is cutting across performing the coordination roles of the workgroups.

The next step I am going to talk about the data sources and data collection because all the data sources are not literally collected. Our main data source was from our project records. Planning for data collection was key because we have to determine what records are needed to capture all the activities. We decided to really do prospective data collection if possible. We tried to be in sync with whatever is going on on the ground in terms of quality improvement efforts. We developed standard approaches to track and collect activities systematically and regularly. So we standardized data collection forms as much as possible like meeting minutes, how do we take attendance. We centralized the location for storing records. We have shared drives and listserv and all the official meetings with the variation team we receive all the materials for the meeting so we would be able to go back and check to see how far off we are in terms of data collection for attendance and to be recording all the events. That is how we validated data carefully throughout the processes. If we have the material, we can go back and see whether we captured all the events we need. Then we actually talk to different individuals and implementation teams to make sure that the data is captured correctly.

Based on all the project records we have for our study, for conference calls and in-person meetings, we collected 193 conference calls during almost the four-year time period. Then there were two design panel meetings. There was the one combined two VISN meeting. One care manager training session and 10 provider education sessions. We capture all the travel records. There were 29 QI participants who made 59 trips to 11 events. We have our contract for care management software and clinical informatic. The biggest challenge we have is we wanted to capture what is the e-mail communication during the QI process. So in the e-mail data collection we set up a TIDES listserv to collect most of the e-mails and we also went into the numbers, numbers of the workgroups to collect their e-mails. We excluded some of the short e-mails, duplicates and non-related e-mails. We ended up processing 18,000 e-mails which is about half of the e-mails we have collected. We classified the e-mails by subject title, dates and participant. In order to estimate time spent on e-mail, we conducted a one-week recording of reading and composing e-mails from our project teams so for each e-mail they put in the time spent when they received, they start working on it, reading it. So we get all the e-mails from our project teams for a week worth of project e-mails. We estimated the median time for reading e-mail as 60 words per minute and median time for composing an e-mail is 21 words per minute.

We worked really hard to collect our data perspectively but we ended up having missed a couple of items. So we did a survey and did a collection to collect missed data with retrospectively. One item is the IT personnel to install the server and do the maintenance of the information system. The second item is for research personnel who were responsible for also developing education material.

We estimated personnel time. For conference calls and in-person meetings, we estimated that 90% of the scheduled time for the calls of the meetings to account for not everybody attended the full length of the meeting or the call and actually we estimated the range 80% to 100% of the scheduled time. We also accounted for travel times for in-person meetings. We added eight hours for traveling by plane and four hours for traveling by car.

To estimate the cost of these activities, for personnel cost we used average hourly salary based on the VA job category such as physicians, pharmacist, social worker and we included fringe benefits in our cost estimates. For travel costs we used our trip budgets and we rounded up several costs and we estimated the range from 90% to 110% of our trip budget. For the license this is for care management software we included our actual cost from the purchase orders. All the cost estimates are in 2003 dollars. We used consumer price index to adjust for inflation.

The next section I am going to present some of our results. First is the QI timeline. Here we presented as number of months by phase. I just want to say that this is actually the project timeline not the calendar timeline. Each VISN started at different times so we just lined them up at a count zero. Here you can see the first section is the preparation phase during the first contact with the leadership and the red bar that is the basic design and the green is the practice engagement when you started working with the clinic to adapt the care model and the last section of the blue line is the implementation. So it is all 12 months, full \_\_\_\_\_ [00:28:35]. Here we can see that the phases, the number of months actually vary across VISN sites. So what we can see it actually took up a quite a bit of time to move to the implementation phase. Before this timeline it is for VISN clinic three that took 18 months to move into the implementation phase and the longest timeline was for VISN clinic two. It took three years, 36 months, to move into implementation phase.

In terms of research and clinical partnership there was a broad range of involvement from both technical expert team and the clinical team. In total there were 128 persons participated into the QI process and 86 clinical team members and 42 technical expert team members. And accounted more than 3,000 hours and at a total cost of $282,000. It is quite substantial. In terms of the QI effort by phase so here it is the clinical team and technical support team listed by different phase. We combine the cooperation and design phases even though we have a milestone to define the phases, but this is especially for the clinical expert teams because they were interacting with different signs and VISNs. So actually different sites and VISNs were at different phases during this. It is going to crossover into different phases so we decided it is difficult to separate them out so we combined preparation and design phases. We can see most of the effort put into the preparation and design phases and a decrease over the implementation phase by the time the routine care subphase, the time has decreased substantially.

There are several limitations for studying. The first one is this implementation cost are more likely to be lower bound estimates because we only included the countable and documented activities. The second limitation is the implementation costs are for earlier adapters because those are really early on when we implement primary care mental health integration. This result may not be generalized to other QI strategies. This implementation focus on research and clinical partnership. Finally, the result may not be generalizable to non-VA health care systems.

So in conclusion, our study found that adopting the care model requires significant technical support to achieve full integration even in a well-established health care system like VA. And the technical support and facilitation provided by the research team was costly. But it may have minimized the cost that could have incurred at care settings themselves.

Current work. I would like to list this as continued to evolve in a few projects in terms of measuring QI efforts. Projects involve working with the Blended Facilitation to Enhance PCMH Program Implementation. This project’s goal was to assess the implementation cost of blended facilitation approach and Mona Rich and her team have meticulously cleaned the data and I think they are at the point where we can really get the results together. The second project is Virtual Specialty Care QUERI. We are trying to capture the QI activities during this process. We are at the planning stage. We have a goal to hopefully simplify the data collection process. Those are my current works.

Finally, I think I would like to share some of my lessons learned during the process. Planning for data collection is key because QI process and QI efforts move very fast. Especially I think doing our types time period we still want to IRB so the process could be a little longer. Now currently this is really a lot of operation projects can move very fast. Planning for data collection has become really having to decide what data to collect and how to collect them. Who are we going to get data from would be really key because once the implementation process started, it is kind of hard to get it back. To get retrospect back to data collection it is difficult.

The second one is to understand the QI process and keeping up with the process. Qi process can be pretty dynamic and keeping up with the process and progress would allow you to make adjustment in data collection especially in the operation project if you want to keep track on some of the efforts, really have to be keeping up with the progress. Finally, we carefully validate the data. We rely on a lot of self-reported data. Getting as much as you can triangulate different data sources, talking to different people and just randomly select the records just to check on how people put in their information, that would be important. I think whatever we are reporting, the data accuracy is the key.

Finally, I would like to acknowledge the funding of this study which came from two HSR&D funding of STP projects and the TIDES and WAVES study team who amazingly supported the data collection process. I would like to thank all of my coauthors who provided invaluable input on the study and to make this happen.

I am ready to take your questions and comments.

Heidi: Wonderful. Thank you. For the audience, please take this opportunity. We have a lot of time for Q&A. Submit your questions on that questions pane on that dashboard on the right hand side of your screen. That question that we have so far. They are wondering why you worked top down beginning from VISN leadership and then to the local clinic rather than the other way around?

Dr. Chuan Liu: Well, I think that is the design and type. The design we want to get the leadership by end for the implementation so that is the original design of how we decided to get it to the clinic level and the leadership can decide what other potential sites to participate in the intervention.

Heidi: Okay. Great. Thank you. The next question, did you do followup on medical cost offset?

Dr. Chuan Liu: We didn’t. We focused on implementation costs because the collaborative care model has really been proved to be effective. Cost offset is always people would like to see if the cost offset would occur but we didn’t focus on the patient care cost in this study, we focus on really what does it take to implement the care model.

Heidi: Okay. Thank you. The next question here, given the painfully rigorous methods you applied in collecting and analyzing the e-mail data, is there another method that you would use in a future study?

Dr. Chuan Liu: No, but I wouldn’t recommend to do it again. It is really difficult. We went to different ways to try to … I don’t know whether I would …. No, this was the only time we did it and it wasn’t easy and at that point we were wondering whether there were other commercial products to track e-mail time and e-mail use could be used to track e-mails. But we didn’t pursue it further.

Heidi: Okay. Great. Thank you. That is all of the questions that we have received right now. No, I did have one person who said that they may be sending in a followup question so I am waiting to see if that comes in. Other than that, that looks like all the questions we have today. I will stall just for a minute to see if we get that last question in. While I am doing that, just so the audience know when I close the meeting out, you will all be prompted with a feedback form. Please take a moment and fill that out. We really do appreciate all of your feedback. We had another question come in here. Is the cost breakdown by QI effort what you expected?

Dr. Chuan Liu: Yes. You know the cost breakdown, this is the first study. We looked for things to see what the literature has documented. I think this was the first study actually documented the QI efforts. We went to look at some of the …. It seems like on average it is about $100,000 per VISN and because our care management is by VISN. That seems to be in line with other QI efforts that we learned. We can see if all of the types projects it is really kind of an early implementation project, I think as time goes on maybe it would be different in terms of different strategy. Currently I am working with JoAnn Kirchner and Mona Rich on the blended facilitation and I think we have the data now. We can see how much using a different approach what is the QI effort with different approach and maybe in the virtual speciality care QUERI that whether much more streamlined process would have different cost structure. But we will see. I think we need to have a lot of people working in this area to see what efforts put into different approaches and what is the better way to do it.

Heidi: Okay. Great. Thank you. The next question, couldn’t you have engaged more effectively with VISN leadership to get their buy-in by first talking to local clinics about what they would need from the leadership for implementation?

Dr. Chuan Liu: Well, that is a very good question. I think I cannot answer that question very well. If we have a chance, maybe we can talk to Lisa Rubenstein and other key leaders in implementation. I think that was the design. By design I think the types of implementation design too. I think that is a really good suggestion. Maybe we have to do this from bottom to top rather than top to bottom. But I cannot answer that question how the approach was taken.

Heidi: Often I find it interesting on these sessions when people come up with different thoughts or different ways to do things. It is great getting that feedback from colleagues. That is actually all of the questions that we have in right now. I am not sure if you want to make any final remarks before we close things out here.

Dr. Chuan Liu: This documenting or quantifying QI efforts is not an easy task so I would appreciate if you have any thoughts and input I think we can share but if you have any questions, please just e-mail me. Thank you.

Heidi: Wonderful. Thank you so much. And thank you to our audience for joining us. As I said earlier, you will be prompted with a feedback form. Please take a few moments to fill that out. Thank you everyone for joining us for today’s HSR&D cyber seminar and we look forward to seeing you at a future session. Thank you.

Dr. Chuan Liu: Thank you. Bye-bye.

Heidi: Thanks. Bye.