

PROJECT ECHO – SPECIALIST TELEHEALTH FOR CHRONIC DISEASE

SUMMARY

An innovative model of specialist-GP collaborative care, incorporating telehealth technology and best practice, case-based education, known as Project ECHO, expands access to specialist-level care for chronic Hepatitis C infection and a wide range of other complex, chronic disease, to underserved rural and vulnerable populations in New Mexico, USA.

Hepatitis C, diabetes, asthma, HIV/AIDS, rheumatology, chronic pain, high risk pregnancy, paediatric obesity, substance abuse disorders, mental illness

THE EXTENSION FOR COMMUNITY HEALTHCARE OUTCOMES (ECHO) TELEHEALTH MODEL

Target population: rural, low income communities and prison populations who are underserved by specialist care for chronic disease. The majority (69%) of patients served by ECHO are from ethnic/racial minorities.

Location: University of New Mexico Health Sciences Center, USA

Date first implemented: 2008
(following pilot for Hepatitis C treatment in 2003)

Problems addressed:

- Poor patient access to specialist services in geographically isolated communities and prisons.
- Lack of rural GP expertise and specialist guidance in managing complex chronic disease
- GPs in rural and isolated areas have little opportunity to interact with colleagues or continue their medical education.
- Severe Hepatitis C (HCV) problem in New Mexico – prior to project ECHO, fewer than 1,600 patients had received treatment out of an estimated 34,000 with the disease. 40% of New Mexico's 6000 prison inmates were infected with HCV but none had received treatment. Barriers to care are steep in New Mexico – a high proportion of residents are of low-income and uninsured; approximately two thirds of New Mexico's population lives in rural areas, but two-thirds of physicians are located in urban areas; in 2004, rural patients had to wait up to 6 months for an appointment at the University of New Mexico HCV clinic and had to travel up to 400km.



An ECHO HCV "learning network" showing expert inter-disciplinary specialists and multiple community-based primary care providers collaborating via videoconference teleclinic to co-manage patient care.

Failure to receive needed specialist services; Rural, minority and prisoner patient groups with chronic complex disease, such as HCV infection, often fail to obtain the specialist healthcare they require due to various barriers including distance from major hospitals, financial, cultural and linguistic reasons. As a result, they frequently forgo treatment or wait until they have severe complications before seeking help – reducing quality of life and requiring expensive inpatient care.

Optimal management of Hepatitis C infection requires consultation with multiple specialty areas including gastroenterology, infectious diseases, psychiatry and addiction medicine. Few rural practitioners are confident to deal with treatment side effects, drug toxicities, treatment induced depression and comorbidities, including mental health issues and substance abuse, that are common among patients infected with HCV.

How it works:

The ECHO model consists of disease-specific 'learning networks' comprising a specialist team from the University of New Mexico Health Sciences Center and collaborative partners in the community. For example, the HCV specialist team consists of a hepatologist, a pharmacist, a psychiatrist and a nurse. The community partner sites include primary care centres, rural hospitals, and prisons. Learning networks meet weekly via videoconference to present, review and discuss cases in two-hour long teleclinics. These 'virtual grand rounds' are led by the University of New Mexico hospital team. The specialist team does not assume care of the patient – in fact they never meet any of the patients – the GPs retain responsibility for patient management, and care is co-managed with the specialists, who provide advice, clinical mentoring and the opportunity to discuss the patient many times during the course of the patient's care. For example, at the HCV teleclinic, case discussions may include clinical evaluations, screening for patient readiness for treatment, and periodic review of cases that are not treatment-ready to ensure appropriate linkage to other services. The rheumatology teleclinic guides GPs to treat rheumatoid arthritis in their communities, and has developed an effective triage system which helps determine when a patient needs to see a specialist. Most teleclinics require the community site team to complete and send a standard intake form to the project team at least 24 hours before the videoconference. These forms need not identify the patient, but include basic demographic information, current meds, relevant past medical history, lab results, pathology reports and radiological imaging. An agenda for case presentations is then emailed to participants in advance.

Primary care providers are equipped with web-based disease management tools to facilitate patient consults. As their knowledge and self-efficacy grows, GPs operate with increasing independence while the specialists gradually shift to a smaller consultative role to ensure patient safety and support GPs' confidence on an ongoing basis. Through this guided practice model, patients with chronic complex illnesses, such as Hepatitis C, are able to be treated in their home communities. A secure, centralized database monitors patient outcomes.

When a new partner site (a rural primary care practice or prison site, for example) joins the network, ECHO staff members conduct a one or two day, in-person orientation in Albuquerque. Primary care providers may include GPs, nurses, and physicians assistants. The orientation explains the hepatitis C treatment protocol, as well as the case-based presentation format of the telemedicine clinics, and the communications technology involved.

The teleclinics provide learning opportunities for primary care providers in 3 ways:

1. Case-based, iterative, 'learning by doing' - community providers learn the cost and benefits of best practice care first hand through seeing the impact on their patients, in a supported environment where patient care is co-managed by specialists.
2. GPs on the network who face similar challenges 'learning from each other' - through their social interaction and shared decision-making in case management. They come to rely on each other for expertise and support and develop a community of practice.
3. Short didactic presentations are given by ECHO specialists during teleclinics – 'learning from specialists'.

Participating providers can earn continuing education credits at no cost, as well as certification in treating diseases such as hepatitis C.

Project ECHO also trains community health workers to assist with appropriate patient groups – such as helping diabetic patients to make behaviour changes, or helping patients manage their substance abuse disorders. In prisons, ECHO trains inmates in this role as peer educators.

“We are even training prison inmates to be peer educators on substance abuse and on infectious diseases such as HIV, hepatitis C and sexually transmitted diseases.” – Sanjeev Arora

How effective is it?

A prospective cohort study published in 2011 (2) demonstrated that treatment for HCV infection via the ECHO telehealth model was as safe and effective as treatment provided at the dedicated HCV clinic of the University of New Mexico hospital. All patients studied received standard treatment for HCV between September 2004 and August 2008, according to the ECHO clinical protocol. Sustained virologic response, defined as an undetectable HCV RNA level 24 weeks after the end of treatment, was achieved in 58.2% of ECHO site patients (152 out of 261) and 57.5% of hospital clinic patients (84 out of 146 patients). There was no statistically significant difference in the cure rates at the university clinic and the ECHO community sites, which were also similar to the rates reported in licensing trials of peginterferon and ribavirin for the treatment of HCV. In addition, the ECHO sites showed a lower serious adverse event rate than at the university hospital (6.9% vs. 13.7%). **Evidence base rating:** moderate (limited size of study – 407 patients only).

Survey results published in 2010 show a statistically significant improvement in primary care providers’ professional satisfaction, self-reported knowledge, and self-efficacy after participating in the ECHO HCV teleclinics for 12 months or more. Clinicians reported a moderate-to-major benefit from participation.

In 2007, Project ECHO was selected out of 300 entries from 27 countries as the winner of the Changemakers Award, which is given by the Robert Wood Johnson and Ashoka Foundations in recognition of programs that are changing the paradigm of how medicine is practiced.

Scale of implementation:

Due to the success of the HCV treatment pilot, since 2008, Project ECHO has now expanded to include over 132 distinct specialty clinics, including; asthma and pulmonary disease; child, adolescent, and family psychiatry; chronic pain and headache; diabetes/cardiovascular risk reduction; high-risk pregnancy; HIV/AIDS; integrated addictions and psychiatry, medical ethics; occupational medicine; paediatric obesity; psychotherapy; rheumatology; palliative care; dementia care; and complex care. As of June 2011, over 1000 teleclinics had taken place, during which more than 10,000 patient consultations were provided by University of New Mexico specialists to the 298 community provider teams throughout the state. More than 20,000 hours of continuing education units (medical and nursing) have been issued to community-based primary care providers at no cost to them. ECHO Project staff have provided over 500 hours of training at rural sites, including the training of 75 community health workers for diabetes care, 20 for substance abuse management, and 136 prison peer educators, who provided education to more than 1600 inmates.

In June 2013, a plan for a new ECHO Institute, located at the University of New Mexico Health Sciences Center, was announced. Its focus is to spread the ECHO model across the U.S. and globally, and has signed an agreement with the Department of Defense to create a global chronic pain management program for the armed forces. Dr Sanjeev Arora, the liver disease specialist who created the ECHO model will lead the ECHO Institute.

BENEFITS OF THE ECHO TELECLINIC MODEL

- ❖ An inexpensive way to rapidly increase the provision of specialist care for complex, chronic illness in the community by leveraging scarce healthcare resources – instead of traditional ‘one-to-one’ telemedicine linking a specialist to a single patient, the ‘multiplier effect’ of a single specialist ECHO team partnering with numerous GPs can provide specialist-level treatment for thousands of patients.

- ❖ A way of deploying new and best practice protocols almost immediately throughout a community. Useful also in public health emergencies eg, during the 2009 H1N1 outbreak, the ECHO asthma team convened teleclinics for community hospitals on best practice ventilator practices and treatment regimes.
- ❖ Patients in rural communities and prisons are provided with high quality, specialty-level care where this was previously unavailable.
- ❖ Care remains with the local primary care centre, which is often the most culturally appropriate and accessible site for relatively low-income, minority patient groups. Community providers are best placed to establish and build on long-term care relationships with patients, provide tailored patient education and coordinate care, increasing the chances of treatment compliance and close follow-up.
- ❖ Reduced professional isolation; isolated/rural GPs are connected to colleagues and receive continuing education, support and motivation - factors which increase job satisfaction and workforce retention in rural areas where it is often difficult to keep clinicians.
- ❖ Improved local expertise; GPs develop knowledge and self-efficacy on a variety of diseases not usually considered within their scope of practice. Community providers become progressively more independent over time while remaining well-informed about best evidence, protocol changes and the latest research findings through the clinics and their didactic sessions. Variations in care are reduced.
- ❖ A strength of the model is how readily it is embraced by clinicians, facilitating successful implementation. Dr Sanjeev Arora, developer and director of Project ECHO, reports one of the most surprising findings of ECHO has been “how eager academic specialty physicians and primary care providers in remote areas are to work with each other”(1). Clinical turfism or other professional cultural barriers to implementation were not encountered in the Project ECHO experience.

“Specialists are keen to share their knowledge, help spread best practices, and work collaboratively in managing patients with chronic diseases. This has been immensely gratifying.” – S. Arora

OTHER EXAMPLES

While ECHO was developed and piloted in New Mexico where the primary barriers to care are socioeconomic and geographic, it is now being replicated at partner sites including the University of South Florida, the University of Utah, Beth Israel Deaconess Medical Center (Boston, MA) and the Institute of Liver and Biliary Sciences (New Delhi, India). In India, a program modelled on ECHO is training paediatricians on the early detection of autism and educating schoolteachers in best practice management of autistic children. A second program at the Maulana Azad Medical College in Delhi aims to improve access to HIV/AIDS treatment.

In 2009, ECHO was successfully extended to the Pacific Northwest of the US, where specialists at the University of Washington now run teleclinics in HCV, chronic pain, psychiatry, HIV/AIDS, and dermatology for populations in Washington, Wyoming, Alaska, Montana and Idaho.

In 2011, the University of Chicago was the first to implement the ECHO model in an urban setting. Teleclinics are used to train South Side (underserved, low socioeconomic neighbourhoods) primary care providers in treating hypertension, attention deficit hyperactivity disorder, and in managing care for breast cancer survivors.

In July 2012, The Department of Veterans Affairs (VA), which operates the largest integrated health care system in the USA, launched the first nationwide implementation of Project ECHO; the Specialty Care Access Network-Extension for Community Healthcare Outcomes (SCAN-ECHO). The original Project ECHO model has been adapted for use across a range of chronic conditions and is being piloted from eleven VA SCAN-ECHO centres, prior to system-wide expansion.

IMPLEMENTATION TIPS

Potential barriers to implementation	Mitigating steps
<p>Difficulty recruiting willing GPs onto the program – given the opportunity cost of time taken out of a busy workday on a regular (usually weekly) basis. Some GPs may not feel they have the time or capacity to participate in the program or to expand their scopes of practice.</p>	<p>Offer incentives eg, CME points.</p> <p>Schedule teleclinics at lunchtimes, or early, before opening hours, and limit length (this may depend on the type of clinic – number of cases discussed at the University of Washington teleclinics ranged from 2-3 per hour for chronic pain, HIV, addiction and psychiatric problems, to up to 15 cases per hour for HCV).</p>
<p>Reluctance of primary care providers to present cases – in the Washington experience, some participants felt intimidated by the number of experts attending; some GPs were too busy to prepare the case intake forms in advance of the teleclinic; and some felt there were simply too many expert opinions offered, some of which were contradictory.</p>	<p>Specialist(s) visits primary care sites and encourages clinicians to present cases to establish trust and open dialogue.</p> <p>Reduce the number of specialists on a learning network (no double ups).</p> <p>Continually seek feedback and work to make the case intake forms and discussions more concise, and ensure concrete recommendations are given to the GP before moving on to the next case.</p>
<p>Difficulty finding an appropriate location for videoconferencing equipment in primary care practices – in the Washington pilot, most sites installed the equipment in conference rooms or common areas such as kitchens. But it needs to be somewhere quiet, private (to allow confidential patient information to be discussed), with easy access to patient records.</p>	<p>Best and cheapest option is probably installing software on desktop computers in the GPs' offices, with webcam and microphone.</p>

RELEVANCE FOR WAITEMATA DHB

Although Waitemata DHB does not have the large rural or prison population of New Mexico, the model has been implemented in urban areas elsewhere (Chicago) and may offer benefits relevant to WDHB.

Goal alignment: reducing health inequalities; better, more convenient (community based) care for more patients; reduction in specialist outpatient waiting list; improved secondary-primary integration; upskilling GPs – ensures they work at the top of their scope and builds capability for the future; working smarter – use of community health workers/peer educators to assist in care delivery; getting better use out of specialist expertise (multiplier effect of teleclinic care).

Department suitability: chronic HCV treatment, diabetes, respiratory, chronic pain, rheumatology, psychiatry.

Implementation costs: videoconferencing equipment and suitable sites for clinics; additional staff required – to set up and service the IT and to train/orientate providers on site. Plus possible new roles of community health workers/peer educators to assist with lifestyle/behavioural changes for appropriate chronic illnesses.

Data measures:

- Disease specific quality outcome indicators
- Rates of acute hospitalisations, specialist clinic visits for that patient population before and after implementation.
- Patient satisfaction ratings
- Provider satisfaction and self-efficacy/improved competence ratings

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