

MDISEASE MANAGEMENT ADVISOR™

Playing to good health

Program tests gaming's positive effects

The Nintendo Wii has taken the country by storm and is being promoted as a healthier alternative to video game consoles that don't require full-body participation.

Now, health leaders are exploring whether gaming has a place in healthcare, most notably in chronic care and in teaching children about healthy living.

Using games to improve health turns the negative perception of video games on its head. Until recently, parents and health advocates railed against the correlation between playing video games and lack of exercise.

However, with 70% of American heads of household and millions of children playing computer and video games, the gaming industry and healthcare system are considering gaming as a possible way to improve health.

"Games are not just looked at as evil media that hurt you. Now there is an appreciation that you can design games that are not harmful, but can be beneficial," says **Debra Lieberman, PhD**, communication researcher at

the University of Santa Barbara's (CA) Institute for Social, Behavioral, and Economic Research.

Games do not simply teach; they also engage users. If a company creates a health-related video game that is boring, no one will want to play it, and the chance for engagement is lost.

One example of a health-related video game is HopeLab's *Re-Mission*, which was developed for teens and young adults with cancer.

The game is a 20-level third-person shooter video game in which the players portray a nanobot named Roxxi. In that role, players shoot to kill cancer cells in the fictional cancer patients and defend against bacterial infections and side effects. A study of the game showed that users

"Now there is an appreciation that you can design games that are not harmful, but can be beneficial."

—*Debra Lieberman, PhD*

learned about cancer and adhered to their treatment regimens. In 2007, CIGNA began offering *Re-Mission* free to cancer patients who requested the game.

The Robert Wood Johnson Foundation understands the potential of gaming in health. Lieberman is heading the foundation's national Health Games Research program, which supports research to enhance the quality and effectiveness of interactive games to improve health. The foundation plans to give \$8.25 million to researchers looking at how games can improve health and healthcare.

In the first round of grants, the foundation gave \$2 million to 12 teams that are researching games to help people with dietary behavior issues, glycemic control in diabetes, and chronic mobility and balance deficits after a stroke, as well as gauge the effectiveness of social mobile-network games in promoting active lifestyles for wellness.

> *continued on p. 2*

IN THIS ISSUE

p. 5 Diabetes and depression

A recent study shows that diabetes and depression are often linked, which makes caring for diabetes more difficult for patients.

p. 7 Melding prenatal care, substance abuse treatment

Integrating substance abuse treatment with prenatal visits brings positive results to maternal and newborn health, according to a recent study.

MEDICARE DISEASE MANAGEMENT SECTION

p. 1 Care management shows benefits

The future of care management might be through secure Web communication. A recent study showed how a Web-based, pharmacist-assisted program benefited hypertension patients.

HCP Pro

Good health

< continued from p. 1

The foundation received 112 research proposals submitted by universities, medical centers, and game industry organizations.

The foundation plans to give another \$2 million in grants in January 2009.

The researchers are not only exploring video games, but other types of technology as well, such as cell phones. "What's kind of neat is you don't have to create a console game that could cost millions of dollars to give people a really compelling experience," Lieberman says.

The foundation also wants to strengthen the evidence base, investigate health game design principles,

demonstrate effectiveness and improve future games, and set a standard for theory-based design.

In addition to grants, the foundation is helping game developers and health experts collaborate and share best practices.

Lieberman says a benefit to video games is the immediacy. The user instantly knows whether he or she has the correct answer to a problem.

"We're in the early days in the arena of games for health, but I think there is a lot of potential there to shift the health education paradigm from the walls of a medical center or patient handouts to a real-time simulated environment," says **Trinton Histon, PhD**, director of Kaiser Permanente's (KP) Weight Management Initiative in Oakland, CA.

"Human beings are just playful creatures. As much as we can combine that play with something healthy ... that is a wonderful, powerful concept," says **Carolina Barnes**, executive producer and owner of Digital Dream Forge, a gaming company in Tucson, AZ, that helped develop KP's *The Incredible Adventures of the Amazing Food Detective*.

Food Detective

Pint-sized Columbos are on the case. KP launched its *The Incredible Adventures of the Amazing Food Detective* on its Web site in September 2007. The game, geared to 9- and 10-year-olds, teaches children about nutrition and physical fitness.

Rather than rely strictly on educational pamphlets, KP decided to harness the Internet's power and deliver the health message in a new way.

The game builds upon the work of KP's Healthy Eating Active Living and Community Health Initiatives

Editorial Advisory Board		Disease Management Advisor	
		Group Publisher: Matt Cann Managing Editor: Les Masterson , lmasterson@hcpro.com	
Premila Kumar, MD, PAHM <i>Manager, Care Management Programs</i> Horizon Blue Cross Blue Shield of New Jersey Newark, NJ	Stan Nowak <i>Founder, President, and CEO</i> Silverlink Communications Burlington, MA	Jaan Sidorov, MD, MHSA, FACP <i>Owner and Operator</i> Sidorov Health Solutions Harrisburg, PA	Alexis Skoufalos, EdD <i>Vice Chair of Education and Assistant Professor</i> Department of Health Policy Jefferson Medical College Philadelphia, PA
Vince Kuraitis, JD, MBA <i>Principal and Founder</i> Better Health Technologies, LLC Boise, ID	Harlan Levine, MD <i>Chief Medical Officer</i> OptumHealth Care Solutions Golden Valley, MN	Holly Snyder, MBA, CPA <i>President</i> Nationwide Better Health Columbus, OH	Warren Todd, MBA <i>Founder and Executive Director</i> International Disease Management Alliance Flemington, NJ
Alfred Lewis, JD <i>President</i> Disease Management Purchasing Consortium International, Inc. Wellesley, MA	Ariel Linden, DrPH, MS <i>President</i> Linden Consulting Group Hillsboro, OR	Thomas Wilson, PhD, DrPH <i>Epidemiologist</i> Trajectory Healthcare, LLC <i>Founder and Board Chair</i> Population Health Impact Institute Loveland, OH	
Gordon Norman, MD, MBA <i>Executive Vice President, Science and Innovation</i> Alere Reno, NV			

Disease Management Advisor™ (ISSN: 1531-5681 [print]; 1937-7711 [online]) is published monthly by HCPro, Inc., 200 Hoods Lane, P.O. Box 1168, Marblehead, MA 01945. Subscription rate: \$399/year. • Postmaster: Send address changes to **Disease Management Advisor**, P.O. Box 1168, Marblehead, MA 01945. • Copyright © 2008 HCPro, Inc. All rights reserved. Printed in the USA. Except where specifically encouraged, no part of this publication may be reproduced, in any form or by any means, without prior written consent of HCPro or the Copyright Clearance Center at 978/750-8400. Please notify us immediately if you have received an unauthorized copy. • For editorial comments or questions, call 781/639-1872 or fax 781/639-2982. For renewal or subscription information, call customer service at 800/650-6787, fax 800/639-8511, or e-mail: customerservice@hcpro.com. • Visit our Web site at www.hcpro.com. • Occasionally, we make our subscriber list available to selected companies/vendors. If you do not wish to be included on this mailing list, please write to the marketing department at the address above. • Opinions expressed are not necessarily those of **Disease Management Advisor™**. Mention of products and services does not constitute endorsement. Advice given is general, and readers should consult professional counsel for specific legal, ethical, or clinical questions.

Questions? Comments? Ideas?

Contact Managing Editor **Les Masterson**

Telephone **781/639-1872, Ext. 3157**

E-mail lmasterson@hcpro.com

to provide broader outreach to children and families. Childhood obesity in the United States has tripled in the past 15 years. Nearly 9 million children are overweight or obese, and research shows that the vast majority of those children will grow up to be overweight or obese adults, which is a pathway to diabetes, coronary artery disease, hypertension, and several other chronic illnesses.

Histon says KP chose to focus on the 9- and 10-year-olds because those children are old enough to exercise authority over their lives. When creating the game, KP was inspired by its educational theater program, which conducts two- to three-hour school programs on healthy eating and physical activity issues.

One of the skits is “The Incredible Adventures of the Amazing Food Detective.” The actors take on different health or nutritional problems, such as not eating enough protein or not getting enough exercise, and the children help the detective solve the problem.

KP developed the game by bringing together health educators, pediatrics, and Digital Dream Forge representatives to determine how to translate the live performance to the online environment. The group developed characters that mirror children in KP’s service area and included fitness and nutritional problems facing youths.

Digital Dream Forge and KP used that information to create the game in eight months. The game includes

a health mystery for each child. For example, Cole eats too much junk food, Catherine is not very strong, and Althea skips breakfast. The player then uses that information to help the character make better decisions.

Once successful, the player is given an opportunity to print educational game materials as well as play health-related minigames.

KP also collaborated with educational publisher and media company Scholastic in New York City to create a healthy living lesson plan for teachers and bring the game into schools. “They knew what would resonate with children, but they also knew what would resonate with teachers,” Histon says.

Scholastic distributed supplementary educational materials that meet national learning standards along with CDs of the game to more than 5,000 public schools. The materials included a teaching guide with lessons and activities, family fun pages that reinforce what is being taught in the classroom, and a poster with a monthlong list of healthy ideas for the classroom.

“It could be either used in conjunction with the game in the classroom or as an aside,” says Histon. “It really taught kids about the building blocks of good nutrition and the importance of physical activity and sort of dispelled some of the misconceptions about nutrition—what’s healthy and what’s not healthy.”

> *continued on p. 4*



Source: Kaiser Permanente.



Good health

< continued from p. 3

Histon says the collaboration of KP, Digital Dream Forge, and Scholastic was key, as the health plan benefited from the gaming and education experts. "I think it was the sort of collaboration between those three entities that made it work. We could have done it, but I honestly don't think it would have had the same impact," Histon says. "It's important to identify good partners from the get-go and then be thoughtful and collaborative as you move along the partnership."

The game's developers also needed to address a potential paradox: How would they create an online game about fitness in which children sit in front of a computer screen to play?

"One of our challenges was that games are part of the problem," says Barnes. "We had to be very careful. We wanted to create a game that kids would want to play. But, if it was successful, we would contribute to the problem."

The solution? KP, which suggests a one- to two-hour limit to online use per day for children (including homework), decided to add a shut-off feature to the game so children can only play it for 20 minutes at a time.

KP distributed the game to 5,000 schools in its service area in September 2007, but has allowed those outside of KP's area to download the game. The game's learning

materials have been downloaded 30,000 times. "We have had a lot more outreach than we would have expected," says Histon.

The game has even reached Spain, where teachers have asked Kaiser for permission to make the Spanish version part of their curriculum.

Histon says it's too early to gauge the game's effect, but teachers have told KP that children are more engaged and better understand the importance of nutrition. "They are also choosing healthier snacks in their lunchbox," she says.

The game has been recognized by several organizations, including iParenting Media and Interactive Media.

Additionally, the game is less than one year old, but KP has already seen the benefits and is exploring future avenues in gaming.

"I think we're at the beginning of our journey in terms of really understanding this whole space of games for health, but it's been very clear to me that we need to adopt a new paradigm on how we deliver both the nutritional and physical activity for children and their families," says Histon. ■

Editor's note: The Incredible Adventures of the Amazing Food Detective is at www.kp.org/amazingfooddetective.



Source: Kaiser Permanente.



Study affirms connection between diabetes, depression

Key factors in keeping diabetes under control is being active, keeping weight down, and eating properly, but for someone with depression, these tasks might seem impossible.

According to the American Diabetes Association (ADA), between one and three of every 10 people with diabetes has depression, and research has affirmed the connection. “Examining a Bidirectional Association Between Depressive Symptoms and Diabetes,” published in the June 18 *Journal of American Medical Association*, found that those with elevated depressive symptoms had a modest increased risk of developing type 2 diabetes, regardless of sociodemographics and metabolic factors.

The study also found that without elevated symptoms at baseline, “treated type 2 diabetes was associated with a significantly higher odds of developing depressive symptoms during follow-up, independent of [body mass index], socioeconomic status, and comorbidities.”

Sherita Hill Golden, MD, MHS, associate professor of medicine and epidemiology and director of inpatient diabetes management service at Johns Hopkins University School of Medicine in Baltimore and coauthor of the study, says healthcare should recognize that diabetes and depression are comorbid conditions and treatment programs are needed for both issues.

The connection might not be from the physical symptoms of diabetes, but the burden of caring for the disease.

“We hypothesize that the reason that treated diabetes, and not untreated diabetes or prediabetes, [is] associated with a higher risk of depression is that treatment

for diabetes is associated with more monitoring, requires more medication adherence, and may be a marker of more severe disease with complications. This disease burden may lead to depression,” says Golden.

The study authors note the association between the two diseases and link the “psychological stress associated with diabetes management.” In addition, adults with treated type 2 diabetes may have comorbidities that could lead to more depressive symptoms.

The study, which the authors said was the first “population-based study to show a bidirectional longitudinal association between type 2 diabetes and elevated depressive symptoms within the same cohort,” concluded that a “modest association of baseline depressive symptoms with incident type 2 diabetes existed that was partially explained by lifestyle factors.” The study authors said the results corroborate previous findings that show that depressed patients “have higher calorie intake, are less physically active, and are more likely to be smokers.”

One possible explanation the study authors noted for the diabetes-depression connection is that “depressive symptoms are associated with several metabolic and behavioral risk factors for type 2 diabetes. First, depressed individuals are less likely to comply with dietary and weight loss recommendations and more likely to be physically inactive, contributing to obesity, a strong risk factor.”

They say the findings suggest that clinicians should understand the increased risk of elevated depressive symptoms in those with treated type 2 diabetes. They add that healthcare providers should consider routine screening for depressive symptoms among these patients.

Golden says physicians and mental health professionals must educate patients on both diseases and remove the stigma associated with treatments for depression.

“Physicians who take care of patients with diabetes should conduct depression screening, as the presence of high depressive symptoms may impair the patient’s ability to care for his/her diabetes,” says Golden.

> *continued on p. 6*

Don't miss your next issue!

If it's been more than six months since you purchased or renewed your subscription to **DMA**, be sure to check your envelope for your renewal notice or call customer service at 800/650-6787. Renew your subscription early to lock in the current price.



Diabetes

< continued from p. 5

Mental health providers should also understand the connection. “Psychiatrists/psychologists/social workers should be aware that depression can be a risk factor for type 2 diabetes, are more likely to engage in unhealthy behaviors (overeating, not exercising) and as a consequence are more likely to be obese. They should encourage their overweight patients to be screened for diabetes by their primary medical doctors,” Golden wrote in an e-mail.

Golden says she is hopeful that the study’s publication and other research in the diabetes-depression space will raise awareness of the diabetes-depression connection. “Many practitioners recognize that [the diseases] are linked, but depending on their subspecialty, they may be more likely to focus on one more than the other without recognizing that they are linked,” she says.

John B. Buse, MD, PhD, president of medicine and science at the ADA, says the diabetes-depression connection is well established. There is plenty of debate as to why the connection is present. “The thing that is unclear is

whether it’s just a two-way street or whether they sort of share a common route system,” says Buse, who believes there is a biological connection. “There is a lot about the relationship that we don’t understand, but it does seem very clear that the relationship exists.”

Buse says the ADA recommends that physicians screen diabetes patients for depression. He adds that some health systems use screening questionnaires to identify people who are experiencing mental illness.

Most PCPs know about the connection between depression and diabetes, Buse adds, but the mental health professional side of care is more of a problem. This is partly because most psychologists’ offices don’t have nurses or equipment to medically test patients.

“It is something that needs to be addressed in the mental health system either by creating mechanisms that make sure problems are addressed by the primary care physician or setting up a system within the mental health system,” says Buse. ■

Study specifics

The authors of “Examining a Bidirectional Association Between Depressive Symptoms and Diabetes,” published in the June 18 *Journal of American Medical Association*, used repeated measures of fasting blood glucose and depressive symptoms over time to see whether depression predicted type 2 diabetes and whether those with type 2 diabetes at baseline were more likely to develop more severe depressive symptoms.

Unlike prior studies that examined the connection solely in the elderly population, the study authors opened it up to a wider age range. Between July 2000 and August 2002, the study authors recruited 6,814 men and women aged 45–84 who identified themselves as white, black, Hispanic, or Chinese and who were free of self-reported clinical cardiovascular disease. Those involved in the study came from the following communities: Baltimore City and Baltimore County; Chicago; Forsyth County, NC; Los Angeles; Northern Manhattan and the Bronx, NY; and St. Paul, MN.

To test for depression, the patients were assessed during the first and third doctor visits using the CES-D, a 20-item questionnaire to assess depression. The questions gauge depressed mood, feelings of worthlessness, feelings of hopelessness, loss of appetite, poor concentration, and sleep disturbance.

In addition to the depression evaluations, physicians checked the patients for impaired fasting glucose and type 2 diabetes status. Those with impaired fasting glucose and type 2 diabetes were more likely to be older, male, nonwhite, less physically active, and suffer from a higher body mass index, according to the study.

Additionally, those with untreated type 2 diabetes attained a lower educational level, had a lower annual income level, were more likely to have microalbuminuria and hypertension, and had lower high-density lipoprotein cholesterol and higher triglycerides.

MEDICARE

DISEASE MANAGEMENT

Hypertension study

Care management shows benefits

A recent study could provide a look into the future of care management.

Rather than using the regular call center-based care management program, “Effectiveness of Home Blood Pressure Monitoring, Web Communication, and Pharmacist Care on Hypertension Control,” published in the June 25 *Journal of American Medical Association*, analyzed a program delivered through secure Web communication and found that the program improved BP in hypertension patients.

The study involved more than 700 hypertension patients in the Group Health plan in Seattle who did not have a comorbidity such as diabetes or heart failure.

The results found that a Web-based care program nearly doubled the percentage of hypertension patients whose BP was controlled.

“Those with the most severe hypertension had such significant drops to their blood pressure,” says **Beverly Green, MD, MPH**, a family physician and investigator at Group Health who coauthored the study.

“They had more room to go, but it was pretty dramatic. It made me think ... that there are just things that are falling through the cracks that are not hard to fix if you’re paying attention,” she adds.

The study outcomes showed that:

- ▶ Web-based pharmacist care, in addition to home BP monitoring and Web training, resulted in 25% more patients with controlled BP than the control group and 20% more patients with controlled BP

compared to the home BP monitoring and Web training-only group.

- ▶ The home BP monitoring and Web training-only group had a significant improvement and a modest reduction in systolic BP.
- ▶ Compared to the usual care group, the home BP monitoring and Web training plus pharmacist care group was 1.8 times more likely

“The Web is a very convenient way to provide support that is required for self-management and also for improving care.”

—*Beverly Green, MD, MPH*

to control its BP. Those in the home BP monitoring and Web training group were 1.2 times more likely to control their BP than the usual care group.

- ▶ Improvements in the number of classes of anti-hypertensive medications, aspirin use, body mass index, physical activity, health-related quality of life, satisfaction with the health plan, and use of the healthcare services from baseline until the 12-month follow-up.

For more results, see the charts on **MDM** pp. 2–3.

“Our study findings support previous research that demonstrates encouraging patients to participate more actively in their own care, combined with care management, including assisted patient review of paper medical records, leads to improved health outcomes. Our intervention extends this work by connecting patients and care managers through a shared [electronic medical record (EMR)] over the Web. In our study, providing home BP monitors and Web training alone

> *continued on MDM p. 3*

Patients separated into three groups

“Effectiveness of Home Blood Pressure Monitoring, Web Communication, and Pharmacist Care on Hypertension Control,” published in the June 25 *Journal of American Medical Association*, is the first large randomized controlled trial to test the use of care management over the Web and the first randomized controlled trial that applied the Chronic Care Model to hypertension.

The patients in the trial were from 10 medical centers within Seattle-based Group Health, which provides coverage and care to more than 540,000 residents of Washington state and Idaho. Patients were separated into the following three groups:

- Usual care
- Training for home BP monitoring and patient Web site
- Home BP monitoring and Web training plus pharmacist care intervention

All patients were given access to an electronic medical record (EMR) and patient Web site at the beginning of the study. Group Health’s Web services allow patients to refill medications, make appointments, view portions of their EMR (which includes laboratory results, immunizations, current health conditions, and medications), and communicate with members of the healthcare team. After the first randomization, the people assigned to the

usual care group were told their BP was not under control and encouraged to speak with their physicians to improve the numbers. Patients received the following additional interventions depending on their group:

- **Patient training for home BP monitoring and Web site.** Patients were given a home BP monitor, trained on its use, and told to check their BP at least two days per week and enter the numbers into their online record. They were also trained on how to use the Web site, including using its secure e-mail, refilling medications, viewing portions of the medical record, and finding links to resources for lifestyle and behavioral change.
- **Patient training for home BP monitoring and Web training plus pharmacist care intervention.** Patients in this group were assigned a Group Health pharmacist to assist with team-based care management activities, including collaborating with the patient’s physician. After an initial phone call to obtain a detailed medical history, the pharmacists and patients with high BP communicated every two weeks via the EMR until the BP was under control. The pharmacists also received two half days of additional training on evidence-based care of hypertension, medical protocols, and patient-centered techniques for addressing behavioral issues related to adherence and lifestyle change.

Primary outcomes at 12 months for all patients completing follow-up in the electronic communications and home BP monitoring trial

	Outcomes for patients completing 12-month follow-up (n = 730)		
	BP monitoring and patient Web services training		
	Usual care (n = 247)	Only (n = 246)	Plus pharmacist care (n = 237)
Systolic BP unadjusted mean	146.3	143.8	137.9
Diastolic BP unadjusted mean	85.7	84.5	81.6
BP controlled unadjusted proportion	0.31	0.36	0.56
	Subanalysis of patients with systolic BP at baseline >160 mm Hg (n = 150)		
	BP monitoring and patient Web services training		
	Usual care (n = 51)	Only (n = 47)	Plus pharmacist care (n = 52)
Systolic BP unadjusted mean	152.4	151	139.8
Diastolic BP unadjusted mean	84.4	83.8	81
BP controlled unadjusted proportion	0.2	0.26	0.54

Source: “Effectiveness of Home Blood Pressure Monitoring, Web Communication, and Pharmacist Care on Hypertension Control,” *Journal of American Medical Association*, June 25.

Hypertension

< continued from MDM p. 1

did not significantly improve BP control, despite trends in that direction,” the study authors wrote.

Green says having a Web connection to patients is important because much of the day-to-day care for chronic conditions, such as hypertension, is done at home. “The Web is a very convenient way to provide support that is required for self-management and also for improving care,” she says.

Green says researchers tackled the issue of hypertension because it is one of the most common diagnoses at primary care visits. In fact, almost one in three U.S. adults has hypertension, which is considered a sustained systolic and diastolic BP of 140 and 90 mm Hg or higher, respectively, according to the study.

Successful strategies to lower BP include educating patients and encouraging self-monitoring or adding a healthcare team member to focus on hypertension. The Group Health program took the plan’s existing EMRs and secure patient Web site so patients could view portions of their medical record, access healthcare services, and communicate with their healthcare team online, according to the study.

The study authors noted that a Web-based solution to the hypertension epidemic could be successful because more than 75% of U.S. adults have Internet access, most people want to use that technology to contact physicians and receive laboratory results, and the at-home system allows physicians to measure BP longitudinally. Self-monitored BP devices are accurate and less expensive than usual care and provide direct feedback for hypertension patients, according to the study.

Existing Web portal

Green says the program used an existing Group Health Web portal, and the hypertension program encouraged more care coordination between the patient and the care team. “The pharmacists were the glue to make sure that happened,” says Green, adding that Group Health’s pharmacists already perform some care management roles.

Adding pharmacist care to the program “allowed the Chronic Care Model to be integrated with further increases in securing messaging, more antihypertensive

> continued on MDM p. 4

Secondary outcomes at 12 months for all patients completing follow-up in the electronic communications and home BP monitoring trial

	Mean (SD)			
	At 12-month follow-up			
	Baseline	Usual care	BP monitoring and patient Web services training	
			Only	Plus pharmacist care
Number of antihypertensive medication classes	1.64	1.69	1.94	2.16
Aspirin use, number (%)	338 (48.8)	124 (53)	131 (56)	149 (66.5)
Body mass index	32.3	32.5	32.5	31.6
Active, number (%)	494 (68.1)	158 (68.4)	173 (73.9)	155 (71.8)
Quality of life (1–100 scale)	67.1 (20.4)	66.7 (20.4)	66.6 (20.9)	66.6 (22.2)
Physical health	80.6 (27)	78.1 (27.7)	77.7 (30.3)	81 (26.5)
Emotional health	71.6 (16.8)	71.5 (17.7)	72.1 (16.8)	71.7 (19.7)
Consumer Assessment of Healthcare Providers and Systems (0–10 scale)	7.9 (1.5)	8.1 (1.5)	8.1 (1.5)	8.3 (1.4)

Source: “Effectiveness of Home Blood Pressure Monitoring, Web Communication, and Pharmacist Care on Hypertension Control,” Journal of American Medical Association, June 25.

Hypertension

< continued from MDM p. 3

medical classes being added, and larger reductions in both systolic and diastolic BP," according to the study.

The Chronic Care Model uses seven domains: self-management, clinical information systems, delivery system redesign, decision support, healthcare organization, community resources, and care partnership support.

"We believe the pharmacists were successful because they provided planned care to a defined population, consistently applied stepped medical protocols, and used comprehensive information systems, a patient-shared EMR, and Web communications to collaborate with patients and their physicians," according to the study. Pharmacists communicated with the patients' physicians at the start of the program and then only if there was a clinical concern. Program organizers wanted to limit the amount of communication with physicians because they are already bombarded with information, says Green.

Care management through the Internet will become more common as more people become accustomed to

computers, Green says. "Once patients are used to it and they use the Internet, they seem to adapt very quickly. I have been amazed at some patients I thought would never expect to be able to use it," she says.

Green says people living with chronic disease find health Web access helpful for their daily care. "Why shouldn't it be part of medical care? It's just a natural thing that needs to happen because it does improve care. We know it and this has helped prove it," says Green.

The study's coauthors acknowledged there were limitations to the study, most notably that the hypertension patients needed Internet and e-mail access. The researchers are going to investigate how factors such as not having computer skills played into the results, Green says, adding that she thinks computer barrier issues will subside.

"That won't be a problem in a few years because middle-age people who are already using it at work will be 65 pretty soon," says Green about the computer literacy of baby boomers. ■

Wellness book available

Integrating Wellness into Your Disease Management Program, Second Edition will help your organization discover ways to improve health while saving money for clients in productivity and health costs.

The authors are at the forefront of the health management movement. **John Harris, MEd, FAWHP**, is chief wellness officer and senior vice president at Healthways in Toledo, OH, and **Dexter Shurney, MD**, is senior vice president and chief medical officer at Healthways in Franklin, TN.

The following are important actionable items you will learn from this book:

- Discover ideas to implement wellness programs
- Construct smart predictive models that combine claims data review with health surveys that find people who are at risk and willing to make a change
- Develop effective coaching techniques and create incentives that spark healthy living

- Create wellness programs that are effective and contain costs

A key component to offering a successful wellness program is targeting individuals who are at risk or want to improve/maintain a healthy lifestyle. *Integrating Wellness into Your Disease Management Program* will deliver cost-effective methods to identify the best candidates for wellness incentives through health-risk assessment surveys.

Ensure that your disease management program or health plan remains on the cutting edge of this important trend and offers competitive programs that will satisfy employers and employees. You can build a successful wellness curriculum, and *Integrating Wellness into Your Disease Management Program* can show you how.

To purchase your copy, visit www.hcmarketplace.com/prod-6319.html or call 877/727-1728.

Prenatal care and substance abuse treatment

Bringing programs together improves results

Integrating substance abuse treatment with prenatal visits brings positive results to maternal and newborn health, according to a study published June 26 on the online *Journal of Perinatology*. The study, “Substance Abuse Treatment Linked with Prenatal Visits Improves Prenatal Outcomes: A New Standard,” reviewed Kaiser Permanente’s Early Start program—an obstetric clinic-based prenatal substance abuse treatment program that tests all expectant mothers for drug use.

Nancy C. Goler, MD, regional medical director of the Early Start program for Northern California at Kaiser Permanente Medical Group in Vallejo, CA, and coauthor of the study, says testing for drug use should be as routine as treating diabetes. “[Testing] needs to be universal and as nonjudgmental and nonpunitive as possible,” says Goler.

The study authors tracked nearly 50,000 women who completed prenatal substance abuse screening questionnaires, had urine toxicology screening tests, and live births or intrauterine fetal demises (IUFD).

The women were separated into the following four groups:

- ▶ SAT—Women who screened/assessed positive and were treated by Early Start
- ▶ SA—Women who screened/assessed positive without treatment
- ▶ S—Women who screened positive
- ▶ The control group—Women who screened negative

The results showed that:

> *continued on p. 8*

Few pregnancy programs tackle drug/alcohol use

Premature birth rates continue to rise, and one reason is drug and alcohol abuse. Yet there are still few treatment programs for expectant mothers with addictions.

Rose Bemis-Heys, executive vice president of strategic development at The Assist Group in Irvine, CA, says there is simply a lot of ignorance regarding the problem, and pregnant women using drugs fear discovery and repercussions.

Bemis-Heys says she would like to see programs that help drug-addicted new mothers get treatment so they may keep their baby and have a better opportunity to raise a healthy child.

Drug abuse is now viewed as less of a lifestyle choice and more of a medical problem due partially to research showing chronic damage in the brain caused by drug use. There are currently few treatments (except methadone for opioid withdrawal) to help expectant mothers handle these mental issues and drug withdrawal.

For those looking to create programs tackling this problem, **Nancy C. Goler, MD**, regional medical director of the Early Start program for Northern California at Kaiser Permanente Medical Group in Vallejo, CA, says, “I think when you

are creating a program such as this, one thing to keep in mind is that this is a very sensitive topic, and you need to have the education up front to your staff and your providers, and you really need the education around the fact that substance abuse and pregnancy crosses across all ages and ethnicities.”

Bemis-Heys says care providers and companies looking to reach out to expectant mothers with drug and/or alcohol problems need to use “readiness to change” and “motivational interviewing” motivational models. A healthcare provider should not preach to the women or try to make them feel guilty.

Bemis-Heys says the women know they are not doing the right thing, and making them feel guilty won’t resolve the issue.

“The best model seems to be to involve and engage the woman and her decision-making process, and ask her what her goals are, and if she is ready to quit, provide her with treatment options” Bemis-Heys says. “It’s not about education; it’s about motivation and individualized care based on each woman’s needs.”

Prenatal care

< continued from p. 7

- SAT women had similar or slightly higher rates than the control group for most outcomes, but significantly lower rates than S women
- SA women generally had intermediate rates to the SAT and S groups
- The S group had significantly worse outcomes than the SAT group, including preterm delivery, placental abruption, and IUFD

(For more information about the results, see “Adjusted odds ratios for neonatal and maternal outcomes by study group” below.)

“The women and babies served by Early Start are healthier; therefore, the impact of the program reaches beyond them to also positively influence the health and well-being of the community at large and, consequently, must also be considered from a public health perspective. The results of this study reflect the importance of widespread implementation of this model of care as a national standard,” the authors wrote.

Cigarette, alcohol, and drug use by mothers have long-lasting health effects on a child’s health and development and create more health-related costs in the long run. The Centers for Disease Control and Prevention (CDC) reports that smoking before and during pregnancy is the most preventable cause of illness and death among mothers and infants.

In fact, babies born to women who smoke during pregnancy have an approximately 30% higher chance of being premature, are more likely to be born with low birth weight, which increases their risk for illness or death, and are more likely to die of sudden infant death syndrome.

Women who smoke during pregnancy are nearly twice as likely to experience premature rupture of membranes, placental abruption, and placenta previa during pregnancy, according to the CDC.

Use of drugs during pregnancy, such as marijuana, cocaine, and amphetamines, can cause low birth weight, premature birth, birth defects, and learning and behavioral problems. Mothers who drink alcohol during pregnancy

Adjusted odds ratios for neonatal and maternal outcomes by study group

	Study group			
	Odds ratios* (95% CI)			
	Screened positive, assessed, and treated (SAT) (reference)	Screened positive and assessed (SA)	Screened positive only (S)	Controls (screened negative)
Neonatal-assisted ventilation	1	1.4	2.2	0.8
Low birth weight <2,500 g	1	1.2	1.8	0.7
Preterm delivery <37 weeks	1	1.2	2.1	0.8
Neonatal ICU admission	1	1	1.4	0.6
Infant rehospitalization within 30 days from birth hospitalization	1	0.6	1.4	1.2
Infant emergency department visit within 180 days of discharge from birth hospitalization	1	1	0.9	0.9
Placental abruption	1	1.3	6.8	1.1
Preterm labor	1	1.1	0.7	1
C-section	1	1.1	0.7	1
Intrauterine fluid demise	1	2	16.2	1.5

* Estimated from logistic regressions, controlled for maternal age, ethnicity, and prenatal care.

Source: “Substance Abuse Treatment Linked with Prenatal Visits Improves Perinatal Outcomes: A New Standard,” *Journal of Perinatology*, June 26.

can cause physical and mental birth defects, according to the March of Dimes, a national agency that looks to improve the health of babies. And there are many women who partake in risky behavior when pregnant. The American Pregnancy Association reported that each year:

- 820,000 women smoke cigarettes while pregnant
- 221,000 women use illicit drugs during pregnancy
- 757,000 women drink alcohol while pregnant

“It is time for our nation to look at the issue of substance abuse in pregnancy with a nonjudgmental, coordinated, effective intervention that all pregnant women can easily access,” wrote the authors.

Early Start

Kaiser Permanente’s Early Start program is part of its prenatal care program. Piloted in 1990, the program is used in all 40 outpatient obstetric clinics at Kaiser Permanente and screens nearly 40,000 women annually.

The program has three components: an Early Start specialist, who is a licensed substance abuse expert in the OB/GYN department; universal screening of all women for drugs and alcohol by questionnaire and, with signed consent, by urine toxicology testing; and education of all providers and patients about the effects of drugs, alcohol, and cigarette use in pregnancy.

Goler says the universal screening eliminates potential biases and stigmas. In regard to drug and alcohol use screening, she says, “I think you need to make it universal more than anything else. It needs to be universal so all women are screened equally.”

Potential Early Start patients are found through the questionnaire, clinical referral, self-referral, and positive urine toxicology screen results.

Those who are identified as being at risk of using alcohol, tobacco, or other drugs during pregnancy are referred to the on-site specialist, who is a licensed clinical social worker or marriage and family therapist. The specialist conducts a psychosocial assessment of the patient. The counselors use motivational therapy, cognitive/behavioral therapy, and psychodynamic therapy as techniques to reach out to patients at risk of using substances.

Goler says having the specialists on-site allows a physician to simply walk down the hall to talk to the behavioral expert if there is a potential issue with a patient.

“The ready availability of the Early Start Specialist, who specializes in both pregnancy as well as substance abuse treatment and maintains a practice in the Women’s Health Clinic, affords women easy access to the program by removing both the physical and emotional barriers that can be overwhelming during pregnancy. The coordination of care between mental health and obstetric professionals enhances the service delivery model for addressing substance abuse in pregnancy,” the study authors wrote.

Goler says Kaiser Permanente’s prenatal model is cost-effective and significantly decreases negative birth outcomes as well as maternal morbidity.

ROI wasn’t part of the study, but the authors wrote that an internal business care cost analysis for Early Start resulted in a 30% ROI. ■

Substance use risk factors by study group

	Study group (%)		
	Screened positive, assessed, and treated (SAT) (n = 2,073)	Screened positive and assessed (SA) (n = 1,203)	Screened positive only (S) (n = 156)
Weekly/daily since pregnancy			
Alcohol	6.6	7.2	4.5
Methamphetamines	1.3	1.7	1.3
THC	14.7	8.9	5.1
Cocaine	0.7	0.1	0
Heroin	0.3	0	1.3
Cigarettes	26.6	22.1	16.7
Weekly/daily before pregnancy			
Alcohol	33.1	33.9	17.3
Methamphetamines	5.7	4.6	1.3
THC	34	28	12.2
Cocaine	1.5	0.8	0.6
Heroin	0.5	0.2	1.3
Cigarettes	54.1	47.7	30.1

Source: “Substance Abuse Treatment Linked with Prenatal Visits Improves Perinatal Outcomes: A New Standard,” *Journal of Perinatology*, June 26.

Five questions with ... Keith R. Dunleavy, MD



Editor's note: Keith R. Dunleavy, MD, is president, CEO, and corporate director at MedAssurant, Inc., a Bowie, MD-based provider of healthcare quality, care management, and verification systems.

Dunleavy is responsible for the overall execution of the company's business plan, expansion of strategic relationships, and the identification and realization of company product strategy and vision. Below, Dunleavy discusses patient medical data and what is needed to drive improvements in that area.

DMA: Describe your company and its offerings.

Dunleavy: Formed in 1998, employing approximately 1,600 personnel, and headquartered in Maryland, MedAssurant, Inc., is a medical informatics service provider focused on the importance of healthcare data and its ability to drive dramatic, objective improvements in clinical and quality outcomes, care management, and financial efficiencies throughout the healthcare community.

MedAssurant's solutions are empowered by proprietary healthcare data sets, abstraction, and analysis capabilities, and a national infrastructure of leading-edge technology and clinical personnel.

In partnership with many members of the healthcare community, MedAssurant provides local, regional, and nationwide health insurance plans, hospitals, pharmaceutical companies, regulatory bodies, government organizations, physician organizations, and their many coveted patients with powerful turnkey solutions to address matters of clinical outcomes analysis, quality of care, cost improvement, risk adjustment, DM, utilization, and healthcare data verification.

DMA: How does improved patient medical data improve outcomes?

Dunleavy: Seemingly countless studies have shown that comprehensive, accurate, and timely healthcare

data positively affect patient outcomes. Yosef Dlugacz, PhD, director of the Julienne and Abraham Krasnoff Center for Advanced Studies in Quality and a supervisor of the development of many best-practice quality standards applied by The Joint Commission (formerly JCAHO) to the entire healthcare industry, has documented well the role of access to quality medical data to assess, monitor, and improve care, verify application of evidence-based medicine, eliminate communication gaps, achieve consistent integration of care, promote collaboration among providers, optimize financial performance, and improve safety for individual patients and across systems.

Chaudry et al reviewed the evidence of the effect of the application of health information technology on healthcare quality and efficiency and, in so doing, demonstrated improved adherence to published guidelines, increased surveillance and monitoring, fewer medication errors, and decreased utilization of care.

As would be similarly expected, the work of several authors (such as Peter Smith and Darryl McDonald) has supported a link between poor electronic data quality and medical errors, as well as overall substandard care.

Further, in numerous studies, Bates et al have argued that quality information technology can improve individual patient safety, improve access to reference information, enable smart patient monitoring to allow early recognition of trends indicating clinical decompensation, and identify and track the frequency of adverse events.

Beyond studies performed specifically regarding the effects of patient healthcare data, clinical practice experience reveals that the diagnosis and care management of a patient is highly dependent on the availability of data.

Knowledge about a patient's past medical history, active issues, medications, laboratory results, procedures, idiosyncratic presentations, and a landscape of additional data points greatly assists the care provider in its determination of ailment, intervention, and follow-up.

As a physician, knowing the fact that a patient who is about to be seen had a particular study performed one week earlier (a fact that many patients unfortunately have been shown to not always accurately recount) can enable the implementation or adjustment of a care plan in a more timely fashion as well as the avoidance of unnecessary redundancy of testing and follow-up.

Similarly, knowing the absence of a pertinent test (e.g., a sentinel monitoring blood level lab) can prove enormously beneficial in avoiding complications (e.g., liver toxicity secondary to specific medications) and achieving clinical goals (e.g., normalized blood sugar values as reflected in HgbA1c levels).

DMA: What is needed to drive those improvements?

Dunleavy: The successful application of healthcare data to improving quality outcomes and the benefits of utilization and financial efficiency requires several primary achievements. The following are a few that are believed to be vital.

Under the premise of medical data serving as a critical key to healthcare improvement, the first is a better understanding of the issues (or limitations) of traditional healthcare data concepts:

- Administrative data are not a complete reflection of the patient's whole disease and comorbidity history or status
- Identifying what is pertinent to know with respect to specific healthcare initiatives is dramatically more important than achieving and providing mass data for data's sake
- The codified reflection of medical disease and comorbidity status continues to be an imperfect process, riddled with the complications of necessary translations

to numerics that are designed to be an artistic interpretation and reflection of a patient's condition

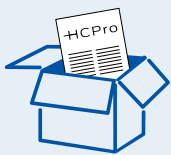
- The ability to identify, target, and ultimately capture missing data, which is known to be pertinent (or at least predictably expected to be pertinent), is in fact critical
- Broader and more timely access solutions, feedback loops, and reiterative improvement processes must be applied to today's healthcare data sets

The second primary requirement becomes the ability to effectively apply healthcare data.

Although seemingly an obvious requirement, many initiatives do painfully little with valuable components of already available healthcare data. As such, specifically in the realm of DM, these issues include:

- Improving the success rate of being able to identify patients with disease or at risk for disease of relevance. Today, most DM programs use terribly simplistic patient identification algorithms, thus requiring patients to blatantly present with disease before the program will successfully identify the patient and intercede.
- Improving patient stratification. Currently, most DM programs are overly simplistic in stratification, succumbing to a severe, moderate, or mild approach.
- Improving engagement through greater granularity of insight. Today, most patients are approached with generic messages, nonpersonalized to their specific conditions or course, thus impeding buy-in by the patient and, therefore, the necessary behavioral change that is sought.
- Improving care management interventions through greater intelligence of process. Empowered by greater data granularity and timeliness, systems must draw more effective intervention conclusions—taking into consideration a much broader array of available information, such as compliance indicators, patient-specific disease process trend, and historical complications to guide medications—instead of disease and immediate cost data alone.

Relocating? Taking a new job?



If you're relocating or taking a new job and would like to continue receiving **DMA**, you are eligible for a free trial subscription. Contact customer service with your moving information at 800/650-6787.

> *continued on p. 12*

Five questions

< continued from p. 11

With healthcare data more aptly understood and better used to drive empowering care improvement solutions, a third requirement—one of results and impact transparency—becomes relevant.

Results and impact transparency are critical to adoption of care management and healthcare improvement solutions.

Although the downside of this requirement falls into the “no good deed goes unpunished” category (as some health systems may quickly identify flaws in outside solutions, not realizing that the system may provide a dramatic improvement over the health system’s internal capabilities, which have gone unmeasured), it is a critical step to broader adoption.

DMA: How can DM companies and health plans address the rising role of patient-specific healthcare data?

Dunleavy: DM companies can address the rising role of patient-specific healthcare data with open arms.

The benefit that a greater utilization of patient-specific data can bring is felt by all parties within the healthcare system—the patient, the provider, the payer, and the solutions vendor. The critical matter will be the necessary evolution from the past landscape of inadequate utilization of limited-benefit administrative data to one of advanced analytics applied to what MedAssurant refers to as a “superset” of patient healthcare data.

DMA: What do you predict for the DM market during the next two or three years?

Dunleavy: We believe that a significant shake-up is under way in the DM marketplace.

Entrenched models built upon only limited patient-specific granularity, and technology utilization has been met with limited engagement and limited effect. As a result, there is a stirring backlash by the payer marketplace.

Further, many clients of DM services feel that this limited effect has also been shrouded in a limited transparency within programs and a general reluctance to provide more thorough and more frequent measurement and analysis.

Ultimately, DM is a high-touch process and should garner greater—not less—visibility into member status and trends. The intervention should be able to demonstrate clear ROI sooner. And the data gathered should be available to all parties within the healthcare system—improving availability to pertinent data, decreasing unnecessary utilization, and gaining benefits of error feedback and resolution.

We see this creating a market demand for more intelligent systems, driven by more granular analysis and intervention, and wrapped with a greater transparency of process and outcomes measurement. ■

DMA Subscriber Services Coupon				
<input type="checkbox"/> Start my subscription to DMA immediately.				
Options	No. of issues	Cost	Shipping	Total
<input type="checkbox"/> Print & Electronic	12 issues of each	\$399 (DMAPE)	\$24.00	
Order online at www.hcmarketplace.com . Be sure to enter source code N0001 at checkout!		Sales tax (see tax information below)* Grand total		
For discount bulk rates, call toll-free at 888/209-6554.				
		*Tax Information Please include applicable sales tax. Electronic subscriptions are exempt. States that tax products and shipping and handling: CA, CO, CT, FL, GA, IL, IN, KY, LA, MA, MD, ME, MI, MN, MO, NC, NJ, NM, NY, OH, OK, PA, RI, SC, TN, TX, VA, VT, WA, WI, WV. State that taxes products only: AZ. Please include \$27.00 for shipping to AK, HI, or PR.		
		Your source code: N0001 Name _____ Title _____ Organization _____ Address _____ City _____ State _____ ZIP _____ Phone _____ Fax _____ E-mail address (Required for electronic subscriptions) <input type="checkbox"/> Payment enclosed. <input type="checkbox"/> Please bill me. <input type="checkbox"/> Please bill my organization using PO # _____ <input type="checkbox"/> Charge my: <input type="checkbox"/> AmEx <input type="checkbox"/> MasterCard <input type="checkbox"/> VISA <input type="checkbox"/> Discover Signature _____ (Required for authorization) Card # _____ Expires _____ (Your credit card bill will reflect a charge to HCP Pro, the publisher of DMA.)		
Mail to: HCP Pro, P.O. Box 1168, Marblehead, MA 01945 Tel: 800/650-6787 Fax: 800/639-8511 E-mail: customerservice@hcpro.com Web: www.hcmarketplace.com				