Telemedicine Programs

Flourish in the DAA Era

By Rob Volansky
Advancements in digital technology developing concurrently with the advent of the direct-acting antiviral era has created an optimal set of conditions for telemedicine programs in HCV to flourish. Video communication is becoming more freely available worldwide. Current HCV drugs are relatively easy to use. HCV experts are no longer needed to administer year-long interferon-based regimens or manage adverse events. In all likelihood, an increasing number of patients — mainly those in remote or rural areas, but also, possibly, those closer to major academic centers — will be seen by video conferencing. Whether this will translate to dramatically improved outcomes or significant cost and resource savings, however, remains to be seen.

Sanjeev Arora, MD, MACP, of the University of New Mexico Health Sciences Center, believes so. Arora is the mastermind behind Project Extension for Community Healthcare Outcomes (ECHO), arguably the most comprehensive telemedicine program in the world. He laid out a bold agenda for Project ECHO, which began at the University of Mexico, in an interview with HCV Next.

“We have set a goal to touch the lives of 1 billion people by 2025,” he said. “To do that, we have had to spread.”

He said the program branched out from HCV — Arora’s original focus—to cover several health care specialties, from endocrinology to mental health disorders. The project has also expanded geographically. “To get to a billion, we knew that we couldn’t do it at just the University of New Mexico. There are now close to 60 academic hubs doing the program at universities in the U.S. and 113 around the world. More than 200 centers have signed agreements.”

Project ECHO is now in 22 countries. In many places, they are partnered with HIV programs. “To speed up progress toward our goal, we have created seven super hubs to resume the responsibility of teaching other hubs how to do ECHO,” Arora said.

Andrew H. Talal, MD, professor of medicine and director of the Center for Clinical Care and Research in Liver Disease at the Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo in New York, is directing a telehealth project to bring HCV care to patients with substance abuse issues. “I have much respect for Dr. Arora’s work, but what we do here is a niche that would not necessarily fit the ECHO mold,” he said. “Theirs is a tele-mentoring program where physicians come together to discuss cases in a large forum. We are dealing with a very specialized population. We take a narrower approach, but one that is much needed.”

Talal was recently named principal investigator on a 5-year award from the Patient-Centered Outcomes Research Institute (PCORI) to compare telemedicine-based HCV treatment to usual care for patients on opiate agonist therapy.

HCV NEXT explored cost-associated components of telehealth programs, big and small, along with the role of evolving technology in executing long-distance HCV care, the nature of programs in other parts of the world and the impact these programs are having on both provider and patient satisfaction.

Connecting Patients, Providers

The theory behind the program is simple, according to Arora. “What we found was that for underserved patients, there is a geographic maldistribution of specialists,” he said. “In fact, there is an overall shortage of HCV specialists in the world.”

The solution, too, is simple. Use video to mentor and train non-HCV experts in those areas to treat the disease by building a community of practice in which the primary care clinicians learn from academic specialists and from each other. Over time, primary care clinicians become experts and need the specialists less and less. The result is an exponential growth in the capacity to treat HCV, Arora explains. Outreach programs are teaching primary care providers, nurses, addiction specialists and other health professionals to care for patients with HCV.

While ECHO has largely been an overwhelming success, important obstacles still exist, according to Lauren A. Beste, MD, assistant professor in the Division of General Internal Medicine at the University of Washington School of Medicine, associate program director of the VISN20 VA-ECHO Hepatology Program and director of Hepatitis, HIV, and Related Conditions Data and Analysis Group at the Office of Patient Care Services. “The biggest drawback is that it takes a lot of legwork and time to set
up and maintain programs like this,” she said. “Also, we don’t know yet whether it is cost-effective in the long run.”

Julia Chisholm, PharmD, panel expert for the University of Missouri Show-Me ECHO hepatitis C telehealth clinic, noted another drawback. “Resistance from payers to reimburse for telemedicine visits is also another barrier,” she said.

A training program like ECHO can save time for busy clinicians. Once they learn the skills, they can treat patients more efficiently. But Talal offered a counter-argument. “Our providers, who are often addiction specialists at methadone clinics, are already over-burdened,” he said. “This will be just one more thing they have to worry about.”

There are also legal liability issues to be considered, according to Talal. “We are dealing with 12 methadone clinics throughout New York State,” he said. “In our pilot study, methadone and DAA therapy were administered simultaneously, which we are now replicating statewide. Some of the clinics expressed concern about medication adverse effects and potential liability. Through staff education, we have enabled many clinics to feel comfortable with medication co-administration. However, some of these places don’t want to assume that responsibility, which is understandable.”

That said, many clinics have physicians on staff who might be more comfortable administering drugs. “The ones who adopt the program recognize that they are already distributing methadone,” Talal said. “They are simply taking on a new medical service and adding to their repertoire.”

Some insurance providers, including some state Medicaid organizations, still have requirements for prescribing, according to Talal. “It is necessary for a gastroenterologist, hepatologist or ID specialist to administer HCV drugs,” he said. “The person conducting the telehealth visit needs to be credentialed” in these cases.

It is uncertain whether these laws will change, or how, as DAA therapies become more widely available.

A final concern is that some non-HCV experts might feel uncomfortable assessing liver disease, diagnosing liver cancers or recommending patients for transplantation.

“Andrew H. Talal, MD

(Patients) recognized that it’s not necessarily how care is delivered, but the content of the care.”

Non-HCV Expert Providers

Arora acknowledged that novel HCV therapies make it easier for non-specialists to treat patients. “But this does not take away the need for programs like ECHO,” he said. “[Many] doctors still choose not to treat HCV because they don’t have the self efficacy to assess severity of liver disease or navigate the maze of guidelines. Many primary care providers are willing to make this diagnosis, but they don’t feel competent to treat.”

Lloyd and colleagues created a nurse-led model of care for inmates with HCV in three correctional facilities in Australia. Though small, the study results indicated that 28% of inmates began treatment, of which 79% underwent triage for specialist review conducted in a telemedicine setting. The serious adverse event rate was 12%, with 7% discontinuing. Among patients with full follow-up data available, the SVR12 rate was 69%. For the intention-to-treat analysis, the SVR12 rate was 44%.

VA-ECHO Data

A new study from Beste and colleagues identified 6,431 patients from 152 VA facilities. They aimed to determine treatment rates among patients receiving care from a primary care provider who was participating in a VA-ECHO project. The treatment rate among ECHO participants was 21.4%, compared with 2.5% among patients who were not exposed to an ECHO program.

The findings demonstrated that patients exposed to the program were significantly more likely to receive antiviral treatment than those not exposed (adjusted HR = 1.2; 95% CI, 1.1-1.32). Other findings indicated that 37.9% of VA users live in areas unreached by specialty medical care. The SVR12 rate for patients in these areas treated by primary care providers working in telemedicine programs was 58.2%, compared with 53.9% for patients not exposed to these programs. Similar treatment durations were reported for patients treated by primary care providers as those treated by HCV specialists.

“VA-ECHO potentially benefits any patients who have barriers that complicate getting in to see specialists, like living in a rural area,” Beste said. “Our results showed that VA-ECHO shortened the time to hepatitis C treatment, without compromising treatment efficacy compared to traditional services.”

Beste said that primary care providers have embraced the program. However, it is not without its complications. “It would also be great to better understand the patient’s experience of telemedicine to make sure that it is truly as Veteran-centered as we hope,” she said.
“This nurse-led and specialist-supported assessment and treatment model for inmates with chronic HCV offers potential to substantively increase treatment uptake and reduce the burden of disease,” the researchers concluded.

There are a few concerns with non-HCV experts treating the disease, according to Arora. “The first is that very few providers are willing to treat without some sort of support,” he said. “In addition, if they are unable to assess accurately for cirrhosis of the liver, they may not be familiar with the recommendations for cancer screening. They don’t know the guidelines well, so they choose not to do it. But when we mentor them they become experts quickly.”

At Beste’s facility, the team includes specialists, primary care providers, psychologists, pharmacists and others. “Each profession brings its own areas of expertise to the program,” she said. “For example, as a general internist by training, I can easily understand some of the issues our primary care providers in the field deal with and I tend to have a broad appreciation for the big picture of the patient’s health. However, I don’t hesitate to lean on my inter-professional team members regularly for tricky clinical questions.”

**Provider Satisfaction**

The collaboration among colleagues that Beste alluded to earlier benefits both the patients and the providers. “The inter-professional faculty learn a lot from each other, which is part of the beauty of having an inter-professional team,” she said. “As long as a VA-ECHO program leader has access to the clinical support he or she needs, then the program can certainly be led by a non-specialist.”

Salgia and colleagues looked closer at the educational benefits of telemedicine programs. They surveyed 51 primary care providers to gain further understanding of why they chose to participate in the Specialty Care Access Network (SCAN) ECHO program. They received 24 responses. Three-quarters of the cohort had participated more than once in a SCAN-ECHO clinic, according to the results. A desire to learn more about liver disease was a key motivating factor, along with a desire to apply the knowledge in future clinical situations and the hope of saving patients travel time and expenses. A didactic component also was important, as were the case-based discussions. The results showed that participation changed clinical practice, with 75% of providers noting that they had discussed their new information with colleagues. Also, 42% indicated that they could help a colleague improve patient care.

“Just putting a specialist on camera doesn’t necessarily solve all problems,” Arora said. “We want to exponentially improve the capacity to treat by training people to treat HCV as well as we do.”

**Patient Satisfaction**

As more providers become more adept at treating, more patients can receive care. “The wait in my clinic fell from 8 months to 2 weeks,” Arora said. “This is a big benefit for patients.”

A pharmacist-led telemedicine clinic established in 2011 to serve remote areas of Southern California was the subject of one study. Results of the small cohort indicated that patients were equally satisfied with their telemedicine visit as with visits to the clinic in Los Angeles. No patients were less satisfied with their telemedicine experience than with an in-person visit. Other findings showed that 82% would prefer future HCV visits to be conducted via telemedicine, while 78% would prefer this approach for any disease state management.

Talal suggested that patients like the opportunity to have a specialist see them, regardless of the format. “A lousy doctor will be a lousy doctor in person or on a video screen, and a good doctor is a good doctor,” he said. “Most patients intuitively know this.”

Beste agreed. “Patients get a more comprehensive assessment of their problem,” she said.

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“Telemedicine ... is one more tool in the toolbox to get care to patients who otherwise might go without care.”

Lauren A. Beste, MD

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**Preserving Resources**

Chen and colleagues conducted a study in Taiwan that included 298 patients randomly assigned one of two support programs. The first group consisted of 150 patients offered a public health nurse consultation at an outpatient clinic, while the second group included 148 patients offered a telehealth program with 24-hour consultation services from a main communication center. All patients underwent standard therapy and were followed through 72 weeks, according to the results. Both
groups demonstrated normalization of serum biochemistry. The patient compliance rates were 88% for the nurse-led group and 94.6% for the telehealth group. Dropout rates were 12% in group one and 5.4% in group two. The first group cost $232,632, vs. $112,500 for the second group.

“Without the added time and travel expense, providers are able to learn new skills and offer additional disease state management that they would have had to send to a specialist, possibly many miles or counties away,” Chisholm said. “Collaboration and connection among providers via telehealth opportunities offered through ECHO are definitely cutting edge. Telemedicine eliminates many of the traditional barriers facing providers in rural areas.”

Chisholm views the savings of time as a way to save money. “As a health care provider, I can join a virtual meeting room and be connected with several peers and subject matter experts,” she said. “Without telemedicine as an option, the busy schedules of health care providers would severely limit the ability to learn about new disease states or the newest research and trends in health care.”

This clearly benefits patients, as well. “Patients may also be too sick to leave their home or not have reliable transportation,” Chisholm said. “A telemedicine visit can meet the patient right where they are, at any time of day and in any weather condition.”

Talal built on this point. “By decreasing the time away from work, we are actually increasing, or at least maintaining, the productivity of our patients,” he said. “One of the reasons our patients like the one-stop shopping of getting methadone and their HCV meds together is that it’s less time away from their jobs or whatever other responsibilities they have.”

**New Technology**

Schulz and colleagues audited 120 refugee and immigrant patients attending a telehealth clinic in Australia. The study was an attempt to examine technical challenges and performance of videoconferencing solutions. Not all patients had HCV, but these patients were strongly represented. Technologies included VIDYO, GoToMeeting or Skype. One-quarter of consultations involved technical issues that primarily consisted of audio problems or dropped connections. The researchers suggested that a bandwidth of at least 512 kbps and latency of no more than 300 ms was necessary for adequate videoconferencing. A benefit of this program was that nearly 500 km of travel and 127 kg of CO₂ production was saved for each consultation. “Telehealth will be improved by changes to improve simplicity and standardization of videoconferencing, but requires ongoing Medicare funding to allow sufficient administrative support,” the researchers concluded.

“In my experience, lack of technology has not been a major barrier in the implementation of VA-ECHO programs,” Beste said. “At my facility, it took us several iterations to settle on the format we wanted to use because we had to balance user-friendliness with software features, system bandwidth and other factors. We found what works best is a fairly simple setup with standard videoconferencing software, delivered either via a PC with a webcam, or via a smart board monitor. We have experimented with a variety of fancier technologies, such as virtual meeting rooms, but we have found that simple works best.”

Arora uses a program called Bloom. “As broadband becomes more available over the world, we are developing technology to aggregate data from around the world and incorporating it into the experience,” he said. “A lot of providers with 3G or 4G networks participate on their smartphone.”

For Talal, tablets and smartphones are critical to the future of telemedicine. “These devices are allowing us to see patients in almost any setting,” he said. “They facilitate the possibility of interaction at home, in the office or in any kind of health care setting. Expansion of broadband is allowing people who didn’t have access before to see a specialist.”

While Arora acknowledged that high-definition video interfacing is important to a good teleECHO clinic, it is important to think beyond the technology. “It’s about knowledge, but also about relationship building,” he said. “When the video works, and is more freely available, we will be able to train more clinicians to become experts and more patients will benefit.”

Chisholm offered a practical point. “Clinicians are experts in their field, but not necessarily in the latest technology,” Chisholm said. “The telemedicine program at the University of Missouri is run by a dedicated staff of IT experts. Technical difficulties can always arise, but having tech support on the call makes all the difference.”

It is important to recognize regional challenges with technology, according to Talal. “In rural areas, it is critical to build on the infrastructure used by rural cooperatives to promote telephone and electricity use in the last century to get broadband in there now,” he said. “A lot of places in this country still don’t have internet access. New technology is only as strong as the ability to get it to patients who need it.”

Talal noted that in urban areas, the challenge is not one of infrastructure but of cost. “In urban areas, we need to make sure that it’s cheap enough,” he said. “We need children to be able to use tablets and laptops in school, and we need patients to be able to afford broadband for health care visits.”

**Global View**

Mashru and colleagues conducted a study in Northwestern Ontario, a large geographical area in which 32 remote First Nations communities live, frequently without road access. The Division of Infectious Diseases at the Ottawa Hospital and the Sioux Lookout Meno Ya Win Health Centre established a telehealth program in July 2014. In the first year, 191 teleconsultations occurred, which comprised 76 initial
consultations, 82 follow-ups and 33 case conferences, according to the results. The program involves patients with a cross-section of infectious and other complications, one of which is HCV. The researchers report high levels of patient satisfaction, even among 28 patients in some of the most remote areas of the province.

“In the past, it was easier to conduct evaluations and use services,” he said. “If the Affordable Care Act is going to be reformed, hopefully meaningful reforms will be applicable to telemedicine.”

Moving Forward
Arora noted that in December 2016, an ECHO Act was signed by President Obama. “It passed in the U.S. Senate 97-0 and was passed by the House of Representatives, as well,” he said. “The challenge now is to create sustainability for ECHO. We need to think of it as a way of doing business, which includes identifying permanent funding streams.”

As for the new administration, Arora remains optimistic. “The methods of the new administration are different than the previous administration, but the goal is the same: better return on investment,” he said. “A better patient experience, with higher quality of care, better access to care, a lower cost of care. ECHO has the potential to deliver all of these things.”

Talal added that support for telemedicine is usually bipartisan largely because many traditionally Republican-leaning states contain large rural areas with underserved populations who could benefit from access to medical treatments via telemedicine. “Telemedicine laws need to make it easier to conduct evaluations and use services,” he said. “If the Affordable Care Act is going to be reformed, hopefully meaningful reforms will be applicable to telemedicine.”

Chisholm brought the issue back to the doctor–patient relationship. “Patients should always remain the focus and center of all health care advancements,” she said. “Telemedicine is a fantastic way to engage technology savvy individuals that are interested in connecting with their health care provider.”

“Anything that we can do to change and improve the dynamics of where and how we deliver care, we should be doing,” Talal added. — by Rob Volansky

References:

For more information:
Sanjeev Arora, MD, MACP, can be reached at 1 University of New Mexico MSC 07 4245, Albuquerque, NM 87131; email: SArora@salud.unm.edu.
Lauren A. Beste, MD, can be reached at VA Puget Sound Health Care System, 1660 S. Columbian Way (S-111-GI), Seattle, WA 98108; email: Lauren.Beste@va.gov.
Julia Chisholm, PharmD, can be reached at One Ellicott Street, Suite 6089, Buffalo, NY 14203; email: ahatalal@buffalo.edu.
Andrew H. Talal, MD, can be reached at the Clinical and Translational Research Center, 875 Ellicott Street, Suite 6089, Buffalo, NY 14203; email: ahtalal@buffalo.edu.

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