HIGH TECH / SOFT TOUCH

Integrating eHealth into Peer Support

About the Meeting

In April 2015, Peers for Progress and the UNC Center for Diabetes Translational Research hosted a meeting to discuss the integration of peer support and eHealth for chronic disease self-management. Experts in the field shared lessons learned from their programs, provided feedback on the development of an upcoming Peers for Progress pilot program, and identified critical areas for future investigation.

Support for this meeting and report was provided by the Gillings Innovation Lab at the UNC Gillings School of Global Public Health and the UNC Center for Diabetes Translational Research.

Peers for Progress
Peer Support Around the World
A Program of the American Academy of Family Physicians Foundation

UNC Center for Diabetes Translation Research to Reduce Health Disparities

UNC GILLINGS SCHOOL OF GLOBAL PUBLIC HEALTH

Peer Support and eHealth in Chronic Disease Self-Management

Numerous studies have documented the effectiveness, feasibility, and wide acceptability of peer support for diabetes self-management and other areas of prevention and chronic disease management in diverse settings and populations.[1] As we witness the spread of the Internet, social media, and smartphones, the arrival of each technological advance offers new ways for people to exchange social support. Indeed, social connectivity is so important that it has evolved to become a standard feature in the most popular technology platforms. Similarly in eHealth, the high demand for social features demonstrates a glaring need for models that combine high tech eHealth and the soft touch of peer support.

On their own, eHealth interventions have shown promising results for diabetes self-management. For instance, a meta-analysis of mobile phone interventions for glycemic control in diabetes found average HbA1c reductions of 0.5% over a median follow-up duration of 6 months.[2] In another systematic review, Cotter et al. found that web-based strategies provided a viable option for facilitating diabetes self-management.[3] Interestingly, this review concluded that studies incorporating opportunities for peer support were even more likely to be effective than those that did not include opportunities for peer support.[3]

As a template for adapting peer support programs to diverse settings and populations, Peers for Progress uses the four key functions of peer support[1]: 1) assistance in daily management – implementing the plan developed with the clinical team; 2) social and emotional support; 3) linkage to clinical care and community resources; and 4) ongoing support, given the lifelong nature of chronic conditions.

Interestingly, some eHealth utilities can meet all of these four key functions. Assistance in daily management is provided through dialogues and individualized messages. Linkage to clinical care can be arranged by monitoring patients' data and linking them with clinical providers when necessary. Once the system is put in place, ongoing support will be

Benefits of Integrated Peer Support and eHealth

- Personalized medicine
- Timeliness and sensitivity
- Patient reach and engagement
- Behavior change and ongoing maintenance
- Reduced hospitalizations
- Improved quality of life

maintained with messaging that is responsive to the evolution of patients' needs. Perhaps most surprisingly, eHealth can also meet the substantial social and emotional support needs of patients. For instance, 79% of users of a telephone automated messaging system reported that the system gave them confidence to manage their diabetes better.[4]

There are many reasons to believe that this high tech / soft touch approach to chronic disease self-management can be both effective and cost-effective. eHealth is a powerful way to enhance, mobilize, and expand peer support, which has the potential to improve health outcomes, reduce costs, and improve population health.

At a basic level, offering both peer support and eHealth increases patient choice with respect to self-management support. Patients can engage with either or both channels depending on the specific type of support they need. Perhaps the most exciting aspect of a high tech / soft touch approach, however, is the capacity of eHealth programs to generate reliable, actionable data that can guide the work of those that provide peer support. Data trends and red flag events can prompt peer supporters to reach out to patients and provide timely support that is specific to their most pressing needs. By extension, this model can improve the health of populations by mobilizing peer support and other health care resources to target high need patients while providing a standard of care to the bulk of the population.

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eHealth can reduce the burden on peer supporters by performing the more routine tasks associated with chronic disease self-management, such as monitoring key behaviors and indicators like blood sugar. This leaves peer supporters to do what they do best. Some eHealth programs provide decision-making support to peer supporters, which can be important when they work in the field. These types of eHealth programs can improve intervention fidelity in addition to providing workers with valuable backup and sense of security.

Models of Peer Support and eHealth

There are different types of eHealth platforms that incorporate peer support – many of which were discussed by colleagues at our meeting and further elaborated upon below.

Telemedicine

Telemedicine incorporates telecommunication technologies to provide medical information and services. Conference attendee, Rich Davis and colleagues implemented a RCT of a primary care clinic-based 12-month diabetes self-management intervention using videoconferencing and remote retinal screening. In addition to changes in outcomes among intervention participants compared to usual care (e.g., significant declines in HbA1c and LDL cholesterol; significant increases in eye exams), the program was able to demonstrate wide feasibility (retention rates > 80%), tailoring of intervention materials for cultural competency, and opportunities for personalized interactions during group sessions with interactive video-conferencing. Although the original intended purpose of the study did not include peer support, considerable interaction via the video-conference platforms allowed for group exchanges and support, thereby highlighting the potential role of telemedicine in providing support and self-management.

Automated Messaging

Also delivered by telephone through interactive voice recognition (IVR), Brian Oldenburg described his "Telephone Linked Care" intervention as an automated messaging system. Designed for adults with diabetes in geographically remote areas of Australia, the TLC system provided messages and reminders, personalized according to individual self-management and clinical measures, all delivered by telephone. The system includes over 2000+ messages regarding a variety of diabetes issues. While there is a TLC coordinator who manages the study, the majority of interaction among patients occurs through the IVR platform. For instance, there are 14 messages to query people as to why they may not be testing their blood sugars. In addition to outcomes (HbA1c values declined from 8.7% to 7.9% over 6 months, significantly greater than among controls), the system has been able to demonstrate remarkable sensitivity, responsiveness, and "listening" to participants.

Social Networks

In contrast to telemedicine and automated messaging, conference attendees also spoke about ways to incorporate social networks into eHealth research. For instance, in John Piette's CarePartner program, patients received calls from an automated system, including information about ways to improve self-care. Information was then disseminated to 1) clinics, which received alerts about patients' signs and symptoms and 2) family members / friends who received an email, IVR call, or SMS with updates on the patient's status. Results demonstrated significantly greater medication adherence among patients with a support person, as well as greater emotional benefits (e.g., less negative emotions) compared to those without a support person. Although the study was not designed to examine why support persons were instrumental in improving patient outcomes, it highlights the role of eHealth in delivery of peer support.

In an additional example, Carmina Valle implemented an RCT of a physical activity intervention to increase exercise among young adult cancer survivors. Delivered primarily through Facebook, intervention participants received weekly Facebook messages, a pedometer, moderated social support discussion prompts, and access to a goal-setting and self-monitoring website. Comparison group participants also received Facebook messages and a pedometer, but discussions were unprompted (not moderated) and they did not have access to the

website. There were some significant differences between the groups (e.g., increase in light physical activity in the intervention group), and overall findings from the study demonstrate: the feasibility of messages and group functionalities of Facebook, the emergence of social support (both among intervention and comparison group participants), and the potential to enhance support for behavior change using social media (perhaps peer-only options may be useful).

Gamification

In response to HIV disparities among young men who have sex with men (MSM), Lisa Hightow-Weidman and colleagues Sara LeGrand and Kate Muessig worked with the technology company Caktus Consultants to develop a technology-based "game" to increase HIV medication adherence. The result, Epic Allies, is a smartphone app that utilizes game mechanics, behavioral tracking and social networking to increase the uptake of antiretroviral therapy (ART) and improve ART adherence among MSM ages 16-24. The efficacy of the app at achieving these goals will be tested in a randomized controlled trial at 14 U.S. sites in 2015-2017. With the promise of promoting individual tailoring, 24/7 access, greater interactivity, opportunities for social support, and integration of gaming features, their app offers many benefits to participants, especially given the stigma surrounding HIV. One challenge for the field is how to make clear the connections between the game and reason for using it, as some participants did not immediately grasp the connection between the app and health behaviors. Other challenges for future researchers including navigating how to capitalize on web / app development, especially given the moving technology field and the different language and models between researchers and developers, and figuring out how to gain and maintain user engagement.

Mobile Prescription Therapy (MPT)

Mobile Prescription Therapy (MPT) was introduced by Malinda Peeples as a new class of therapy that leverages digital technology, clinical and behavioral science, and validated clinical outcomes to provide guidance for patient daily self-management and data for healthcare provider decision–making.

WellDoc's BlueStar™ is a MPT that is a FDA-cleared Class II medical device indicated for healthcare providers and their adult type 2 diabetes patients. . Although it is an app that patients use on their phones and computers, BlueStar has to be prescribed by health care providers to support diabetes self-management. Using a patient's own data (e.g. medications, blood sugar readings, food, and exercise), BlueStar provides real-time coaching, educational content, and motivational support to people with type 2 diabetes. The messaging adapts over time, is personalized to their type 2 diabetes medication regimen (i.e. from oral medications only, to those using insulin), and aligns with ADA and AADE standards of care. Additionally, the patient can share their data with their healthcare providers by sending a summarized report that provides clinical decision support to enhance patient-provider communications and shared decision-making. WellDoc has published two randomized controlled trials of the software upon which BlueStar is built. These studies demonstrated significant 1.2-1.4% reductions in HbA1c levels with use of the MPT.

Automated Monitoring, Managing, and Messaging System for Diabetes Management

Peers for Progress, with support from the Gillings Innovation Lab at the University of North Carolina at Chapel Hill, is developing and testing user acceptability of using eHealth automated monitoring and messaging to extend the range of peer support. The pilot intervention will provide peer health coaches to adults with diabetes who may then also use WellDoc's BlueStar diabetes app to help guide their self-management. Given what we know about the benefits of peer support and eHealth, the aim of this pilot is to demonstrate what peer support can do with an extender in the form of a technology solution.

Peer support and BlueStar complement each other in several ways to provide targeted self-management support and allow for the efficient allocation of health care resources. In some ways, BlueStar could be thought of as a less resource-intensive self-management support tool that fulfills some of the four key functions of peer support (see table below).

Adults with diabetes with good self-management and motivation may have their needs adequately addressed with the BlueStar app and minimal peer support. More intensive peer support would be reserved for patients with greater needs, such as those with poor self-management, complex multi-morbidities, or psychosocial concerns. BlueStar's features support the routine tasks of patient self-management and assists health coaches with data so that they may provide individualized services.

BlueStar can also be used as a way of mobilizing peer support to prompt targeted and timely follow-up. The monitoring features of BlueStar can support health coaches to reach out to patients based on key performance indicators or red flag events. For example, when patients are not using BlueStar or when there are lifestyle and self-management issues identified by BlueStar, the health coach will be supported to reach out to the patient.

Key Functions	Peer Support	WellDoc's BlueStar
Assistance in Daily Management	• Detailed problem solving • Model of adequate management	• Monitoring, reminders, medication adherence, ***effective feedback***
Social & Emotional Support	• Supportive relationship • As needed availability • Healthy coping, stress management	• Monitoring and alerts prn -- "Has my back" – protection and comfort • General messages encouraging, reassuring
Linkage to Clinical Care & Community Resources	• Live reminders and attention to psychosocial barriers to care • Overcome logistic barriers to care	• Monitoring provides automated, specific reminders for care ***as needed*** • Geocoded availability of restaurants, other resources
Ongoing Support	• Quarterly "check-in"; more frequent prn • Available on demand	• Available indefinitely with down or up titration as needed • Continued reimbursement contingent on continued use

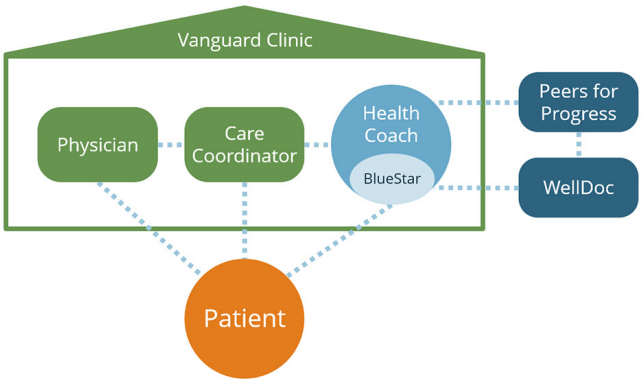
We believe that BlueStar will be invaluable to both the patient and the health coach by providing useful, actionable data.

The pilot will be implemented at several sites of Vanguard Medical Group, a primary care practice in north and central New Jersey. All of the Vanguard sites are recognized as patient-centered medical homes with care coordination processes to manage high-risk patients. They have also integrated advanced technologies, such as electronic medical records, disease registries, quality metrics tracking, patient portal, and online appointment scheduling. The diagram shows the key program relationships, with Peers for Progress and WellDoc providing technical assistance and support.

To guide the program development, Peers for Progress will gather stakeholder input from providers, care coordinators, and patients at Vanguard to tailor the intervention to their specific needs. Structured interviews will examine mobile app features and their utility, organizational characteristics, and patient characteristics. This qualitative research will inform the development of the intervention protocols and training curriculum for the health coaches. A preliminary protocol may be found at the end of this section.

The pilot test will try to engage 200 patients referred from Vanguard's clinics. Selection criteria will include: diabetes for at least 5 years, 40-70 years of age, at least one HbA1c value ≥ 7.5 % in prior 12 months, able to reach and write in English, and regular access to a web-enabled device such as a smartphone or a computer. The trial will run for 4 months beginning in September 2015.

The acceptability of the intervention will be assessed from app usage patterns and responses that patients provide to health coach during phone contacts. Usage patterns will include setting of self-management goals, receipt of messages, completion of monitoring requests for reports of behaviors pertinent to self-management goals, number of contacts with BlueStar



as well as with health coaches. During their calls with participants, the health coach will ask standard questions regarding recent experiences with BlueStar, its value, problems with using it, etc. The health coaches will also keep standardized logs of interactions with patients (e.g., topics discussed, status of self-management plans). Comments to health coaches will be compiled and categorized both deductively (anticipated categories of convenience, usefulness, motivation) and inductively using standard methods for qualitative analysis. This feedback will also be used to refine the program protocol during the pilot test.

Preliminary Program Protocol

Introduction

Physician introduces peer support program to patient with type 2 diabetes using a script with talking points.

> "Peer support as you need along with a personalized self-management tool."

Physician explains that a Health Coach will call them within a few days and that they may proceed to activate their BlueStar prescription or wait for the Health Coach to call.

At the end of physician's visit, the care coordinator provides patient with brochure about the peer support program folder with BlueStar materials.

Patient may opt out if initiates this, but physician and CC present as routine; "would like you to pay attention to what the Coach has to say."

Initial Contact

Care coordinator sends phone number, patient's name, and physician's name to the health coach.

Health coach calls patient within 1-2 days after physician's visit.

Focus of initial contact is to:

- Build rapport
- Establish trust
- Provide information on the program
- Ask how they can be most useful to the patient
- Answer questions about BlueStar and promote certain app features

Health coach tells patient that they will follow-up in a couple of weeks to check-in on them.

Follow-Up

At two weeks, health coach calls patient to check-in.

Prior to follow-up, health coach should be prepared to provide answers/ resources to address patient concerns identified at initial contact.

Focus of follow-up is to:

- Discuss areas in which patient may want to improve self management
- Check on patient's use of BlueStar and use monitoring features to identify problem areas
- Assess patients as high need (poor glycemic control, diabetes distress, depression, isolation, etc.) or normal need

Ongoing Support

Patients are stratified as high need or normal need.

High need patients receive a call every 2 weeks for 2 months.

Normal need patients receive one call at 1 month after the previous follow-up call.

All patients are provided the health coach's contact info but only high need patients are encouraged to call whenever needed.

Health coaches document interactions using encounter forms.
Follow protocols to make proper referrals as needed.

Lessons from the Field

In recent years, integrated peer support and eHealth has gained popularity among researchers, software developers, health care organizations, and patient communities alike. Given the nature of technological innovation, the field is advancing at such a rapid pace that research often lags behind. Owed in part to challenges in research and development, many eHealth programs that reach the market are not evidence-based. From the presentations and discussions at this meeting, we generated the following lessons from the field, which we hope will be useful in the development of higher quality interventions.

The meeting participants agreed that eHealth programs alone are insufficient to solve the problems in our health care system. However, they can be important tools to streamline care processes to make them more efficient and cost-effective. Technologies can replace more costly intervention components without loss of efficacy of patient satisfaction. Additionally, they are highly valued by providers and patients for generating reliable and actionable data. This data can be used to direct the reallocation of clinician time and health care resources to those who need it, reducing unnecessary clinician visits. Meanwhile, regular monitoring can protect patients in case of emergencies, giving them comfort in knowing that someone will be there when they need it.

Development Lessons

Success in the development of effective eHealth interventions needs clinical knowledge, behavioral science, and technological expertise. For those seeking to develop integrated peer support and eHealth interventions, there are some important lessons and good practices to bear in mind.

First, there are number of collaboration challenges academic researchers and industry partners. Researchers lack understanding of the software development process and commonly underestimate development costs. Developers are equally in the dark about clinical trial processes and prefer to pursue faster development cycles than research often allows. Therefore, researchers must carefully select tech developers that have expertise in the specific area in which they are working. There are lot of questions that researchers don't know to ask unless they have a developer that understands their research aims and can guide them through the software development process.

Given the array of eHealth modalities, as described in the models section of this report, it may be difficult to decide which type of intervention to use in a specific population and setting. However, without strong evidence to demonstrate who needs what types of support, providing an array of choices seems to be the best approach for now.

Research Lessons

Generating reliable, actionable data is a key added value of eHealth interventions, but there is often confusion about what constitutes meaningful use metrics. While standards exist for the use of electronic health records, best practices are needed for other eHealth modalities.

A common sentiment at the meeting was that randomized controlled trials may not be the best model to test eHealth interventions. Instead, continuous quality improvement and implementation research models may be better suited to the rapid development cycles found in the eHealth industry.

Furthermore, evaluation of eHealth interventions is typically compared to control conditions. In the future, it will be useful to compare eHealth interventions against each other in order to disentangle the relative impacts of the key intervention components.

About Peers for Progress

A program of the American Academy of Family Physicians Foundation, Peers for Progress is dedicated to promoting peer support in health, health care and prevention around the world. Through research, collaborative sharing of program and quality improvement resources, and supporting advocacy, it seeks to help the thousands of peer support programs around the world learn from each other, improve the services they offer, gain greater recognition of their work, and achieve integration of peer support as a normal, widely available component of high-quality health care. For more information on Peers for Progress, visit www.peersforprogress.org, or follow on Twitter at @peers4progress.

About the UNC Center for Diabetes Translational Research

The University of North Carolina Center for Diabetes Translation Research to Reduce Health Disparities (CDTR) is a consortium of institutions across North Carolina that aims to reduce diabetes-related disparities by providing resources and support to foster type 2 translational research in North Carolina and beyond. The Center will serve as a hub to help researchers identify, refine, and implement best practices for translating type 2 diabetes research into practice both in North Carolina and nationally. The Center will catalyze further prevention and treatment of diabetes and related conditions by providing unique resources to evaluate type 2 evidence-based interventions adapted for target communities and practices. For more information on the CDTR, visit cdtr.unc.edu, or follow on Twitter at @UNC_CDTR.

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