

Patient Education Management™

For Nurse Managers, Education Directors, Case Managers, Discharge Planners



Games people play could be good for their health, sense of empowerment

Researchers work to create games that change behavior for better outcomes

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Electronic games are good educational tools, says **Hadi Kharrazi**, MD, PhD, assistant professor at the School of Informatics at Indiana University-Purdue University Indianapolis.

In addition, these games increase patient empowerment, which helps change behavior, says Kharrazi.

He learned their value while working on his PhD in health information systems. During that time, he was involved in a program that used gaming environments for educational purposes.

The goal was to apply electronic games, combined with educational and behavioral change strategies, to a defined problem in the medical world.

With this goal in mind, the researchers built a game and applied it to the problem of adherence to treatment of children with Type 1 diabetes. The purpose of the game was to get the children to remember to take their insulin injection on time. After six weeks of game play, the children's

EXECUTIVE SUMMARY

Electronic games have captured the attention of children, teens, and young adults. Although most play for fun and entertainment, research conducted on health games shows promise in their use as a tool for education. There is currently more interest in this field, and games are being designed and evaluated. Interactive game play could soon be an effective way to teach disease prevention and self-management.

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adherence increased by 12%.

Kharrazi explains that the game was an experimental design with two groups of patients, one playing the game with the behavioral change elements built in, and the other group playing the same game without the elements.

The study was replicated for patients with another chronic condition, inflammatory bowel disease, with almost the same results.

“It was very interesting to see how a game could educate the patient, empower them, and finally change their behavior. It is important, because in the long term, all these chronic diseases and their side effects are becoming a more significant portion of the health care costs in the

United States. So, one way to approach the problem is through the use of games, or interactive media, to empower those chronic patients,” says Kharrazi.

A study of a game called “Bronkie the Bronchiasaurus” (Lieberman, 2001) showed that self-management of asthma was improved with game play, resulting in reduced hospital admissions and visits to the physician, says Kharrazi. During this game, children play as a dinosaur with asthma that must save his homeland. To accomplish this task, the dinosaur needs to avoid asthma triggers, such as dust and pollen, to keep asthma under control.

In a chapter in a book titled “Handbook of Research on Effective Electronic Gaming in Education” by Richard E. Ferdig, researchers Wei Peng and Ming Liu from Michigan State University wrote about the use of electronic games for health purposes.¹

Some of the games reviewed for their effectiveness were in the categories of disease and risk prevention; self-management; therapeutic value; and fitness.

After their review of the research, they wrote: “Health care providers and researchers can take advantage of the unique characteristics of electronic games when the particular purpose of a health education or intervention program requires behavior rehearsal in a safe way.”

In the book, they wrote that they found almost all the games effective in teaching related knowledge to the players.

Also, they stated that repetitive practice and habit formation is critical when trying to teach disease self-management.

Criteria for effective play

While electronic games look promising for education, Kharrazi says there are a couple of factors that must be addressed in order for games to be used effectively.

They must be accessible to patients. During his research, the games were available online, so players could access them through the Internet. A player would log in to play, and the number of times a patient used the game, as well as his or her moves, could all be tracked. However, this format might not work for highly sophisticated games.

Games for personal digital assistant (PDA) devices or an iPhone would make it possible for people to play the games during free time, such

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Editorial Questions

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as a bus ride. People most often want to play a game during times they are bored, or for fun and entertainment, says Kharrazi.

A second challenge is finding a way to get the commercial game makers interested in health games. These gaming experts are needed, because creating a sophisticated game in an academic environment is difficult, according to Kharrazi. He says in order for a person to have a good learning experience, the attraction to a game must last at least six to eight weeks, so he or she will keep playing.

According to Kharrazi, researchers often obtain open-source games to work with or modify an existing game.

Corporations not that interested

Corporations are not that interested in creating health games, even though they don't need to create games from scratch. Kharrazi says they could modify sophisticated games they have on the market and make them suitable for different diseases.

A national conference on health games held in Boston for the past five years, called "Games for Health," attracts more and more researchers from the medical field but still lacks commercial representatives, he adds. In addition, the Robert Wood Johnson Foundation has implemented a game for health initiatives to provide resources for research, but there is not enough funding to create sophisticated games.

"A game should be interactive, motivating, and interesting. Otherwise, people won't interact with the game," explains Kharrazi.

He says commercial game makers may not want to work on health games, because they want to avoid the notion that games may change the behavior of the players. In the past, corporations were accused of making kids more violent with the interactive game play they created.

Interdisciplinary framework important

Kharrazi says that no matter who produces the games, it is important that they have an interdisciplinary framework. The production team should include game developers who can do the program coding; computer interaction specialists to determine appropriate interaction for adults as well as children; behavioral psychologists and people from education departments to determine the best strategies and methodologies for the best

outcome; and appropriate medical professionals, such as physicians and nurses, who know the disease to be targeted. In addition, there must be people able to analyze the data.

"These people are all inter-joined, and they should all interact, so it is interdisciplinary research. It is not easy to do, and the research needs a lot of coordination and a place to test the games," says Kharrazi.

Peng and Liu, who wrote about the use of electronic games for health purposes, stated that game designers must work with health care providers and researchers in order to ensure the game features are based on theories, such as social cognitive theory. They add that health games that have been proven effective have a "theoretical underpinning for the design."

The School of Informatics at IUPUI has established the Games for Health Research Center to determine the impact of games on health-related lifestyle issues, of which Kharrazi takes part. Researchers are looking at the use of games for rehabilitation purposes, such as stroke patients; using games for cognitive rehabilitation; game use to address chronic disease self-management issues; and games for physical exercise.

"There are a lot of strategies and techniques you can use in a game environment to motivate people. Hopefully that motivation creates an intention, and that intention creates an actual behavior, which is the ultimate goal of clinical games. If you can change how the patient thinks — and also behaves — that will be the best outcome," says Kharrazi.

Reference

1. Ferdig, Richard E. Handbook of Research on Effective Electronic Gaming in Education, 2008: 388-401. ■

SOURCE

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Diabetes curriculum a valuable teaching tool

Examples of culturally appropriate illustrations

Type 2 diabetes can be prevented or delayed. That's the message emphasized in the "Diabetes Education in Tribal Schools" (DETS) curriculum, written to educate Native American and Alaskan Native children in kindergarten through 12th grade.

"We want to encourage people to make better choices, and we want children to know if there is diabetes in their family, it does not mean they will get diabetes. It is the message of prevention, that Type 2 diabetes can be prevented or delayed with the right healthy lifestyle choices pertaining to food and exercise," explains **Carol Maller**, MS, RN, CHES, who is working with the Southwestern Indian Polytechnic Institute in Albuquerque, NM, to introduce the curriculum to tribal schools.

One of the most important elements of this curriculum is that it is culturally appropriate. It was written by teachers and curriculum developers under the direction of eight tribal colleges and universities in a cooperative agreement with the National Institutes of Health, based in Bethesda, MD.

Also, it underwent several years of pilot and field testing within tribal schools, where improvements were made based on comments from teachers and students, says Maller. The curriculum was officially released in November 2008.

The important cultural angle is that health is life in balance. The DETS curriculum explains the "Health is Life in Balance Circle," a view prevalent among many Native American tribes, as follows:

"Harmony and balance is the American Indian belief in interrelatedness and connectedness with all that is natural. The concept not only explains the interdependence of humans with other animates and inanimates in the world, but it also recognizes the need for individual wellness—the interdependence of physical, emotional, psychological, and spiritual well-being.

It is common for American Indians and Alaska Natives to represent this interrelatedness and connectedness by a circle. Individuals are consid-

ered whole when their physical, mental, spiritual, and emotional selves exist in harmony. If there is something negative going on with one part of the self, it affects the other parts and causes an imbalance in the whole self."

One of the goals of the program is to increase the understanding of health, diabetes, and maintaining life in balance among American Indian/Alaska Native students. This is accomplished through interactive lessons and hands-on activities in health, science, and social studies, says Maller.

"It is inquiry-based learning, so it is more engaging. Students are challenged to think about different concepts and draw conclusions and do problem solving, and we were very careful not to put science activities together that require a lab. It is very inexpensive activities and materials that anyone would have," explains Maller.

For example, as part of the curriculum, students interview elders in the community, as well as their parents to see how they lived in the past, and then they review their own lifestyle. They look at transportation, food choices, and use of time. This not only helps them see how lifestyle and environment impact health, but it also makes the information personal by linking it to their world, explains Maller.

Cross-cultural message

Although written to be culturally appropriate for Native Americans and Alaskan Natives, the information is universal.

"The curriculum goes beyond Native Americans, because it has a healthy lifestyle message, and it is science-based for all students. It does have a cultural theme for Native American people, but also covers healthy lifestyle choices; and the holistic approach is important, as well," says Maller.

It has relevance for just about everyone who is promoting wellness and healthy lifestyles, she adds. In addition, it is appropriate to many patient populations because of the national epidemic of Type 2 diabetes, she says.

Although designed for use in schools, it is valuable for patient education managers for many reasons, according to Maller. Of course, its cultural appropriateness is one factor.

Patient education managers must be prepared to meet the needs of multiethnic patients, and to do that, it is important to understand the

lifestyles of each group. Without understanding where a patient is coming from, and what his or her practices are based on, it is difficult to work on a change of lifestyle for health purposes, explains Maller. The strength of the DETS curriculum is that it is based on culturally based models for healthy living, she adds.

What type of culturally appropriate lesson might an educator expect? One lesson for third and fourth graders is designed to teach students how balance relates to health and how illness can make life out of balance for a time. As background for teachers, balance in the context of health issues is described as “a state of harmony where nothing is out of proportion or overemphasized at the expense of the rest.”

To understand how balance relates to health, students divide a paper plate into four sections representing their world, bodies, minds, and feelings. They balance the paper plate on a glue stick and simulate an illness by placing a penny on one section of the circle to cause it to become unbalanced, or to topple.

Through demonstration and discussion, students learn that a problem or illness that affects people’s bodies, or other area of life, can make their entire life out of balance. Because some plates topple with the weight of the penny, others tip, and others remain relatively balanced, students learn that some problems don’t disrupt a healthy balance very much, like the common cold.

As part of the lesson, students discuss how a person’s life can be put back into balance by doing things that get rid of the illness or problem impacting the four parts of a person’s life.

Another important factor is that the DETS curriculum is free and can either be downloaded from the web site or ordered in a hard copy.

SOURCE

For more information about the DETS curriculum, contact:

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This makes it available to anyone who wants to use it, and wellness programs and diabetes education coordinators are making use of it, says Maller.

Patient education managers can review the curriculum online to see if all or part of the teaching is beneficial to the education program at their health care institution. The curriculum can be accessed at: <http://www3.niddk.nih.gov/fund/other/dets/index.htm>. ■

It takes two to improve health communication

Both consumers and health care providers have a role

To improve communication between health care professionals and patients, **Doris Doherty**, MA, BSN, RN, patient/family education coordinator at Franciscan Skemp/Mayo Health System in La Crosse, WI, helped create educational programs for staff and consumers that address health literacy. These educational programs came from within the hospital’s department of education, as well as through partnerships with others in the community.

In order for health literacy to improve, both professionals and patients need to be aware of the concept of health literacy and what can be done to improve it, she says.

Patients have a right to understand what they need to know in order to take care of themselves, says Doherty. They also must be responsible and make sure that when they leave the physician office, they really understand what it is they can do to help themselves, she adds.

How do you help ensure health care professionals have provided information in a way patients understand so they can act upon it? How do you teach patients to work with professionals until they have a clear understanding of their role in their care?

The work Doherty did provides two examples from which patient education managers can draw to overcome problems resulting from low health literacy at their institutions.

In 2007, staff in the education department at Franciscan Skemp put together a competency for nurses on health literacy that included written materials and a video produced by the American Medical Association on health liter-

EXECUTIVE SUMMARY

Health literacy might be improved by providing education on the topic to both health care professionals and the consumer.

acy. In January 2008, when the initial education and competency had been completed, the information was included in the one-hour patient education portion of nursing orientation.

“Every new nurse that is hired is exposed to the video from the AMA and a series of questions to challenge themselves in how they understand health literacy,” says Doherty.

A physician at Franciscan Skemp educates his colleagues on health literacy at in-services.

To reach the public as well as health care professionals, Doherty joined with others in the community to form a literacy coalition called Great Rivers Partners for Health-e People. This group is a collaborative effort between two hospitals and a local university.

One achievement of this coalition was to obtain funding for an online training program for professionals, as well as an informational program for consumers, through a grant from the National Library of Medicine. (The training program can be viewed at www.literacycoalition.org.) Three librarians taking part in this coalition applied for the grant money.

During the past year and a half, during which the learning modules have been online, 900 members of the general public and 200 health care professionals have reviewed the information, says Doherty. The grant ends in December of this year, so the group is looking for another site to locate its learning modules.

Education through public speaking

Members of the Great Rivers Partners for Health-e People coalition frequently speak to groups including cultural organizations, literacy task forces, and community outreach programs, such as Parish Nurses.

When speaking to the public, coalition members tell consumers to come to medical appointments with questions they would like to have answered.

The group encourages people to ask the three questions created by Pfizer its Clear Health Communication guidelines (www.pfizerhealthliteracy.com). They include:

- What is my main problem?
- What do I need to do?
- Why is it important for me to do this?

“We tell the public if they do not understand, nor do they know what to ask, these questions will improve discussion with their providers,” says Doherty.

Consumers are also told to tell providers at the beginning of the appointment they have questions, or show them written questions.

Doherty says consumers and health care professionals must learn how to best interact due to time constraints. Physicians need to consider how to address questions in a timely manner, and consumers need to come to the appointment prepared. Also, patients need to be forthright and tell the health care professional they have questions at the beginning of the appointment, says Doherty.

Consumers are told to ask a family member or friend to accompany them to the physician appointment if they might need help understanding the instructions. They are also advised to bring a tablet on which to write points to remember, and to ask their provider to communicate in plain language, which is a way they can understand.

Doherty says groups appreciate the information. At a national Hmong conference in Appleton, WI, in April of 2009, two coalition members shared the three basic questions to ask at a physician appointment, and the group was grateful, she says.

“We also talked about plain language and encouraged them to be more proactive in receiving what they expected from their providers appointment, while being clear and honest about their cultural values,” says Doherty.

The members of the coalition chose audience members to role play with them in order to demonstrate what an optimal office visit might look like with an interpreter.

“They enthusiastically related to that presentation and shared their stories of what they had experienced. Some of the stories were far from being the optimal visit,” says Doherty.

To make visits to the physician office worthwhile, both health care providers and consumers must learn how they can improve understanding for better compliance, says Doherty. ■

SOURCE

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Guided Care Nurses help chronically ill patients

Nurse-physician collaboration is key to success

Older patients who are at high risk for health care utilization are staying healthier and out of the hospital thanks to a new primary care enhancement program called “Guided Care.”

The Guided Care model, developed by a team of clinical researchers at Johns Hopkins University, is an interdisciplinary model of health care in which patients are supported by a nurse-physician primary care team that provides coordinated, patient-centered care to at-risk patients for the rest of their lives.

In a three-year, randomized, controlled trial involving 49 physicians and 904 older patients, researchers at the Johns Hopkins Bloomberg School of Public Health found patients who were treated using the Guided Care model cost health insurers 11% less than patients who received the usual care, according to **Chad Boulton**, MD, MPH, MBA, principal investigator for the study and creator of the Guided Care model.

The Guided Care patients in the study, on average, experienced 24% fewer hospital days, 37% fewer skilled nursing facility days, 15% fewer emergency department visits, and 29% fewer home health care episodes.

“The key to success in the Guided Care model is to create a close relationship with the patient. The interventions of the model rely on evidenced-based guidelines for chronic conditions tailored to each patient. The nurse, the physician, and the patient can work within the model and produce good outcomes,” says **Cecelia M. Daub**, RN, BSN, CCM, MA, Guided Care nurse at

Kensington Medical Center of Kaiser Permanente’s mid-Atlantic states region.

Daub participated in the randomized, controlled trial of Guided Care at Johns Hopkins and now works with four doctors in a primary care practice to managing about 60 patients.

She visits the patients in their homes — involving family members and caregivers if possible — sees them when they come for their primary care visits and goes over what the doctor told them, accompanies them to specialist appointments whenever possible, visits them in the hospital, and even meets them in the emergency department.

“We take a holistic approach to care and work with the patients in their home environment, surrounded by their loved ones,” she says.

The Guided Care model uses predictive modeling software to identify patients older than 65 with chronic conditions and who are at high risk for health care utilization. Patients typically have hypertension, diabetes, congestive heart failure, chronic obstructive pulmonary disorder or coronary artery disease, or a combination of several conditions.

When patients are identified for the program, the nurse visits them in their home and conducts a comprehensive geriatric assessment and home safety evaluation.

“By seeing what they have to manage in the home environment, we get tremendous insight into what is going on. If there is a caregiver, a spouse or a child involved with the patient’s care, we invite them to the initial session,” she says.

The initial evaluation usually takes between an hour and a half and three hours.

“We customize the evaluation to the patient and the caregiver and the complexity of the patient’s medical condition. When I conduct an evaluation, I leave an entire morning or afternoon free so the patient and caregiver will have a chance to get answers to all their questions. It sets up a very nice platform for a close relationship,” she says.

When Daub completes the in-home assessment, she develops a preliminary care guide using evidence-based guidelines, then meets with the primary care physician to collaborate on a care guide.

“We see a lot of things in the home and bring the information back to the physicians. They are very appreciative. The physician may have been treating the patient for many years, but when we go into the home, we may find a situation that he or she wasn’t aware of. By working together, we

can develop a plan to address the patient's issues," she says.

Working with the physician, the nurse develops an action plan and shares it with the patient. The plan includes a medication list the patient can follow, as well as information on physical activity, diet, recommended procedures, and follow-up with specialists.

Daub encourages the patients to keep their action plan in a convenient location and bring it with them to specialists appointments — or if they go to the emergency department.

"The action plan becomes a point of communication between the different health care providers the patient sees and helps with continuity of care," she says.

By meeting with patients in their homes, the Guided Care nurses find out information they'd never discover during a telephone conversation, Daub points out.

"Medication reconciliation is of tremendous importance with the geriatric population because many patients are on multiple medications and get them mixed up. When we conduct in-home medication reviews, we may see pill bottles that are expired and other combinations of problems that could affect the patient's conditions. When I'm in the home, I can see what's going on and get to the bottom of their problems," she says.

Sometimes Daub knows that a physician has told the patient to use a walker or a cane at home and observes that he or she isn't doing it.

"This becomes an opportunity for a coaching session. Depending on the circumstances, I might discuss it with the patient at the time or follow up later," she says.

She may recommend a fall prevention class or educate the patient on the importance of safety in preventing falls.

"Because I'm in the home and have a good relationship with the patients, I can focus in on what they need to do to stay safe and healthy. Doctors don't have the time to coax their patients into following their advice," she says.

She works with the patients to identify red flags that indicate they should call Daub or their doctor.

For instance, she educates diabetics about safe blood sugar levels and what to do when blood sugar is higher or lower. She encourages them to check their feet regularly and call her if there's an open wound. She tells patients who have coronary artery disease, to call her if they have an increase in chest discomfort or palpitations.

"I educate them on monitoring activities they can do for themselves and give them guidelines for when to call me. I get more information and make a recommendation," she says.

The physicians decide on the frequency of monitoring that is included in the care guide. For instance, if the patient is on Coumadin, the physician indicates how often they need blood tests.

"Our system of technology allows me to put in reminders for myself. I can see the specialty visit notes and know what that physician has in the patient's plan, she says.

Daub reminds the patients to get regular screenings and procedures, such as mammograms or flu shots, and educates them on safety issues.

"I make suggestions such as installing grab bars in the home. If they don't accept the idea right away, I remind them later on. I check the smoke alarms and make sure they get new batteries if needed," she says.

She has contact with each patient a minimum of once a month but sees some patients much more frequently if necessary.

"I follow the patient in the outpatient setting, through any inpatient admissions, and help with the transition in care," she says.

Since she's located in the same office as the primary care physicians, when patients give permission, Daub accompanies them to their doctor visits, and then brings the patients back to her office to go over what the doctor said and make sure they understand it.

If the doctor changes the medication or the treatment plan, Daub can print out an updated action plan for the patient to follow.

"The Kaiser center I work in has primary care physicians with a laboratory, X-ray, and mammography downstairs. There's a same-day surgery and cataract surgery center here, and many of the specialists are next door. This kind of access to care is particularly helpful in providing continuity and cohesiveness of care to the geriatric population or anyone with mobility issues. If one of my patients has an appointment with a neurologist, I can easily walk over and sit in on it," Daub says.

Recently, a woman Daub was following was picking up her medication refill at the pharmacy and asked to see Daub because she wasn't feeling well.

"I took one look at her and knew she was in trouble. She told me her chest felt heavy and she wasn't breathing normally so I was afraid she

was on the verge of a cardiac event," she says.

She notified the primary care physician, who saw the patient immediately and sent her to the emergency department.

During her conversation with the patient, Daub asked her why she was at the pharmacy and found out the woman had been out of her beta blocker for three days.

"She felt comfortable telling me but didn't mention it to the primary care doctor or the emergency room physician. This was a crucial piece of the emergency room treatment, but nobody would have known it if I hadn't had a close relationship with the patient," Daub says.

Daub informed the emergency department physician of the missed medication and educated the woman about the importance of taking care of her medicine. She got the woman's daughter involved in assuring that her mother gets her medications refilled promptly.

Patients can call Daub on her office phone when they need to within regular business hours, and she encourages them to do so.

"My patients appreciate the fact that when they call, there is a personal connection. It's the consistency. They aren't calling in to a call center. They know that they can always get a message directly to me in my voicemail," she says.

She also asks patients for permission to share private health information with their caregivers, so there are no barriers to communication between the patient, the caregivers, and the nurse.

When she gets a call that patients are going to the emergency room, Daub meets them whenever possible.

"Patients often have trouble explaining their situation and their medical history. I can give their background information to the emergency room physicians and they love it. It really helps them treat the patients in an effective and efficient manner," she says.

Guided Care nurses follow patients for the rest of their lives.

When patients are hospitalized, Daub doesn't actively manage the care but brings information to the treatment team.

"I'm in a listening role for what will happen after discharge. I find out if the patients will be able to go back to the same living situation, if any home modification will be needed, if the caregiver will have more responsibility than in the past, and work with all parties to achieve the best outcome," she says.

Her close relationship with her patients often

helps with end-of-life issues. She tells of one diabetic patient who had a recurring abdominal infection.

"He'd go to rehab and work hard and something would happen again. One day I visited him in the hospital and he said, 'Please call them off. I just want to go home.' The family wasn't around and he was able to say what he really wanted. He was putting on a good face for his family and doing whatever the doctor asked him to do," she says.

Daub talked to the man's doctor, who had a discussion with him, then set up hospice care in the home.

"He was surrounded by his whole family. His wife made his favorite meal. A few days later he went into a coma and died at home. It was a dignified and happy death," she says.

(More information about Guided Care is available at <http://www.GuidedCare.org>. The three-year trial of Guided Care was funded by a public-private partnership of the Agency for Healthcare Research and Quality, the National Institute of Aging, the John A. Hartford Foundation, the Jack and Valeria Langeloth Foundation, Kaiser Permanente Mid-Atlantic States Region, Johns Hopkins HealthCare, and the Roger C. Lipitz Center for Integrated Health Care.) ■

Remote monitoring cuts costs for chronically ill

Project extends the reach of health care providers

Following the success of a program that provides remote monitoring of chronically ill patients in poverty-stricken rural areas, Roanoke-Chowan Community Health Center in Ahoskie, NC, is replicating the program at six other community health centers in North Carolina.

The program monitors vital signs and other data as determined by the patient's primary care physician using remote monitoring devices placed in the patients' homes. Nurses review the data daily and intervene.

In the original pilot project, hospitalizations decreased by 38%, total charges for health care were reduced by 70%, and hospital bed days dropped by 50% among the 65 patients for whom the health center could obtain data, says **Bonnie Perry Britton**, MSN, RN, telehealth clinical network director/development director for the

health center.

"We don't have an affiliation with a hospital, so we can't get emergency department data. We can get data from our local hospital, but if the patient went to another hospital, we had no way to obtain the data," Britton says.

"We do know that one of the main reasons for the decrease in cost is that if patients went to the emergency room and were hospitalized, their length of stay was shorter," she says.

The three-year pilot project was conducted with a grant from the North Carolina Health and Wellness Trust Fund Commission, which utilizes the state's share of the national tobacco settlement to fund programs that promote preventive health.

Medicare beneficiaries represented the largest number of patients in the pilot program, followed by indigent patients and Medicaid patients.

The health center rotated the monitors every six to seven months.

The new program, which started July 1, will monitor about 400 Medicaid patients with cardiovascular disease over a three-year period, leaving the monitors in place for about six months at a time.

"North Carolina Medicaid is our partner in this program to supply financial data on all health care expenditures, including emergency department visits, hospitalizations, and primary care provider visits," Britton says.

The program will be replicated at Green County Health Care, Kinston Community Health Center, Tri-County Community Health Center, Rural Health Group, Cabarrus Community Health Center, and Bertie Rural Health Group.

The telehealth program was instrumental in improving the health of residents of three rural counties that are among the poorest in the state, Britton adds.

The center is a federally qualified health center serving four counties in northeast North Carolina, an area that leads the state in heart disease, diabetes, and childhood obesity.

The median family income in the counties served by Roanoke Chowan Community Health Center is \$21,000 a year, and 21% of the population is uninsured.

"We have only a 41% high school completion rate, which means that people grow up and go right into poverty. It's a vicious cycle," she says.

"The center provides primary care and mental health services as well as operating a program that provides medication and supplies for indigent patients and conducting outreach into the

community to screen residents for hypertension, cardiovascular disease, and HIV," Britton says.

"One of the obstacles we have to overcome is that patients have difficulty accessing care for a number of reasons. There is only one public transportation system in the area, and many residents have to pay someone to drive them to see the doctor. For the poorest families, that can be a challenge and a problem," Britton says.

The North Carolina Health and Wellness Trust purchased 25 in-home monitors for the pilot project to monitor patients with cardiovascular disease, diabetes, and hypertension.

Primary care physicians identify patients who are eligible for the telemonitoring program, develop a plan of care, and determine what parameters to use for the biometric data that will be monitored.

The information is faxed to a nurse case manager, who gets the patient's consent to participate, goes to the patient's home, installs the unit, and teaches the patient to use it.

Patients use the device daily Monday through Friday to collect whatever data the physician determines are appropriate and answer a series of questions.

For instance, the machine will ask if the patient is short of breath. If the patient says no, it shifts to another question. If yes, the patient answers a series of questions developed by the primary care physician and the telehealth team.

The telehealth nurse checks the server regularly, and if there is an alert indicating that the patient is having problems, she contacts the patient immediately to verify what is going on. She may ask the patient what he has eaten that day, whether he's taken his medications, or other questions that will help her determine what interventions the patient needs.

The nurse educates the patients on diet, medication compliance, or whatever else may have triggered the alert and notifies the physician if she feels more interventions are needed or if the physician may need to change the patient's medication.

The physician reviews the situation and may ask the patient to come in for a visit or may send a change of medication to the patient's pharmacy.

"In our experience, this has increased medication compliance, because the patients don't have to come into the office for the doctor to adjust their medication. They don't have to travel from home, possibly paying as much as \$30 for transportation, then pay for the office visit as well.

Many patients will skip their medication when they run out or not see the doctor when they don't feel well simply because they can't afford it," she says.

Britton attributes the success of the pilot to the fact that, unlike the majority of telemonitoring projects, the program is driven by the primary care provider.

"The physicians designed the protocols that the telemonitoring nurses use. They determined which data to track for each patient and which questions to ask. Nobody knows the patient better than their primary care provider," she says.

Many telehealth projects follow patients for only 60 days, according to Britton.

"Our average is six to seven months, during which time patients receive daily reminders. The nurses develop a close relationship with their patients, who often say that the nurse is the first

person who has cared enough to help them manage their disease," she says.

When patients monitor their vital signs on a daily basis using the telemonitoring equipment, it keeps them aware of their disease and what they need to keep it under control, Britton points out.

"Our program is not just about vital signs. The telemonitoring equipment asks the patients questions designed to give us insight into the patient's daily routine and the social setting. Our nurses have the information they need to help the patient manage their disease and to get them tied into other resources and programs that can assist them," she says.

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CNE instructions/objectives

Nurses and other patient education professionals participate in this continuing education program by reading the issue, using the provided references for further research, and studying the questions at the end of the issue.

Participants should select what they believe to be the correct answers, then refer to the list of correct answers to test their knowledge. To clarify confusion surrounding any questions answered incorrectly, please consult the source material. After completing this activity each semester, you must complete the evaluation form provided and return it in the reply envelope provided in order to receive a credit letter. When your evaluation is received, a credit letter will be mailed to you.

After reading *Patient Education Management*, health professionals will be able to:

- **identify** management, clinical, educational, and financial issues relevant to patient education;
- **explain** how those issues impact health care educators and patients;
- **describe** practical ways to solve problems that care providers commonly encounter in their daily activities;
- **develop** patient education programs based on existing programs from other facilities. ■

COMING IN FUTURE MONTHS

■ Education's role in demand management

■ Online classes for better outreach

■ Better teaching strategies for the elderly

■ Improving retention with photos

■ Scripting follow-up calls for better education

CNE Questions

21. Electronic games are not yet a common resource for teaching patients because of which of the following issues?
- A. Greater sophistication is required.
 - B. No research is being done.
 - C. It is not clear they are beneficial.
 - D. No academic interest in their development.
22. Health games should be produced by an interdisciplinary team to include which of the following?
- A. Game developers.
 - B. Behavioral psychologists.
 - C. Medical professionals.
 - D. All of the above.
23. An important cultural belief of Native Americans that must be considered when teaching on health issues is that health is life in balance.
- A. True
 - B. False
24. To improve communication during office visits, patients should be taught which of the following?
- A. To bring a list of questions.
 - B. To write down important information.
 - C. To ask for clarification.
 - D. All of the above.

Answers: 21. A; 22. D; 23. A; 24. D.

The first telehealth monitors in the second phase of the program were installed in August and will be redeployed to other patients at the end of January.

The health center is working with East Carolina University and Wake Forest University to analyze data from the program.

The health center chose a different vendor for the telemonitoring equipment for the second phase of the program because it needed equipment that would enable it to quickly manage the volume of data that will be gathered by the new program, Britton says.

"Our new vendor's products seamlessly integrate the information gathered from patients,

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their electronic medical records, and Medicaid, giving us easy access to data," Britton says.

Roanoke Chowan Community Health Center created a telehealth manual for the new program and is handling the installation and training on the monitors.

Roanoke Chowan nurses are conducting the initial assessment of all patients in the new program and will monitor all of the patients in the new program. When interventions are needed, they will be conducted by nurses and physicians at the individual health centers who are familiar with the patients.

"Based on anecdotal information and the data we were able to access in the pilot project, we expect the program will show significant reduction in charges and total Medicaid expenditures among the patients in the program," Britton says. ■

Patient Education Management™

For Nurse Managers, Education Directors, Case Managers, Discharge Planners

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For Nurse Managers, Education Directors, Case Managers, Discharge Planners

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4. Cite practical ways to solve problems that care providers commonly encounter in their daily activities.	○	○	○	○	○	○
5. Develop or adapt patient education programs based on existing programs from other facilities.	○	○	○	○	○	○
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OSHA enforcing N95 respirators for HCWs treating H1N1 flu patients

OSHA: 'We're looking for a good-faith effort.'

By **Gary Evans** and **Michelle Marill**
Editors

*Hospital Infection Control & Prevention
Hospital Employee Health*

Particulate respirators — a controversial step beyond common surgical masks — are now mandated by the Occupational Safety and Health Administration (OSHA) to protect health care workers from acquiring H1N1 pandemic influenza A from patients. With respirator shortages feared, “good-faith efforts” by health care employers will be recognized by OSHA, which nevertheless is warning that citations and fines may result from inspections that will be primarily prompted by employee complaints.

“Employers should do everything possible to protect their employees,” said **Jordan Barab**, acting assistant secretary of labor. He emphasized, however, that where respirators are not commercially available, an employer will be considered to be in compliance if the employer made every effort to acquire respirators. Health care employers will need to be able to show documentation of orders that have been placed or statements from a manufacturer that the respirators are on back order. N95 respirators — already used by many hospitals for the treatment of tuberculosis patients — are the minimum level acceptable for H1N1.

“We’re looking for some evidence that the employer has attempted to purchase N95 respirators,” Barab said. “We’re looking for a good-faith effort.”

OSHA is issuing a compliance directive to enforce the Centers for Disease Control and Prevention’s recently issued “Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare Settings, Including Protection of Healthcare Personnel.” (Available at http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm.)

The CDC disappointed infection preventionists in the guidance by reaffirming its stance that surgical masks are not sufficient to protect workers from

H1N1 patients. The CDC recommends the use of respiratory protection that is at least as protective as a fit-tested disposable N95 respirator for health care personnel who are in close contact (within 6 feet) with patients with suspected or confirmed 2009 H1N1 influenza. The president-elect of the Society for Healthcare Epidemiology of America said the CDC decision appeared to be made for reasons other than science, which has not shown burdensome, scarce N95s to be more effective in clinical studies.

“They are recommending a respirator that is not readily available, for transmission that has never been shown to be clinically relevant,” said **Neil Fishman**, MD. “It presents a hardship to health care workers and health care providers that is unnecessary and offers nothing in [additional] degree of protection.”

On the other hand, the CDC is under considerable pressure from health care unions and worker safety advocates since at least four nurses nationally have reportedly died of complications related to H1N1. Noting that H1N1 surveillance systems do not provide occupational data, the National Institute for Occupational Safety and Health (NIOSH) is asking for information from the public on health care worker H1N1 illnesses and deaths. (Information can be e-mailed to nioshh1n1data@cdc.gov.) NIOSH is asking for contact information so the agency can follow up on cases that have primarily been reported through the media.

“Once we get that information, we can make decisions about whether we want to do a more thorough investigation, whether it is a Health Hazard Evaluation or another kind of study,” says **Christina Spring**, health communications specialist with NIOSH in Washington, DC.

Meanwhile, OSHA inspectors will ensure that health care employers implement a hierarchy of

Supplement to *AIDS Alert*, *Critical Care Alert*, *Clinical Trials Administrator*, *Contraceptive Technology Update*, *Case Management Advisor*, *Discharge Planning Advisor*, *Drug Formulary Review*, *ED Nursing*, *ED Management*, *ED Legal Letter*, *Emergency Medicine Reports*, *Hospital Case Management*, *Hospital Peer Review*, *Hospital Medicine Alert*, *Hospital Home Health*, *Healthcare Risk Management*, *Infectious Disease Alert*, *IRB Advisor*, *Medical Ethics Advisor*, *Occupational Health Management*, *Patient Education Management*, *Primary Care Reports*, *Pediatric Emergency Medicine Reports*, *Same-Day Surgery*, *State Health Watch*, and *Travel Medicine Advisor*.

controls, including source control, engineering, and administrative measures, and to encourage vaccination and other work practices recommended by the CDC. Where respirators are required to be used, the OSHA Respiratory Protection standard must be followed, including worker training and fit testing. While the ruling clearly applies to hospitals, as this report was filed OSHA had not responded to a written request for clarification regarding other medical settings. Employee complaints from clinics and physician offices could potentially result in an inspection because OSHA's respiratory protection standards also apply to small businesses.

CDC casts wide net

The CDC clarified that the scope of its guidance includes a wide range of medical settings: "This guidance provides general recommendations for health care personnel in all health care facilities," the CDC stated. "For the purposes of this guidance, health care personnel are defined as all persons whose occupational activities involve contact with patients or contaminated material in a health care, home health care, or clinical laboratory setting."

Since a shortage of disposable N95 respirators is possible, employers are advised to monitor their supply, prioritize their use of disposable N95 respirators according to guidance provided by CDC, and to consider the use of reusable elastomeric respirators and facemasks if severe shortages occur, OSHA advised. Health care workers performing high-hazard, aerosol-generating procedures (e.g., bronchoscopy, open suctioning of airways, etc.) on a suspected or confirmed H1N1 patient must always use respirators at least as protective as a fit-tested N95, even where a respirator shortage exists. In addition, an employer must prioritize use of respirators to ensure that sufficient respirators are available for providing close-contact care for patients with aerosol-transmitted diseases such as tuberculosis.

Where OSHA inspectors determine that a facility has not violated any OSHA requirements but that additional measures could enhance the protection of employees, OSHA may provide the employer with a Hazard Alert Letter. OSHA will inspect health care facilities under the Respiratory Protection Standard "to ensure that health care workers are protected and that protection is in line with CDC [guidance]," Barab said.

The CDC guidance to use respirators has been controversial and hotly debated almost since the onset of H1N1 last spring. Many infection

preventionists argue that H1N1 is comparable to seasonal influenza in its virulence and transmission routes, and that droplet precautions (e.g., surgical masks) are sufficient. In fact, some state health departments diverged from CDC and called for surgical masks unless health care workers were performing aerosol-generating procedures.

The Healthcare Infection Control Practices Committee, a CDC advisory panel, endorsed the use of surgical masks rather than respirators. But an Institute of Medicine (IOM) panel charged with reviewing the available science concluded that surgical masks would not protect workers from airborne influenza particles. "[T]here is evidence that work-related exposures to patients infected with H1N1 virus result in health care workers becoming infected," the IOM report stated.

The answer, decided CDC director **Thomas Frieden**, MD, is to use respirators but to limit their use through other measures. "Use a scarce resource carefully," he said in a briefing on the guidance. "Follow a hierarchy of controls and limit the number of people who are potentially exposed and would need a higher level of protection."

The CDC is no longer recommending contact precautions — the use of gowns and gloves — but Frieden noted that influenza is spread through droplet, fomite, and aerosol transmission. "It is an unfortunate fact that we do not have definitive evidence on the portion of transmission that occurs from each of those three routes," said Frieden, noting that "the preponderance of belief" was that droplets were the most common route. "With that lack of knowledge and with the newness of H1N1 . . . we are recommending that N95s . . . would be clearly superior to surgical masks."

Still, CDC is providing some flexibility to hospitals. That means in some circumstances, health care workers may reuse respirators, continue to wear them while caring for more than one patient, or may even wear surgical masks as a last resort option. CDC states that extended use (in which the respirator is not removed while the health care worker cares for more than one patient) is preferred over reuse.

"We recognize that there may be shortage situations," said Frieden. "The need is for us not just to provide respiratory protection now, but the flu season lasts through May. We need to ensure we have a reliable supply."

The CDC guidance states that "when in prioritized respirator use mode, respirator use may be temporarily discontinued for employees at lower risk of exposure to 2009 H1N1 influenza or lower risk of complicated infection." ■