Strategic Growth Plan and Capital Investment Offering

September 2013

Table of Contents

Executive Summary 2

Market Context and the Need for Project ECHO 9

Project ECHO Mission, History, and Theoretical Basis 14

Project ECHO Program Description and Success Factors 17

Project ECHO Organizational Structure 19

ECHO Operations, Impact, and Finances: New Mexico Clinics 22

ECHO Expansion Strategy and Goals: Replication 25

ECHO Expansion Strategy and Goals: Research, Data and Evaluation, and Policy and Advocacy 30

Finances: Capital Requirements and Use of Funds 34

Appendices

I. ECHO Financial Projections 37

II. ECHO Financial Projections Assumptions 39

III. Project ECHO Org Chart 41

IV. Future Staffing Table 42

V. ECHO Staff and UNMHSC Board Biographies 43

VI. Menu of Replication Resources 50

VII. Steps for Replication Implementation 55

VIII. Core Elements for Replicated ECHO Hubs 58

IX. Replication Projects Table 61

X. Big Data Chart 64

XI. Statement of Collaboration – Replication 65

XII. Terms of Use Contract 68

Executive Summary

Background

The University of New Mexico's Project Extension for Community Healthcare Outcomes (Project ECHO®) was founded in 2002 to help link university healthcare specialists with providers in rural and underserved areas in New Mexico. ECHO's goal is to provide improved care to patients who would not otherwise have economically viable access to the specialist knowledge resident within academic medical centers such as the University of New Mexico. ECHO provides best practice care for common and complex diseases and monitors outcomes for continuous improvement. Dr. Sanjeev Arora founded ECHO to treat hepatitis C cases in the state, and the project quickly extended to other disease areas with large patient populations that lacked sufficient specialist capacity. Today ECHO operates teleECHO clinics treating twelve disease areas and two innovative behavioral health and complex care delivery models, and serves patients throughout the state. ECHO also contributes to continuing medical education and professional development for dozens of medical professionals through its clinics.

Over the past decade, ECHO has demonstrated that care given to rural and underserved patients via the ECHO model is as effective as that given in a university clinic or Academic Medical Center (AMC) and reduces treatment and related costs for rural patients.[1] ECHO offers a proven method for treating complex diseases to achieve both improved health outcomes, but also significant economic benefits[2] to patients, providers, and stakeholders throughout the medical industry. As a result, AMCs and other institutions have approached

ECHO Divisions and Leadership

Division	Purpose	Leadership	Headcount
New Mexico Clinics	Operates 20 NM TeleECHO clinics	Recruitment underway	14 FTEs internal, plus UNM-HSC faculty facilitators
Research, Data and Evaluation	Develops software platforms, performs data collection and analysis	Dr. Summers Kalishman, Dr. Glen Murata	23 FTEs
Replication	Helps create new ECHO hubs worldwide	Erika Harding	4 FTEs
Policy and Advocacy	Raises ECHO awareness, works on policy initiatives	Dr. Sanjeev Arora	2 FTEs
Management and Administration	Performs strategic management, organizational and administrative functions	Dr. Sanjeev Arora, Dr. Karla Thornton, Dr. Miriam Komaromy	9 FTEs

[1] New England Journal of Medicine: Outcomes of treatment for hepatitis C virus infection by primary care providers. Arora S, Thornton K, Murata G, Deming P, Kalishman S, Dion D, Parish B, Burke T, Pak W, Dunkelberg J, Kistin M, Brown J, Jenkusky S, Komaromy M, Qualls C. [N Engl J Med. 2011 Jun 9;364(23):2199-207. Epub 2011 Jun 1.]

[2] AASLD, Hepatology (submitted June 2013, not yet accepted for publication): Cost-effectiveness of Hepatitis C Treatment by Primary Care Providers Supported by the Extension for Community Healthcare Outcomes (ECHO) Model. Wong J, Thornton K, Carroll C, Arora S.

ECHO to learn how to replicate its successful model in their own geographies and create new ECHO "hubs." Beginning with a new ECHO clinic at the University of Washington in the year 2009, the ECHO model has now been replicated at over 30 sites worldwide. ECHO-New Mexico receives several new inquiries from interested parties including AMCs, domestic and foreign governments, and large public-sector institutions each week. ECHO's vision is to spread its model for disease treatment worldwide, improving fundamental healthcare delivery systems by allowing patients in rural and underserved areas across the globe to benefit from specialist treatment.

Summary of the ECHO Model

ECHO is a disruptive innovation that allows access to the centralized wealth of specialist knowledge and skills found at a university setting. First piloted for the treatment of the hepatitis C virus (HCV) in June 2003, ECHO applies the inter-disciplinary expertise of specialty clinicians to the growing public health problems of chronic, complex diseases. Through co-management of patients, rural primary care clinicians learn about best practices and treatment for HCV from iterative case-based discussions that rely on telehealth technology to facilitate participation.

ECHO operates regularly scheduled TeleECHO clinics that serve as "knowledge networks," bringing together expert inter-disciplinary specialists from the university and multiple community-based primary care clinicians in co-management of the primary care clinicians' patients. This is not "telemedicine" where the specialist assumes the care of the patient; instead, it is a guided practice model where the primary care clinician retains responsibility for managing the patient, operating with increasing independence as their skills and self-efficacy grow.

When a new partner site joins the network, ECHO staff conducts an orientation on treatment protocol, the technology, and the case-based presentation format they will use during TeleECHO clinics. During these clinics, community partners collaborate with specialists through "learning loops" that follow the familiar case-based learning strategies from their post-graduate medical education. Learning loops are case-based educational experiences in which community clinicians learn through co-management of patients with specialists, didactic presentations given by ECHO specialists keyed to specific issues, and the knowledge of other community-based primary care clinicians in similar settings.

ECHO Model – Alignment of Financial Incentives

Although the current predominant health care model in the US (fee-for-service) doesn't provide substantial financial incentives for adoption of the Project ECHO model by Academic Medical Centers (AMCs) or participation in project ECHO by individual community medical providers, ECHO continues to be replicated by AMCs and other entities at a rapidly increasing pace and there is tremendous demand for ECHO disease clinics from community providers looking to gain expertise in specialty care arenas. Our dysfunctional healthcare system is in crisis, and the fee-for-service model is morphing toward a

more accountable system that rewards quality improvements, better patient outcomes and reduced costs, all of which are hallmarks of Project ECHO. Non-fee-for-service systems, including public health systems, integrated health care systems and Managed Care models are playing a significant and growing role in the health care system, and the financial incentives under these delivery models are highly aligned with ECHO. Project ECHO is "skating to where the puck will be," in that at our system necessarily evolves the financial incentives will become more and more aligned with the ECHO model over the next few years.

ECHO Replication Process – Current

ECHO currently makes its knowledge and best practices available to interested parties free of charge, hosting regular orientation days where anyone interested in replicating the ECHO model may travel to New Mexico and attend a day-long seminar on the Project. ECHO holds an orientation session every month, which average 25-30 attendees. Participants learn about the effectiveness of ECHO, as well as the keys to a successful implementation including specialist time required, the recruitment process for remote clinic participants, and information technology requirements and setup.

Participants who choose to pursue ECHO have done so in a variety of ways, from a fairly independent implementation to close collaboration from Dr. Arora and the rest of the ECHO-New Mexico team. Some participants, most notably the US Department of Veterans Affairs and the Department of the Army, have provided ECHO-New Mexico with significant amounts of grant funding ($750,000 and $1.25 million, respectively) to support their implementations from start to finish. Despite the variety of approaches, all of the 30+ replicated ECHO sites are still in operation, and have been found to operate the model effectively. Once a new site is in operation, ECHO continues to provide guidance and in some cases collects aggregate data, but there is usually no formal ongoing relationship between ECHO-New Mexico and the new site.

New ECHO Hubs by Year

Year	New ECHO Hubs	Most Notable Institutions
2009	2	U of Washington; ECHO India – Mumbai
2010	2	U of Chicago; ECHO India – New Delhi
2011	14	Harvard; U of South Florida; CHC, Middletown, CT; Veterans Affairs
2012	9	U of Nevada; ECHO Brazil – Parra; Dept of Health; Dept. of Defense
2013 (YTD)	6	US Dept. of Defense; ECHO Uruguay – Montevideo

ECHO Replication Process – Future

In 2012, Project ECHO began the process of forming a long-term strategic plan to speed up its replication efforts and maximize global impact of the ECHO model. Through this process, ECHO has clarified its offering to the scores of organizations interested in replicating the model, as well as

strategies for how to integrate and maximize the value of the work done by the ECHO replicators worldwide.

ECHO has chosen to provide technical assistance to potential partners through a model it calls "hundred flowers." In this model, ECHO will offer its training and resources to any interested partners, and allow organizations to adapt the program to their local needs and circumstances. ECHO will provide training, start-up assistance, and relationships to new sites, but will not manage them on an ongoing basis, allowing that to be done entirely locally by the replicating organization. Given the success ECHO has had with this approach, the hundred flowers model will allow ECHO to grow its model quickly and preserve the flexibility of local organizations. To maximize the effectiveness and impact of ECHO, new organizations will be offered technical assistance in three categories as they roll out their programs:

- **Implementation Tools**: ECHO orientation events will continue, providing the basic outline for program implementation. In addition, ECHO will provide the knowledge base required to run ECHO clinics. This includes (but is not limited to) manuals, procedures, and documentation detailing how to run a successful clinic session; recruiting materials to educate and attract local providers to join ECHO; promotional and general information on the model used to explain the initiative; and a detailed list of technology needed at both the hub and spokes (local sites) for ECHO and IT support on an initial and as-needed basis (see Appendix VI "Menu of Replication Resources"). ECHO will also provide the ECHO software suite including the iECHO software and iHealth database to new sites. The iECHO software was developed in-house and allows hubs to schedule ECHO clinic sessions, track attendance, as well as patient cases seen in a confidential, HIPAA-compliant manner. The iHealth database collects and aggregates data from teleECHO clinics, helping standardize and improve care across all ECHO hubs and their clinics. In addition to being a crucial resource to new hubs, the ECHO software and database are key parts of the overall ECHO sustainability, growth, and impact strategy (see Big Data below).
- **Funding Strategies and Tools**: New ECHO hubs can expect operating costs of approximately $200k-250k per year per clinic. Every hub in existence today has secured its own financing, and a broad array of funders has demonstrated interest and commitment to the ECHO model. ECHO-New Mexico will provide new hubs a comprehensive list of funding sources that existing hubs have found to be successful candidates to provide funding and the tools to successfully access these capital sources. Sources include local, state and federal government appropriations; state and federal research grants, research grants from philanthropic organizations, service grants from foundations who have been funders of the ECHO model based on its alignment with their philanthropic objectives; Medicaid and Medicare; and insurers who have shown willingness to pay for ECHO on a per-case, lump sum, monthly, and PM/PM basis. New hubs will be provided with standardized marketing materials and contracts to attract the funding necessary to implement ECHO on a sustainable basis. Although the responsibility for funding ECHO operations will be on the new hubs, they will be equipped with the tools necessary to explore all options in attracting funding, and will learn from the experience of the 30+ existing hubs to find aligned sources of capital.
- **Relationships**: Over the past decade, Project ECHO has developed relationships with key philanthropic, government, and for-profit funders worldwide. Dr. Arora and his ECHO colleagues

have devoted considerable time to advocacy on behalf of the ECHO model, and local and national government agencies are aware of the impact ECHO can have on a community. ECHO also has ongoing relationships with many major national insurers (United Healthcare, Blue Cross Blue Shield, Molina, etc), and has developed collaborative funding models with these payers to fund ECHO operations. New sites will be granted full access to these relationships which, alongside the tools described above, should give any interested party the resources necessary to fund an ECHO implementation.

Big Data

As Project ECHO has expanded, so has the number of patient cases that have been presented at ECHO clinics both in New Mexico and throughout its 30+ replicated hubs. The collective data generated as thousands of patient cases are presented and treated is in and of itself a valuable resource that will only grow in importance and utility as ECHO hubs multiply in coming years. With this in mind, ECHO has put together a "big data" strategy in which it will capture this data (and, in the future, patient data for entire clinician disease panels, not just presented patient cases) and through its database infrastructure, allow interested parties to mine the data for crucial insights on patient care in specific disease areas, across geographic regions, within specific patient panels, etc.

The mechanisms for collecting data are already in place through the iHealth database, which tracks case presentations, patient lab values and other data points, treatment information and patient outcomes over time seamlessly throughout a hub. To implement its big data strategy, ECHO-New Mexico has begun collecting de-identified and summary health information from its partner hubs, aggregating it into a local data warehouse. ECHO will create a suite of standard queries and reports from this data, and also incorporate outside data from state health information exchanges and other medical registries to maximize the data's utility. By the third year of the big data program's implementation, ECHO will have sophisticated user portals where its clients can produce on-demand reports and generate statistical analyses of the ECHO data, using it to guide decision-making and individualization of treatment for specific patients and situations or for patient panel modeling and outcomes comparisons/failure analysis. Future utilization of the iHealth database includes allowing approved researchers to utilize the portal for research purposes, performing advanced statistical modeling and analysis, and collecting and publishing papers on the data and its analysis, and aggregating the research into a Proceedings Book. ECHO-New Mexico will also be able to house advanced IT functions for other hubs who may not be able to afford such infrastructure. All these activities will be revenue generators to aid in ECHO's long-term sustainability.

Although the big data strategy is still early in its planning and implementation, ECHO has already received requests from would-be customers in the pharmaceutical industries to purchase access to its data for research and evaluation purposes. Over the next three years, ECHO will spend up to $4 million to build out its big data infrastructure, data mining capabilities, and user portals to maximize the value of this data. Once this is in place, ECHO expects to derive significant revenue from its data. Just as

importantly from a mission standpoint, statistical analyses of the database will give ECHO's partner hubs access to continually improving best practices, increasing the effectiveness of ECHO clinics and improving global outcomes.

ECHO Sustainability Plan – Local Hubs and Spokes

Replicated ECHO hubs have demonstrated their ability to attract and retain funding locally, as evidenced by their 100% survival rate to-date. In addition, individual providers have been enthusiastic about joining ECHO clinics. In some healthcare systems, participation makes economic sense for clinicians, and in nearly instances, providers have found ECHO clinics worthwhile for themselves and their patients. For future hubs, ECHO-New Mexico will provide information and networking as appropriate to help identify and attract funding partners on a case-by-case basis. Whether via research grants, payments from insurers, government allocations, or other sources, future hubs will be given assistance in finding and approaching funders with incentives to see ECHO succeed. Each new hub will benefit from the experience of all current ECHO sites as the collective knowledge, network, and demonstrated value of ECHO continue to grow.

ECHO Sustainability Plan – National Office

The FY-2013 budget for Project ECHO was approximately $4.8 million. To-date, ECHO has been funded by grants and government allocations, attracting capital from public and private organizations with an interest in improved healthcare outcomes and better economics. Robert Wood Johnson Foundation (RWJF) has been the project's largest supporter, and has demonstrated its intention to play a part in ECHO's expansion through significant new funding commitments. The General Electric Foundation has also recently committed significant funds to ECHO. In addition, the New Mexico state government has played a significant role in funding ECHO's New Mexico clinics and is expected to continue to do so at some level. On the national side, the Department of Veterans Affairs and the Department of the Army have paid ECHO over $2 million in grants to fund the implementation of ECHO at their respective sites, and other institutions have pursued a similar model.

Over the next three years, ECHO projects an overall cumulative budget of over $29 million to sustain current operations, accelerate global replication of the ECHO model, and fund its big data development work. Nearly half of this funding ($13.3 million) is already committed from RWJF, GE Foundation, and other sources. The remainder is being aggressively pursued, and ECHO management anticipates that funders' interest will be strong enough to close the gap over this time period.

The funding currently sought will help ECHO reach two major milestones and will position it for future sustainability. First, it will allow ECHO to develop its replication technical assistance program by creating and improving processes, materials, and documentation to accelerate the pace and effectiveness of new hub development. As a result, ECHO's TA will become a low-cost and break-even

operation, with revenue coming from clients paying ECHO to help with implementation, as several institutions are already doing.

Second, ECHO will develop its "big data" program described above. Researchers in the for-profit, non-profit, and public sectors place high value on quality data, and as ECHO expands, management anticipates that it will be able to offer some of the best data on rural and underserved patient populations within its disease foci. The investment in ECHO's database infrastructure development over the next three years will result in a product offering that is highly sought after in the medical marketplace. ECHO management expects to realize a significant financial return on this investment as clients access the data either on a subscription or lump sum basis. Ultimately, the investment in developing the big data initiative over the next three years will generate a new revenue source for ECHO and allow it to move down the path toward long-term financial sustainability.

Beyond 2016, ECHO will likely still take advantage of some level of grant funding as demand for roll-out of the ECHO model continues to grow. The current funding, however, is critical to help ECHO mature four main components (TA, data/research, policy/advocacy, and the New Mexico line of clinics) and move toward ongoing sustainability. By the end of 2016, ECHO's TA and data/research operations will be largely self-sustaining as a result of new hub implementations and the big data effort. The New Mexico clinics will continue to be funded via government allocations, grants, and insurer payments, and will remain valuable demonstration clinics for replicators worldwide. The ultimate goal of the current funding sought is to help ECHO develop sustainable operations with the potential to impact millions of underserved patients worldwide.

Project ECHO 3-year Cumulative Budget		
Budget Item (fully loaded)	**Amount**	**Notes**
NM Clinics	$9.2 million	Existing clinics plus 2-3 new
Technical Assistance	$3.5 million	Replication efforts, advocacy for ECHO model
Research, Data and Evaluation	$14.7 million	Program evaluation, Big Data, ongoing R&D, iECHO and iHealth development
Policy and Advocacy	$1.9 million	Awareness and policy related to ECHO
Overall Budget	**$29.3 million**	**Continuation of NM clinics, launch up to 50 new hubs, Big Data implementation, continued advocacy for ECHO**
Grant Funding – Committed	$13.3 million	RWJF, NM Human Services Dept., Dept. of the Army
Grant Funding – Needed	$13.8 million	Some covered by anticipated future funding from current partners
Fee Income	$2.2 million	Fees from insurers, IT and data revenue

Market Context and the Need for Project ECHO

The demand for ECHO

In the US, there are significant gaps and disparities in access to specialty care, quality of care, and coordination of care. Meanwhile, it is overwhelmingly evident that NOT providing the right care in the right place at the right time is very expensive. Project ECHO seeks to address all these needs and disparities: our mission is to expand access to and capacity to provide specialty care services specifically for members of underserved and rural communities. ECHO supports high-quality best practice care by disseminating expertise, medical developments and standardized treatment protocols. In addition, the ECHO model provides a unique educational service to medical providers while simultaneously providing timely, coordinated, multidisciplinary specialist consultation to patients.

ECHO most commonly partners with Community Health Centers (CHCs), also known as Federally Qualified Health Centers (FQHCs), which provide a healthcare safety net for underserved and uninsured Americans. FQHCs were first funded in 1965 and are required to provide a defined set of medical services for all residents of their service areas, regardless of their ability to pay. More than 1,000 FQHCs nationwide at more than 5,000 sites collectively serve 15-20 million people, many of whom are racial or ethnic minorities, low income, under or uninsured or insured through Medicaid (Cook, et. al., 2007). The vast majority of ECHO participants are clinicians and providers (of all levels) at FQHCs.

Rural/Urban disparities: Patients in rural areas need to travel an average of 2 to 3 times farther to see medical and surgical specialists than those living in urban areas. This is particularly true for rural residents with certain specific diagnoses (heart disease, cancer, depression) or those undergoing specific procedures. Furthermore, due to financial and convenience barriers, most rural residents do not access medical resources located in distant urban areas (Chan et. al., 2006). ECHO is a model particularly suited to the long-distances and isolation of rural communities, as it brings a rich learning environment to primary care providers who otherwise would have no opportunity to engage in such multidisciplinary medical education.

Quality disparities: As a result of the geographic isolation, poverty and other socioeconomic determinants of health, rural residents receive community-based care if and when they receive care at all. In a study of the quality of care delivered by community health centers for chronic disease, fewer than half of eligible patients received appropriate care for the majority of indicators measured and uninsured patients received poorer quality care than insured patients. Surprisingly, the quality of chronic disease care in FQHCs compared favorably with that received in other settings, indicating a serious problem with delivering best-practice care in all settings (Hicks, et. al., 2013) ECHO specifically seeks to break down the barriers or silos created when different care agents (such as private clinicians, public health organizations such as state departments of health and academic medical centers) all provide different care protocols and therefore achieve different outcomes. By cutting horizontally and providing uniform access to and adherence to best practice protocols, ECHO seeks to standardize care and improve quality overall.

Racial and socioeconomic disparities: Major disparities in healthcare quality have been found to align with patients' race, age and socioeconomic status. Immigrants, members of minority groups and uninsured persons consistently receive lower-quality care (Forrest and Whelan, 2000; O'Malley et al., 2005). For example, access to specialty care for American Indian and Alaska Native communities is limited by geographic isolation as well as low IHS funding levels (Baldwin, et. al., 2008). ECHO has been particularly well-received by IHS providers seeking to improve care for native communities. In particular, our work training Community Health Workers and native Community Health Representatives has had a remarkable impact on access to care.

Specialist access disparities: Many Medicaid patients face problems finding specialty physicians to treat them in a timely manner. Low Medicaid payment rates typically are the main barrier, although administrative burdens, patient's nonmedical needs and other challenges in keeping appointments and adhering to treatment plans play a role as well. Lack of timely specialty care can result in adverse medical outcomes and potentially higher costs from avoidable emergency department visits and hospitalizations.

Compared with referrals for privately insured patients, when a primary care physician (PCP) refers Medicaid patients to specialists, these referrals are less likely to result in appointments because of difficulty finding specialists willing to accept Medicaid patients and long wait times for appointments. Compared with privately insured patients, Medicaid patients face more socioeconomic and health issues that present challenges for specialists. For example, Medicaid patients are more likely to miss appointments because of lack of transportation or child care and have clinical and non-clinical needs – such as chronic conditions, mental health issues and language barriers – that require more provider time and resources (Felland, et. al., 2013). ECHO eliminates the need for multiple, expensive and complicated specialist appointments by provided simultaneous, coordinated, multidisciplinary consultation with an expert team, along with follow-up consultations as needed. The patient is not present, and all the experts hear the same case history at the same time before providing input.

Future Need: The number of patients served by FQHCs increased by almost 50% during 1999-2004. Growth is likely to increase in the future because of scheduled changes in Medicaid eligibility rules, decreases in state-funded insurance programs, the rising cost of private insurance and the projected expansion of CHC sites available nationally as part of the 2002 Federal Health Center Growth Initiative (Hicks et. al., 2006). With an eye toward meeting the primary care needs of an estimated 32 million newly insured Americans, the Affordable Care Act (ACA) underwrites the FQHCs and enables them to serve nearly 20 million new patients while adding an estimated 15,000 providers to their staffs by 2015 (Adashi, et. al., 2010).

The Affordable Care Act expands Medicaid coverage to millions of Americans starting in 2014 but does not explicitly address the likely increased demand for specialty care stemming from the coverage expansion. Although Medicaid payments for primary care may help support components of models that rely on a larger role by primary care clinicians, many expect the demand for specialists to continue to exceed supply. Indeed, national health reform likely will highlight and increase the need for health care providers, plans, and policymakers to address problems securing timely, efficient, high-

quality specialty services for Medicaid patients. According to one study, "Given that federal policies expanding the number of CHC sites have not led to a substantial increase in the availability of many on-site specialty services, the problem of difficult access for services may increase if additional resources and planning are not devoted to assuring access to outside specialty services or bringing a greater array of services into CHCs" (Cook, et. al., 2007).

ECHO's response to the growing demand

ECHO has seen this market demand through the flow of inquiries by email and phone, the requests for Dr. Sanjeev Arora and other ECHO leadership to present grand rounds at Academic Medical Centers or conferences, the public speaking engagements (such as a TEDxABQ event in Albuquerque September 9, 2013), and the attendance at our orientation events, which have all been increasing at a remarkable pace over the past 12 months. In fact, our ability to keep up with this demand has become challenging over the past 6 months, as every outreach, education or speaking engagement engenders more invitations and partnerships, which in turn generate more interest still. Our monthly orientation events remain popular and have been filled to capacity (25-30 people) for the majority of 2013, a trend which we expect to continue. Increasingly, we have high-level individuals at AMCs or policy organizations reaching out to us and relating that they keep "hearing about ECHO" in multiple forums. This ripple effect is enhanced by the fact that not only are we at UNMHSC spreading the word about our model, but so are our various replication partners around the US, and they are now publishing articles with their results, creating promotional/educational videos and receiving press attention on their own.

- New outreach events: In addition to our monthly in-person Orientation events (which began at the end of 2010), in the past 6 months Project ECHO has initiated three additional monthly outreach and education events (and began the planning for one annual event) intended to disseminate the ECHO mission and model and meet the growing demand for information on how ECHO may be adapted to meet the needs of specific communities.
    - ECHO Introduction – This video conference is a 90-minute overview of the ECHO model, which includes a 45-minute presentation by ECHO director Sanjeev Arora and a 45-minute Q&A.
    - ECHO Immersion – This is the 2, 3, 4 or 5 day customized training experience provided to committed replication partners who need to learn the details of ECHO implementation. These trainings include 2-3 hour sessions on:
        - iHealth - use of our electronic patient presentation and data/outcomes tracking software. This disease-specific program is a powerful tool for standardizing patient case presentations, guiding care protocols and evaluating outcomes.
        - iECHO – use of our electronic clinic management tool facilitates running weekly teleECHO sessions, tracking and archiving patient and didactic presentations, tracking attendance and CMEs, etc.
        - Evaluation Tools, Resources and Methods – trains partners in assessing provider-level and patient-level outcomes tracking and evaluation.
        - Community Partner Recruitment, curriculum development and engagement/mentoring.

        - Selection and Training of Multidisciplinary Expert Panel.
        - IT – how to set up your telecommunications architecture and how to support community partners interactive VC participation.
        - Replication framework documents, legal documentation and HIPPA protections
    - Monthly MetaECHO VC – These monthly 90-minute video conferences focus on linking all ECHO replication partners (established and in-process), sharing ideas and best practices in the implementation of the ECHO model. These will continue on a monthly basis up to and beyond the MetaECHO conference in Albuquerque.
    - MetaECHO conference in Albuquerque, September 2014 – Planning has begun for our big 2+ day conference of all replication partners and projects. This will be chance for partners to present their projects, discuss disease-specific and issue-specific challenges and issues, create topic-based working groups, beta-test our interactive ECHO replication manual, iECHO and iHealth, etc.
- Replication Initiatives and growth 2007-2012 - The pace of replication has been increasingly steadily since our first partner joined us in 2009. We launched two projects in 2009, two in 2010, three in 2011, and four in 2012 (not including the huge multi-site partnerships with the VA, which launched in 2011 and the Army/Department of Defense (which launched in 2012 and 2013).
- Replication Initiatives and Partnerships 2013: The pace of new partnerships has increased every month. We now have an established replication process, involving legal framework documents to protect ECHO's intellectual property and establish a solid mutual understanding. We have launched four replication projects thus far in 2013 in addition to two new DoD sites, and we are on track to launch 3 more before the end of the year.
- We have agreements in place or in process with the following partners, with full launch of their projects expected within 6-12 months:
    - Manipal University in India
    - Royal College of Surgeons, Dublin, Ireland
    - Galway Hospitals, Dublin, Ireland
    - The Republic of Northern Ireland
    - Ho Chi Minh City University of Medicine and Pharmacy, Vietnam
    - Hanoi Medical Univeristy, Vietnam
    - National Lung Hospital, Vietnam
    - Hue University of Medicine and Pharmacy, Vietnam
    - University of Rochester (in partnership with the New York State Health Foundation)
    - Rutgers University (in partnership with the Nicholson Foundation)
    - UCSD (in partnership with the California State Health Foundation)
    - University of Wyoming
    - Ochsner Health System, New Orleans, LA
    - American Association for the Study of Liver Diseases (AASLD), with hubs at UCSF and Yale
    - Indian Health Service (IHS), with new initiatives for HCV, HIV, Chronic Pain and Vector-borne disease
    - University of Louisville, Kentucky

- Community Health Services - Philadelphia, PA
- MD Anderson Cancer Centers, Houston, TX

Competitive Landscape

Project ECHO addresses the need for increased access to specialist medical care in a way that is, to management's current knowledge, unique in the marketplace. Furthermore, as the ECHO model spreads, its goal is not to displace any current organizations, providers, or technologies. If ECHO is successful in scaling, stakeholders throughout the industry should see increased efficiency and quality. Local care providers will be able to provide better care of their patients through participation in ECHO, and specialists such as those at UNMHSC will see more efficient time utilization as high priority patients are routed quickly to their clinics to receive the necessary consultation and care.

There does exist a risk that as unnecessary specialist visits are averted due to improved primary care and diagnoses, specialists may see demand for their services drop; however, ECHO has not seen this to be the case, and does not anticipate it to become an issue in the future. The healthcare system, at both the primary care and specialist levels, is operating so far over its capacity that the increased efficiency should not pose a threat to demand. As the Affordable Care Act is implemented and healthcare is provided to millions of new patients, the system will be faced with even more demand for primary and specialist care and operating more efficiently will become a necessity for all providers.

ECHO management has chosen not to pursue a proprietary approach in disseminating the ECHO model. Any institution committed to participating in the ECHO network and replicating the model with reasonable fidelity will be welcomed to do so. As such, the danger of ECHO operating in competition with other ECHO-like systems is mitigated. It is possible that others will use the ECHO model as a guideline for implementing an ECHO-like system independent of the existing ECHO network, but global demand for the ECHO solution is high enough that this is not foreseen as a limiting factor to ECHO's growth. In addition, the theoretical possibility exists that ECHO hubs find themselves in competition for funding resources; however, we have not seen this to be an issue and given the relatively low capital requirements for each hub, do not anticipate it becoming a problem in the near future.

Ultimately, the main displacement that will take place as a result of Project ECHO's success is that of the current *status quo*, in which treatment of patients by under-resourced local providers is inefficient, specialist time may be through unnecessary patient visits, and total cost of treating patients in certain disease areas is far higher than it should be. The change to the landscape that ECHO brings will benefit patients themselves, local providers, specialists, and payers (who will see their costs decrease through more efficient treatment). ECHO's non-proprietary, collaborative approach to spreading the ECHO model will allow these benefits to be reaped across the healthcare industry.

Project ECHO Mission, History, and Theoretical Basis

Mission

The mission of Project ECHO is to develop the capacity to safely and effectively treat chronic, common, and complex diseases in rural and underserved areas, and to monitor outcomes of this treatment.

History

Project ECHO was founded in 2003 to treat hepatitis C in New Mexico, particularly in rural and underserved areas where adequate care was not previously available. Project ECHO's vision was to use video conferencing technology to link healthcare providers in rural and underserved areas to specialists at AMCs to help them better treat patients in need of specialist attention. Using an internet connection and commercially available video conferencing equipment, ECHO began holding weekly virtual clinics in which providers from rural and underserved areas throughout New Mexico connected with specialists at the University of New Mexico Health Sciences Center (UNM-HSC) to receive advice on specific cases as well as general continuing medical education. In its first four years, ECHO specialists advised local healthcare providers on over 450 hepatitis C cases annually throughout New Mexico, and provided 390 hours of continuing medical education. This initial success allowed ECHO to attract $1.5 million in annual funding from the New Mexico state legislature to continue the project and begin its expansion. ECHO also began to raise funding from other sources, most significantly the Robert Wood Johnson Foundation.

ECHO has since expanded its reach in treating hepatitis C and has added clinics to treat other diseases. It currently maintains 12 clinics, each addressing different disease areas, that link healthcare providers statewide with specialists at UNM-HSC. Caregivers that log into the clinics further their knowledge and experience by being advised on specific cases as well as receiving high level general instruction from UNM-HSC specialists. In Fiscal 2013, ECHO provided over 9,000 hours of continuing medical education credit for providers statewide.

A number of studies have been conducted over ECHO's history to evaluate its effectiveness, both medically and economically. Among the most significant was a 2011 study published in the New England Journal of Medicine entitled *Outcomes of Treatment for Hepatitis C Virus Infection by Primary Care Providers*. The study compared treatment for HCV infection at the University of New Mexico (UNM) HCV clinic with treatment by primary care clinicians at 21 ECHO sites in rural areas and prisons in New Mexico over 407 hepatitis C patients. It found that patients treated by primary care providers under the guidance of ECHO clinics were as likely to improve as those seen at UNM. In addition to proving the medical effectiveness of ECHO, it also implies strong economic benefits to ECHO, since ECHO patients did not need to make multiple costly and time consuming visits to an AMC.

In addition to its transformative impact in the state of New Mexico, ECHO has so far helped over 30 institutions worldwide replicate its successful TeleECHO model. These institutions have collectively helped hundreds of clinics in rural and underserved areas provide better treatment to patients and increased the knowledge and network of hundreds of providers worldwide. These replicated ECHO sites

so far have a 100% success rate, meaning all are still in operation seeing patient cases and enhancing care at clinics, and have been found to operate the ECHO model with fidelity and effectiveness. By demonstrating its ability to be replicated globally despite relatively limited internal resources, Project ECHO has demonstrated its scalability and potential to improve care to underserved populations worldwide.

Theoretical Basis of the ECHO Model

The ECHO model is based upon established educational theories about learning and behavior change including 1) Bandura's Social Cognitive Theory, 2) Adaptive Expertise Theory, 3) Vygotsky's Situated Learning Theory and 4) Communities of Practice as applied to community clinicians.

Social Cognitive Theory identifies influential factors that predispose individuals to believe in their ability to take actions and engage in behavior that will produce desired results. Social Cognitive Theory argues that three factors influence the likelihood of an individual to change his or her behavior. First, the individual must believe that the benefits of performing the new behavior will outweigh its costs. Second, the individual must have confidence in his or her ability to perform the specific behavior in a variety of circumstances, also known as self-efficacy. Third, there must be reinforcement of positive behavior changes from persons who are seen as important.

The ECHO model of learning incorporates each of these three components, with a particular emphasis on enhancing provider self-efficacy. Community clinicians learn the cost and benefits of delivering best practice care in contrast to their prior practices by seeing the impact on their patients. This is reinforced through clinics in which clinicians collaborate on patient management with inter-disciplinary specialists, who are seen as trusted experts. Most importantly, community clinicians develop self-efficacy as they assume an increasing role in delivering best practice care, with the expert specialists gradually transitioning to a smaller consultative role to ensure patient safety and support clinician confidence on an ongoing basis.

Many of the patients seen by community clinicians and presented in TeleECHO clinics also have comorbidities. The theory of *Adaptive Expertise* captures the duality of building on efficient and effective application of past knowledge in routine and familiar tasks with the challenge of adapting that expertise to innovative approaches to address practice-based problem solving that is not routine. Adaptive expertise through an orientation to innovation infers new knowledge and practices that evolve as part of ECHO collaboration with peers, with ones' clinical team, and with specialists.

Adaptive expertise is foundational to the problem-solving approaches used by the specialists at ECHO who interact with clinicians in the co-management of patients. In the TeleECHO clinics, there are specialists who routinely provide support and co-manage patients with the community clinicians. While providing routine expertise, they are also listening to the pattern of comorbidities and patient problems that are being presented, the situational problems underlying cases with similar comorbidities, or concerns identified by the clinician about systematic issues in the workplace. The specialists step back and often seek to figure out approaches to address them, in addition to co-managing patients with community clinicians.

Adaptive expertise requires that the expert relish challenges that require them to problem solve and may involve the expert in learning in new areas and applying this knowledge within a new area of expertise. ECHO specialists encounter a variety of problem-solving situations, and successfully consider and adapt solutions to them.

ECHO's training components such as learning loops and co-management of patients during TeleECHO clinics are also based on *Situated Learning Theory*, which notes that learning requires social interaction and collaboration. Situated learning theory evolved from the work of Vygotsky who defined teaching and instruction as a process of assisting learners in knowledge construction and organization for optimal assimilation and access. Therefore, teaching requires providing learners with the opportunity to 1) extend their current skills and knowledge, 2) model the idealized version of the task, 3) engage learners' interest, 4) simplify tasks so they are manageable, and 5) motivate learners to pursue the task.

Lave and Wenger extend Vygotsky's work in their *Community of Practice Theory*. In ECHO's one-to-many "knowledge network", the learning process evolves more profoundly and continuous participation in a community of learners who are "in practice" building technical knowledge and skill associated with the care of patients with complex diseases.

Adaptive expertise, situated learning and community of practice are supported by collaborative learning, coaching and mentoring with those more expert than oneself but also with one's peers. Each of these approaches is accomplished in ECHO through iterative practice, feedback, modeling, successive approximation and mentoring and consultation with inter-disciplinary experts and peers.

Project ECHO Program Description and Success Factors

Program Description

The ECHO model was developed as a platform for both healthcare service delivery and research in June 2003. Using telehealth technology and clinical management tools, Project ECHO trains and supports primary care clinicians from underserved areas to develop knowledge and self-efficacy to deliver best practice care for complex health conditions. Project ECHO's knowledge networks incorporate case-based learning strategies from medical education and a theoretical framework that includes Social Cognitive Theory and Situated Learning Theory.

The key strength of Project ECHO is that it develops specialty care capacity in rural underserved communities, reduces wait times and unnecessary travel costs for patients while facilitating coordinated simultaneous multi-disciplinary consultations. The ECHO model develops knowledge and capacity among community clinicians through a) case-based learning, b) knowledge networks, and c) learning loops. The knowledge network consists of regularly scheduled teleECHO clinics that bring together expert inter-disciplinary specialists and community-based partners. These partners learn best practices through learning loops in which they co-manage diverse patients in real world situations and practice. Over time, these learning loops create deep knowledge, skills and self-efficacy.

Core Elements for Successful Operations

All Project ECHO hubs must have certain core elements in place to operate effectively. ECHO-New Mexico provides consultation and technical assistance to ensure these elements are put into place effectively at all new ECHO hubs. These elements fall into five broad categories: technology (hardware for teleECHO clinics and a software package including the proprietary iECHO software); program/clinic management team (including an administrator and a nurse/manager); multidisciplinary expert team (medical professionals with relevant specialties); standardized forms and processes (disease-specific patient case presentation templates); incentives for participation (such as CME credit provided free of charge); and funding streams to ensure financial viability of the ECHO hub. A full list of necessary core elements for successful Project ECHO operations may be found in Appendix VIII.

Evidence of Results

Project ECHO's ten year operating history and the funding already received has enabled Dr. Arora and the ECHO team to research the outcomes and effectiveness of the ECHO model. This includes measuring for impact of rural clinicians' participation in TeleECHO clinics, such as the effect on treatment rates, self-efficacy and overall professional satisfaction. The results of ECHO's research on effectiveness were first published in Hepatology in September 2009. This article demonstrated that Project ECHO has the potential to be a significant disruptive innovation in three major areas: 1) access to specialty health care, 2) expanded delivery of evidence-based best practice care, and 3) a new paradigm for team- based interdisciplinary professional development. It contributes to these three areas by using its model of case-based, iterative learning in an environment employing technology to support inter-disciplinary community clinicians in provision of quality care for patients with chronic, complex diseases.

The article highlighted that clinicians under the ECHO model are able to develop confidence in their ability to provide safe and effective care, and it helps them value being part of a community of clinicians who are dedicated to improved care for complex patients, and appreciate being valued by their peers. Ongoing learning and development contributes to a feeling of professional satisfaction that can promote retention in rural and underserved communities that otherwise offer limited opportunities for professional engagement.

The article's discussion of the technology used in ECHO demonstrated its utility in educating clinicians through co-managed care of rural and underserved patients throughout the state. The geographic isolation of many communities in New Mexico precludes ongoing on-site professional education or consultation. While there are a variety of educational programs and media available at this time, most online venues do not involve face-to-face interactions with colleagues and do not address their professional isolation. ECHO focuses on the needs of community clinicians and underserved patients in supporting best practice care for complex patients, while meeting the larger societal needs within the state to better address expensive chronic diseases growing at unsustainable rates.

This line of research was continued and allowed Dr. Arora to measure the impact the ECHO model had on patients. The results of a prospective cohort study, to demonstrate that treatment for HCV using the ECHO model is as safe and effective as treatment at an Academic Medical Center (AMC), was published in the New England Journal of Medicine in June 2011. The study compared treatment of HCV at UNMHSC HCV clinic to treatment by primary care clinicians at 21 ECHO sites in rural areas and prisons in New Mexico. A total of 407 treatment naive patients with chronic HCV were enrolled. The primary end point was a sustained viral response (SVR). The results of the study showed that the rate of SVR was 57.5% (84/146) for patients treated at UNMHSC and 58.2% (152 /261) at ECHO sites (P=0.89); difference between SVR rates 0.7% (95% CI -9.2%, 10.7%). In genotype 1 infection the SVR rate was 45.8% (38 /83) at UNMHSC and 49.7% (73 /147) at ECHO sites (P=0.57). These results were able to demonstrate high rates of cure for HCV treatment delivered through the ECHO model. The SVR rates in ECHO cohorts of 58% overall and 48% in genotype 1 patients were similar to those observed in ECHO's study's comparison group treated at the AMC and the rates reported in licensing trials for HCV treatment. Previous community-based treatment studies have failed to replicate the results of licensing trials.

The article concluded by demonstrating that treating a complex disease such as HCV using the ECHO model has similar effectiveness as treatment at an AMC such as UNMHSC. This showed that ECHO represents a needed change in conventional paradigms of AMCs and specialist care being available only in urban areas. It also showed that ECHO has the potential for replication in the United States and abroad as community clinicians and academic specialists partner to respond to an increasingly diverse range of chronic health issues.

Project ECHO Organizational Structure

Organizational Structure and Current Reach

Project ECHO is comprised of five divisions: New Mexico Clinics; Research, Data and Evaluation; Replication; Policy and Advocacy; and Management and Administration. The key operations and business model of each division are detailed in the following sections. A full org chart is found in Appendix III.

ECHO Divisions and Leadership			
Division	**Purpose**	**Leadership**	**Headcount**
New Mexico Clinics	Operates 20 NM TeleECHO clinics	Recruitment underway	14 FTEs internal, plus UNM-HSC faculty facilitators
Research, Data and Evaluation	Develops software platforms, performs data collection and analysis	Dr. Summers Kalishman, Dr. Glen Murata	23 FTEs
Replication	Helps create new ECHO hubs worldwide	Erika Harding	4 FTEs
Policy and Advocacy	Raises ECHO awareness, works on policy initiatives	Dr. Sanjeev Arora	2 FTEs
Management and Administration	Performs strategic management, organizational and administrative functions	Dr. Sanjeev Arora, Dr. Karla Thornton, Dr. Miriam Komaromy	9 FTEs

Project ECHO currently has 52 FTEs, plus 13 University of New Mexico Health Science Center (UNMHSC) faculty members who serve part-time as paid facilitators of the New Mexico TeleECHO clinics; incorporating these facilitators into the headcount brings ECHO's total FTE count to 57.3. In addition, many UNMHSC faculty members volunteer their time to participate in clinic sessions. Over the past three years, ECHO-New Mexico clinics have seen nearly 3,000 unique patient cases, and have enabled local providers to treat over 20,000 additional patients with similar diagnoses through their increased expertise gained as a result of participation in ECHO. In all, 4,900 providers at over 400 sites statewide are currently linked to ECHO through its TeleECHO clinics and ECHO has provided over 30,000 continuing medical education credits at no cost to providers through their participation in ECHO over the past three years. Please see "ECHO Operations: New Mexico Clinics" on page 22 for more information on ECHO's direct patient treatment, on the multiplier effect and economic value to patients, and on the number of clinicians linked to Project ECHO in New Mexico.

Beyond New Mexico, Project ECHO has reached tens of thousands of providers globally through clinics at replicated ECHO hubs (see Appendix IX "Replication Projects Table"). Assuming the average number of cases presented at TeleECHO clinics worldwide is consistent with the numbers at ECHO-New Mexico, over 7,500 patient cases are seen annually at ECHO clinics, and this number is continually growing as new hubs come online and those in existence expand their clinic offerings. Given the multiplier effect of increased provider knowledge and ability to treat patients, ECHO estimates that over 50,000 patients receive improved care directly from or as a result of ECHO clinics.

Management and Governance

Project ECHO exists as a division within UNMHSC. Though it is part of the university, ECHO has autonomy with regards to operations, funding, and hiring and payscale decisions. ECHO is responsible for acquiring its own funding, a portion of which the university receives as F&A expense in exchange for providing ECHO with certain resources including office space and finance and human resources infrastructure and systems. Project ECHO is led by Dr. Sanjeev Arora and division heads (see table above). Dr. Arora reports to the UNMHSC board of directors. Biographies of key ECHO team members as well as UNMHSC board members are contained in Appendix V.

Marketing Alliances and Key Partnerships

Project ECHO has received funding from several key partners, who have also served as advocates for the project among regional, national, and global stakeholders in the healthcare industry. Most important among these is Robert Wood Johnson Foundation, who has been instrumental not only in providing funding to ECHO, but also in advocating for ECHO and providing a platform for Dr. Arora and others to discuss the project with other funders as well as potential replicators. The awareness and increased credibility of ECHO through the RWJF partnership as well as others has been crucial to ECHO's rapid expansion and the high demand it is currently experiencing.

The network effect has also been a strong driver for ECHO's growth. AMCs tend to network and have some awareness of what their peers are doing, which has led to a multiplicative effect on demand for every new ECHO hub started. ECHO has seen this network effect and word of mouth marketing yield amazing results, as it is currently fielding serious inquiries from over a dozen interested parties per week, a level of interest far higher than ECHO currently can satisfy at its existing capacity.

A full marketing plan for ECHO's next phase of growth is in development.

Quality Management and Continuous Improvement

Project ECHO has developed consistent procedures for its TeleECHO clinics to ensure that quality is maintained both at ECHO-New Mexico clinics, as well as clinics taking place at other ECHO hubs. These procedures are well-documented and ensure that the time spent in clinic sessions is productive to all participants including both local providers and specialists at the hub. The development of quality management processes for the overall ECHO replication effort is ongoing. This is being managed primarily by Erika Harding, and recruitment is currently underway for an associate director to work alongside Ms. Harding to fully develop these policies and procedures.

To provide a framework for continual improvement throughout the ECHO network, ECHO maintains close relationships with its community, national and international partners. Ongoing communication is essential to ensure that partners are well informed and achieving their own goals, so that they are able to receive optimal benefits. Given that clinician satisfaction is an element of ongoing evaluation, there is a built-in strategy for feedback and continual improvements.

The impact of ECHO's compelling results has been greatly amplified by the effective communications support that Project ECHO has received from Burness Communications, also funded by RWJF. Their efforts have resulted in a wave of interest from clinicians, health plans, AMCs, and public health officials of every stripe and from every corner of the globe. Prospective partners from Ireland, England, Canada, Chile, Brazil and numerous other countries have contacted ECHO to learn how to implement this innovative model.

ECHO's innovative technology is also essential to managing and improving the quality of TeleECHO clinics. ECHO's Telehealth Technology, which allows up to 80 sites to be linked into TeleECHO clinics at once, as well as its iHealth Clinical Management Tool, which provides for HIPAA-compliant real-time remote entry and access to patient-specific information, are essential core elements of the ECHO model have been developed since its inception in 2003 to meet specific needs of the research model.

These technologies facilitate distance learning, clinician communication, tracking of patient outcomes and disease co-management and also provide a framework for continuous improvement of the ECHO model. Every clinic session generates data points about the effectiveness of the ECHO model as a whole, as well as the level of participation and value to local providers and specialists. This data is used to refine the standard processes and procedures for TeleECHO clinics, further improving the experience for participants and outcomes for patients (more information on ECHO's technology platforms may be found on page 28 of this plan).

ECHO Operations, Impact, and Finances: New Mexico Clinics

Operations and Impact

Project ECHO has been operating clinics in New Mexico since 2002, beginning with a hepatitis C clinic and expanding to its current line-up of clinics, which includes 10 traditional TeleECHO clinics and 3 community health seminar-style clinics. Over the past three years, these clinics have collectively seen nearly 3,000 unique patient cases, and the increased knowledge providers have gained has enabled them to treat 20,000 more cases with similar diagnoses outside the clinic setting. The economic value of the improved treatment patients receive has been estimated at over $42 million over three years (see chart below).

ECHO Benefit	Quantitative Analysis	Narrative Analysis
ECHO case presentation allows for local treatment and allows for an average of 4 visits to specialists to be averted per case.	Average cost per visit (statewide) Specialist consultation fee: $118 Transport: $91 Per Diem: $67 Overnight Stay: $33 Time Off Work: $176 Total Cost Per Visit: $486 Cost Savings Per Patient (4 visits): $1,943 Total Cost Savings Statewide: 2011 2012 2013 $1.7M $1.7M $1.9M	Local ECHO treatment has been shown to be equally effective to traditional specialist care, and the economic benefits are clear, with $5.3M of savings over 3 years for the people of New Mexico.
ECHO "multiplier effect" – on average, local providers can apply knowledge gained in each ECHO case presentation to treating 7 other patients in the same manner.	Total Cost Savings Statewide (using above assumptions for specialist visits per case and cost per visit): 2011 2012 2013 $11.8M $11.6M $13.3M Cumulative Cost Savings Statewide (cases presented at ECHO clinics plus "multiplier effect"): 2011 2012 2013 $13.5M $13.3M $15.2M**=> $42 M saved in NM over 3 years**	Patients of ECHO-participating local providers benefit even if their cases are not presented at an ECHO clinic, as knowledge gained by providers may also apply to other patients' treatment.

TeleECHO Clinics typically take place weekly (though some meet less frequently). At each clinic, a clinic manager, administrative assistant, and team of medical specialists are present at the hub (ECHO's Albuquerque offices for New Mexico clinics), and are linked via videoconference with up to 80 local providers throughout the state. In addition to consultation on patient cases and case co-management via ECHO's HIPAA-compliant software platforms, ECHO specialists provide continuing medical education to clinic attendees. Over the past ten years, over 50,000 CME/CE/CEU credits have been provided in New Mexico, at no cost to attending providers. See chart below for summary information on ECHO's New Mexico operations.

Description	*Total*
No-cost CME/CE/CEU credits provided to NM community clinicians 2003-13	**57,691.5**
Total Community Health Workers trained through Project ECHO to date	**261**
NM inmates trained as prison peer educators	**263**
NM inmates who have received peer health education	**5,673**
Community clinicians trained to provide buprenorphine treatment	**594**
Total (approx.) number of Grand Rounds and outreach events provided across NM	**2,700+**
Total ECHO NM community clinician partners and participants	**4,900+**
New Mexicans provided ECHO diabetic retinopathy screening	**2,869**
Total clinicians with DEA license – mandatory training, "Treating Chronic Pain in New Mexico: Addressing Best Practices, Addiction, and Current Regulations"	**1,411**

Finances

Clinic funding to-date has come from a variety of sources, most notably philanthropic (including Robert Wood Johnson Foundation and GE Foundation), governmental (NM Department of Health) and research-oriented (Agency for Healthcare Research and Quality). In FY 2012 and FY 2013, ECHO spent just under $2 million annually to operate its clinics.

ECHO's New Mexico clinics are effective in their own right in improving healthcare throughout rural New Mexico, but have also evolved into a pilot line of clinics and care delivery initiatives for Project ECHO as a whole, where TeleECHO operations and procedures can be refined, and from which ECHO replicators can learn as they begin their own clinics. As such, ECHO's New Mexico clinics have attracted the interest of a broad array of funders and will continue to do so. In FY 2013, 75% of ECHO-New Mexico's funding was from governmental sources and foundations funding clinic operations. The remaining 25% of funding came from research grants, given in recognition of the New Mexico clinics' capacity to be a testing ground for further improvements in the ECHO model. ECHO expects a similar revenue mix going forward, as philanthropists and the state of New Mexico continue to fund the clinics out of a desire to see improved healthcare in the state and other funders provide research grants seeking to help improve outcomes and understanding of the ECHO model.

ECHO's New Mexico clinics have also helped ECHO attract the attention of other payers with an interest in the model. Most notably, ECHO secured an agreement from Molina to pay ECHO $400 per case seen. ECHO did not ultimately take this funding, but rather negotiated a bulk payment in place of the fee-for-service agreement. The Molina agreement served as proof of concept that payers will have an economic interest in seeing ECHO succeed. Taking advantage of this payment model would have generated up to $380k in fees for Project ECHO in FY 2013. Over the next four years, ECHO projects up to $300k per year in fee income from payers.

ECHO will rely on grants as a primary source of funding over the next four years in order to build internal capacity and fully develop a critical mass of product offerings and client pipelines in the technical assistance and big data arenas. This is a conscious decision on the part of ECHO management

in order to prepare for long-term success on a global scale. Particularly in the newer “big data” arena, ECHO will spend significant resources to build a suite of product offerings that current ECHO partners and future clients will find extremely valuable given the vast amount of data ECHO collects from its partners worldwide.

In addition to product development, ECHO management has chosen to remain grant-funded over the short term in order to increase the rate at which new partners sign on to become ECHO replicators. While most hubs would likely be willing to pay to be part of the ECHO network, the contract, budgeting, and approvals needed would add a layer of complexity and slow down the replication cycle. In order to ensure the long-term success of ECHO, as well as to maximize global impact, management has elected to make the hurdle to replication at the present time as low as possible in order to disseminate the ECHO model as broadly as possible. On the impact side, this will result in thousands of additional physicians worldwide becoming empowered through participation in ECHO every year. With regards to organizational sustainability, this broader network will give ECHO access to more data, increased knowledge, and a pipeline of hundreds of organizations that are potential big data customers as well as payers for continued ECHO implementation, learning, and support.

ECHO Expansion Strategy and Goals: Replication

Project ECHO's success and impact depends on the widespread, rapid creation of effective and sustainable new hubs. To achieve this, ECHO has developed a process by which potential hubs can become familiar with the ECHO model and determine the process and necessary resources to operate ECHO clinics in their local contexts. Organizations wanting to learn about the ECHO replication process by attending an ECHO Introduction, a 90 minute videoconference with global participation offered monthly. Those interested in replicating the model then attend a free ECHO Orientation on site in New Mexico, which is a daylong visit designed to give participants an understanding of the project and a sense of the process for implementing it at their own sites. Once replicating partners commit to the process (including the signing of required framework documents see Appendices XI and XII), they return for a 2-5 day ECHO Immersion involving customized training and the resources needed for start-up and operation. The sessions are free to attend and help ECHO replicators adapt the ECHO model to their sites. Participant profiles range from AMCs to non-profit community health organizations to government entities, and include organizations operating in an integrated health system environment as well as those under a fee-for-service model.

Why the Model Works: Benefits to Local Providers

The local providers, or "spokes," are the end users served in the ECHO model, as they are the beneficiaries of the capacity-building and continuing education provided on a weekly basis. Different from tele-medicine, the ECHO model benefits patient access to specialty care through local providers. Key benefits of the ECHO model to local providers include:

- No cost CME credits
- An easy way to break the isolation of intense clinical practice in a rural setting
- Spirit of Service draws community-minded clinicians to serve the underserved
- A manageable way to keep up with medical developments in their field of interest
- Participating in a community of practice, with important social and professional networking
- Professional development, as they become expert in a field and are recognized by their peers for their work and receive community referrals
- The improvement in patients' access to critical care, improving outcomes for the patient panel, and improved the efficiency of the existing system as many patients are seen within the community and offloaded from the AMC specialists, who are then freed to see the most critical and most complex patients more quickly

Participation in ECHO is free to providers and will remain so going forward. The only costs to providers are basic IT equipment (which may in some cases be provided free of charge) and the time taken to participate in ECHO clinics, which as noted above is likely to be seen as a benefit rather than a cost to providers. Because of this compelling value proposition, demand among providers has been high in New Mexico and at other hubs, and ECHO expects that it will remain high.

Replication Model: New Hubs

Organizations that decide to implement ECHO must decide how they will pursue implementation, as well as formulate a strategy for securing the necessary resources (see Appendix VII "Steps for Replication Implementation"). In the past, some entities have begun their ECHO replications with very little additional input or guidance from ECHO-New Mexico, while some have requested deep involvement from Dr. Arora and his colleagues in every step of the implementation process. This decision depends on a number of factors including the number and type of clinics implemented, the complexity of the project implementation, as well as the experience of available personnel at the new hub. When they have requested closer collaboration from ECHO-New Mexico, replicators have included payment for ECHO's time and expertise in their funding strategies. Examples of replications with greater ECHO-New Mexico involvement include the Department of Defense and the Department of Veterans Affairs, which have allocated significant resources to ECHO-New Mexico in their funding strategies.

After analyzing the variance in levels of ECHO-New Mexico involvement in new hub implementation, ECHO has projected an average of 160 labor hours involved in guiding new hubs through the implementation process. This will allow ECHO to provide basic technical and IT support to new hubs, training them in iECHO and iHealth as well as familiarizing them with the videoconferencing equipment needed. ECHO personnel will also train replicators in running an effective ECHO clinic session, as well as the process of recruiting and training providers, the "spokes" of the ECHO model, to participate in clinics. ECHO will charge new hubs membership fees, but will provide this level of start-up support free of charge, provided that potential hubs have demonstrated a commitment to the ECHO model and the availability of funding sources to pay for operations. In cases where hubs request deeper engagement from ECHO-New Mexico personnel, ECHO will ask local management to secure increased start-up funding to compensate ECHO for its time.

The second hurdle that ECHO replicators must clear in order to move forward is securing adequate resources to successfully operate ECHO clinics. ECHO clinics are not resource-intensive when compared to the scale of most organizations implementing them, requiring about $100k in start-up expenses (primarily IT-related) and $120k per year in direct operating costs. In addition to these costs, ECHO-New Mexico estimates up to $700k in annual indirect costs for hubs operating up to 10 clinics. Total, fully loaded costs for a hub operating 10 clinics approach $2 million (although no replicated site currently operates more than 5 clinics).

Most of the ongoing direct cost of ECHO clinics is personnel-related, with specialist time being the largest single component. In addition, part time support from a registered nurse, IT professional, and administrative assistant is required. Indirect costs include management of the overall ECHO hub, facilities and supplies, and membership fees to Project ECHO-New Mexico covering advising, materials, and other services. While the scale of these costs varies depending on the institution, it is estimated, based on the experience of ECHO-New Mexico and other existing hubs, that the fully loaded cost per clinic will be approximately $200k annually.

Current ECHO hubs have not found it difficult to attract funding partners to cover these costs, and this trend is expected to continue going forward. Past experience both in New Mexico and among other hubs demonstrates that hubs have several options available to them to fund ECHO operation.

These include local, state and federal government appropriations; state and federal research grants, research grants from philanthropic organizations, service grants from foundations who have been funders of the ECHO model based on its alignment with their philanthropic objectives; Medicaid and Medicare; and insurers who have shown willingness to pay for ECHO on a per-case, lump sum, monthly, and PM/PM basis. New hubs will be responsible for evaluating available funding sources, with assistance from ECHO-New Mexico. This assistance includes co-writing grants, providing templates for funding applications, and providing our clinical outcomes and research for citation. New hubs also benefit from the experience base and reputation of the existing global network of ECHO hubs.

Economic Models for New Hubs

The type and source of funding that makes sense to ensure new hubs' sustainable operations varies based on the financial environment in which institutions operate. The healthcare system can be broadly segmented into the following economic models:

1. The Public Health model, such as the Veteran's Health Administration (VA) and the Department of Defense (DoD).
2. Integrated health care systems fully accountable for care, such as Kaiser Permanente and the University of Pittsburgh Medical Center.
3. Managed Care Models, which include managed Medicaid and managed Medicare (Advantage) plans.
4. Pure Fee-for-Service models where the insurance companies pay claims and pass costs to the employers after charging an administrative fee.
5. Hybrid models.

The economic incentives for adopting and participating in the ECHO model are different under each of these systems. Under the Public Health model, the incentives are fully aligned for ECHO, as the systems are interested in the highest quality care for the lowest possible cost. There is no billing and collection activity. These organizations understand the need for and engage in the processes of task-shifting, workforce capacity-building (force multiplication), team-based care and Quality Improvement initiatives overall. Those like the VA and DoD that operate under this system have been among the most enthusiastic funders and implementers of the ECHO model to-date.

Integrated Health Systems that serve as Accountable Care Organizations are also fully aligned with ECHO because they have the entire healthcare dollar from employers and are responsible for outcomes. These organizations often own the hospitals, serve as the insurance company, and also employ the providers. They seek to improve the quality of care and reduce costs, and favor local care delivery. In addition, they have sufficient resources to embrace ECHO.

In Managed Care models, the health plans have the incentive to reduce costs and improve quality and outcomes. In addition, they favor local care delivery to reduce patient travel costs and favor care by primary care providers (for both quality of outcomes and reduced costs). Under this model, providers do not have the financial incentive to participate and learn via the ECHO model as they are

paid on a per-visit basis and ECHO takes time away from seeing patients. Further, they are paid the same amount for a complex patient with multiple diagnoses or a patient with a simple viral infection.

The only setting in which ECHO is not economically attractive to either payers or providers is the pure fee-for-service model. However, the trend toward Accountable Care Organizations means more and more systems will benefit from the ECHO model. The Accountable Care Model rewards quality improvements, better patient outcomes and reduced costs, and ECHO management anticipates that the system will necessarily evolve, and that the financial incentive will become more and more aligned with the ECHO model over the next few years.

Replication Strategy, Goals, and Economic Model: ECHO-New Mexico

The ECHO model has reached an inflection point in its growth and over the next few years has the potential to be spread to hundreds of hubs worldwide. ECHO-New Mexico is positioning itself to take advantage of this enormous potential. ECHO-New Mexico has chosen to pursue expansion via a model it calls "hundred flowers" in which ECHO will offer its training and resources to any interested partners, and allow organizations to adapt the program to their local needs and circumstances. Over the past four years, ECHO has proven that replicating sites are capable of operating the ECHO model effectively without ongoing direct management by the national ECHO office.

ECHO Performance Goals: New Hubs				
	FY 2014	**FY 2015**	**FY 2016**	**FY 2017**
New Hubs	8	18	20	20
Total Hubs (new)	8	26	46	66
Total Clinics	20	81	183	325
Total Patient Cases Seen Per Month	594	2,406	5,435	9,653

Going forward, Project ECHO will achieve maximum global impact by resourcing new hubs and providing as much technical assistance as necessary during the start-up phase, then allowing hubs to operate independently on an ongoing basis. New hubs will maintain a relationship with ECHO-New Mexico and the global ECHO network, communicate with the network regarding best practices and standards, and participate in data sharing and collaboration across the network (see Big Data below). Day-to-day management, however, will fall entirely to the local hubs, maintaining maximum flexibility and responsiveness to local conditions, needs, and circumstances.

ECHO Performance Goals: Partnership Revenue				
	FY 2014	**FY 2015**	**FY 2016**	**FY 2017**
New Hubs	8	18	20	20
Total Hubs (new)	8	26	46	66
Monthly Revenue (Fiscal Year-End)	$11k	$30k	$52k	$76k
Total Annual Revenue	$53k	$256k	$508k	$780k

In order to achieve maximum impact, ECHO-New Mexico must carefully balance between making its resources easily available to potential partners and ensuring its own financial viability over the long term. ECHO's goal is to make replication accessible to as many institutions as possible, which means disseminating its knowledge and capabilities openly and keeping replication affordable to those

with the potential to use the ECHO model to improve healthcare outcomes in their unique settings. ECHO has and will continue to provide orientation and initial technical support to replicating parties for free in order to spread the ECHO concept and model as broadly as possible.

Alongside its strategy for rapid scaling and impact, however, ECHO management recognizes the need for its technical assistance division to have a strategy for long-term financial viability. The fully loaded budget for TA is estimated to reach up to $1.3 million in future years, and will be funded partially by grant money over the next 4 years (much of which is already committed). This funding will allow for rapid scale-up of the ECHO model; ECHO projects that it will launch up to 70 new hubs in this period. While orientation and start-up assistance will be provided for free, ECHO is currently projecting that it will charge hubs from $10k to $15k in annual membership fees per hub to operate as part of the ECHO network, and for access to ongoing best practices research and documentation from ECHO-New Mexico. Specifically, ECHO will charge hubs a $10,000 annual membership fee, a $500 annual data access fee, as well as an additional $500 annually per clinic operated. Annual fees from all new hubs will cover up to 60% of ECHO's TA expenses within 4 years (see Appendices I and II).

The second source of TA revenue that ECHO expects to realize (and indeed, already has in multiple cases) is contracted technical assistance funding from new hubs. The purpose of this funding is to enable ECHO to provide deeper technical assistance to hubs requiring more support for start-up or expansion. The Department of Veterans Affairs and the Department of the Army have provided ECHO with over $750,000 and $1.25 million, respectively, in funding for this type of support, and ECHO has other clients with similar desires to fund a high level of ECHO TA involvement.

By FY 2017, ECHO expects to have an essentially self-sustaining TA department utilizing a combination of ongoing hub fees (60%) and contracts for service (40%) from replicators seeking high level and/or ongoing assistance from ECHO-New Mexico personnel.

ECHO Expansion Strategy and Goals: Research, Data and Evaluation, and Policy and Advocacy

Research, Data and Evaluation: Key Products

Project ECHO's innovative technology facilitates distance learning, clinic management, clinician communication, tracking of patient outcomes and disease co-management. These essential core elements of the ECHO model have been developed since its inception in 2003 to meet specific needs of the research model.

a) Telehealth Technology: With support from the Federal Agency for Healthcare Research and Quality (AHRQ) and the State of New Mexico, Project ECHO has two network video teleconferencing bridge MCU units, allowing up to 50 sites to be linked at a time. These tools allow clinicians to see each other and interact from remote locations as if they were in a single room. The TeleECHO architecture for the hub also includes a high-powered microphone, a high-definition camera, a large display unit and a PC to capture/archive the video footage. For the community clinic participants or spokes, all that is needed is a headset/microphone (or the telephone) and a small camera, such as is found on most PCs.

b) iHealth Electronic Clinical Management Tool: Real-time remote entry and access to patient-specific information is needed for co-management and during consultative clinics. An outside vendor, Infosys Technologies, Inc., completed a new web-based clinical management database, iHealth, in 2008. This allows all partners to access information even from remote sites, with HIPAA-compliant controlled access to protect confidentiality. The 3-tier architecture incorporates Microsoft technologies such as Net 2.0, SQL Server and SSRS so that patient data can be collected across multiple partner organizations. Additional functionality, such as electronic uploads of lab data, are under development. Project ECHO decided to completely fund the development of this new data platform, rather than adapt existing software, so that it could be shared with rural and under-funded partners at no cost.

c) iECHO Partner Relations Management Tool: iECHO is an online administrative data system primarily used to keep records of activities and contacts. It is also used to generate reports, and as a repository of different online resources for partners. It is utilized to manage and audit TeleECHO clinics, to collect data on TeleECHO clinic performance, and to provide online resources to partners. It is a web based tool and has the possibility of infinite scalability.

Research, Data and Evaluation Expansion Plans

Over half of Project ECHO's total budget over the next three years resides in its research, data and evaluation division. This division encompasses ECHO's continued development of its Telehealth Technology, iHealth and iECHO software products, as well as its Big Data initiative, which will become a key value creation engine and marketing tool for the organization going forward. Grant funding over next three years is a one-time investment that will carry ECHO's data division to sustainability as its Big Data program and iHealth and iECHO databases begin generating significant revenue for ECHO.

A key component of ECHO's effectiveness in standardizing and improving care to-date has been its development of the iHealth and iECHO software platforms. These tools track case presentations, patient lab values and other data points, treatment information and patient outcomes over time seamlessly throughout a hub, and allow for immediate, efficient communication between providers at ECHO spokes and specialists at the hub. Fully HIPAA-compliant, iHealth and iECHO are the data communication links that allow the time spent in ECHO clinics to be maximized for all parties. Over the next three years, ECHO will continue to devote considerable resources to further developing these platforms and pushing them out to existing and future hubs.

The second component of ECHO's research and data division is its Big Data initiative, which aims to leverage the treatment and outcomes information generated by ECHO clinics worldwide and aggregate it into valuable and accessible data sets. The mechanisms for collecting this data are already in place for all ECHO hubs through the iHealth database, which seamlessly tracks clinic attendance, case presentation, and treatment over time. Over the next three years, ECHO will develop ways to easily mine this data for valuable insights and analysis. With nearly 100,000 annual case presentations projected across the entire ECHO network by 2017, the potential value of this data is immense, not only to ECHO but to academic researchers, government entities, insurers, pharmaceutical companies, and individual providers.

Big Data: Potential Product Offerings

Product	Description
General Research	Allow approved researchers to access data
Centralized IT	Provide access to centralized IT infrastructure that other hubs may not be able to afford
Analytics Services	Consulting services such as statistical and modeling analysis performed by ECHO on behalf of other entities
Training and Conferences	Training on data mining and analysis of the ECHO database
Published Work	Collect and publish presented papers into a Proceedings Book
Data Housing	House other entities' non-health related data

To implement its big data strategy, ECHO-New Mexico will collect de-identified and summary health information from its partner hubs, aggregating it into a local data warehouse. ECHO will create a suite of standard queries and reports from this data, and also incorporate outside data from state health information exchanges and other medical registries to maximize the data's utility. By the third year of the program's implementation, ECHO will have sophisticated user portals where its clients can produce on-demand reports and generate statistical analysis of the ECHO data. Future utilization of the iHealth database includes allowing approved researchers to utilize the portal for research purposes, performing advanced statistical modeling and analysis, and collecting and publishing papers on the data and its analysis and aggregating the research into a Proceedings Book. ECHO-New Mexico will also be able to house advanced IT functions for other hubs who may not be able to afford such infrastructure. All these activities will be revenue generators to aid in ECHO's long-term sustainability.

In addition to its external use as a revenue generator, the big data strategy will provide for significant improvements internally at ECHO hubs. The data will enable hubs to apply informatics to their own patient panel data and teach them how to use the information to apply their resources more cost effectively. The data will help hubs target the patients most needing treatment using predictive

modeling to examine current labs, risk factors and previous dates of service. Hubs will also be able to better evaluate what care is needed in a given case by using informatics and predictive modeling to help individualize a care plan for each patient. Finally, hubs will be able to determine how best the care plan can be implemented in a cost-effective manner, integrating the MD, RN, CHW, MA and other care team members to off-load work from the most expensive providers.

Although the big data strategy is still early in its planning and implementation, ECHO has already received requests from would-be customers in the insurance and pharmaceutical industries, as well as academic institutions, to purchase access to its data for research and evaluation purposes. Over the next three years, ECHO will spend up to $4 million to build out its big data infrastructure, data mining capabilities, and user portals to maximize the value of this data. Once this is in place, ECHO expects to derive significant revenue from its data. Just as importantly from a mission standpoint, statistical analysis of the database will give ECHO's partner hubs access to continually improving best practices, increasing the effectiveness of ECHO clinics and improving global outcomes.

Policy and Advocacy Expansion Plans

One of the keys to ECHO's success in achieving scale will be awareness of the Project and its effectiveness in the broader healthcare industry. Dr. Arora spends significant time advocating for the project with new entities such as AMCs and government leaders as well as at conferences for the industry and its funders. This work not only raises the profile of Project ECHO in New Mexico, but generates momentum for the ECHO concept and its potential to improve healthcare globally. Resources must continue to be devoted to this work to grow ECHO's pipeline of funding and potential replicators, as well as to increase knowledge and acceptance of ECHO in both the academic and provider circles.

Raising ECHO's profile among government at all levels is also a priority going forward. In order to open up new funding streams and help health departments understand ECHO's alignment with their own priorities, ECHO will work at the governmental level to spread awareness of its model and benefits to underserved constituencies. On the policy side, several major initiatives are being worked on to demonstrate the cost-effectiveness of the ECHO model and bring about systemic changes in healthcare delivery across the US. Project ECHO UNM has received pilot funding from the Center for Medicaid and Medicare Innovation (CMMI) to pilot the ECHO Care program, combining a TeleECHO clinic focused on complex care with multidisciplinary care teams providing high-touch patient-centered care for a panel of patients with multiple mental/behavioral and medical diagnoses and high anticipated costs. This model is being looked at by Medicaid leaders around the country as a potential replicable model. Dr. Arora has been consulted by government leaders within the House, Senate, CDC, PECORI and many other government agencies regarding healthcare reform.

In addition to Dr. Arora's continuing efforts, ECHO will hire up to four full time employees to carry on these efforts. These employees will be responsible for demonstrating the ECHO model and sharing its benefits to key players in the healthcare industry, as well as the philanthropic and governmental sectors. This advocacy work is crucial to sustaining the high demand that ECHO is currently experiencing for replication, and to developing funding relationships not only for ECHO-New

Mexico, but also for new hubs to avail themselves. Some key results this advocacy work will achieve are awareness of ECHO throughout the academic medical community, widespread political understanding of ECHO's alignment with the goals of the Affordable Care Act, and relationships with insurers who see the value of ECHO and will entertain funding it on a per case or PM/PM basis for new hubs. On the latter ECHO has already made significant headway, maintaining relationships with all major national insurers, and is in process of developing standard contracts that could be used to ensure the financial viability of new hubs, as insurers pay for the economic value they receive from the improved care that takes place under the ECHO model. The fully loaded annual budget for ECHO's policy and advocacy division will be approximately $600k over the next four years.

Finances: Capital Requirements and Use of Funds

Project ECHO's budget over the next three years is $29.3 million, which will fund its operations and rapid scaling. ECHO will use these funds to continue operation of its New Mexico hubs as well as build infrastructure to support its technical assistance, research and data, and policy and advocacy divisions. This funding will enable ECHO to reach two important milestones: a self-sustaining, high performance technical assistance division responsible for the creation of 20+ new ECHO hubs per year; and a fully built-out big data product offering with significant revenues. In order to effectively build its organizational infrastructure, ECHO plans to hire up to 19 new FTEs in fiscal 2014 across all divisions. Specific staff increases are described in the narrative below, and summarized in the future staffing table in Appendix IV.

Project ECHO Capital Requirements (excluding capital already committed)

Division	Capital Requirements
New Mexico Clinics	$1.6 million
Replication	$250k
Research, Data and Evaluation	$6.5 million
Policy and Advocacy	$1 million
Management and Administration	$4.5 million
Total	**$13.8 million**

With $13.3 million committed already and $2.2 million expected from earned revenues, Project ECHO is seeking $13.8 million in grant funding over the next three years to realize its vision. Below are the breakdowns of capital required and envisioned use of funds for each division. Note that budget numbers may differ from other points in this document as those detailed below are direct costs only, as opposed to the fully loaded costs mentioned elsewhere in the narrative, which fold in portions of the Overhead and Administrative budget detailed below. See Appendix I "ECHO Financial Projections" for detailed financial information.

New Mexico Clinics: Existing Funding and Capital Requirements

The cumulative direct budget for ECHO's New Mexico clinic operations over the next three fiscal years is $6.1 million. $4.5 million has already been committed to fund these operations from the New Mexico state government GE Foundation, and philanthropic sources, leaving $1.6 million yet to be raised. It is probable that the same or similar funders (governmental and private) will continue to see value in ECHO's New Mexico operations and will thus fund the remaining budget by FY 2016 when it is needed. That said, ECHO is actively looking to raise these funds from whatever sources are available, including grants for both operations and research, as the New Mexico clinics are a testing site for new models of more efficient and effective ECHO program delivery and are thus attractive to grantors looking to fund innovation. Fee income is also a possibility, as ECHO expects other insurers to follow suit with Molina and evaluate paying ECHO for its work. Finally, New Mexico's Human Services Department is a likely source for further funding as it re-ups its Medicaid Match funds (which totaled over $900k in FY 2013). Over the long term, a mix of fee income, government funding, and research grants will form the critical mass of funding to keep New Mexico's clinics in operation.

Currently, ECHO-New Mexico operates 10 TeleECHO provider clinics and 3 CHW training clinics, at a direct cost of approximately $140k per clinic. Over the next three years, New Mexico's clinic lineup will remain largely unchanged, although it projects adding up to 2 new clinics over this time period. On average, each clinic consumes approximately 0.4 FTE in UNM faculty specialist time, as well as 1.2 FTE in non-faculty personnel. ECHO expects this per-clinic time allocation to remain the same going forward, and cost per clinic to remain steady as well, since direct clinic costs are largely personnel-related.

Replication: Existing Funding and Capital Requirements

Over the past two fiscal years, Project ECHO has spent less than $300k per year directly on technical assistance to potential replicators, but this is forecast to increase steadily going forward. In FY 2014, ECHO has budgeted $546k toward this division, growing to $902k by FY 2016. 4.5 FTEs will be dedicated to technical assistance by 2016, spending their time on both recruitment of new ECHO hubs and training of those that move forward with replicating the ECHO model. ECHO expects that with this staffing, 20 or more new hubs will be launched per year.

While the recruitment and training of replication hubs does not have direct fee income associated with it, it is crucial from a mission standpoint to scale the impact of ECHO. It will also lead to a recurring revenue stream for ECHO forecast to reach $500k by FY 2016 as new hubs will pay a modest annual fee to be part of the ECHO network and have access to the relationships, research, and knowledge base of the global network. In addition, ECHO anticipates that it will continue to receive contracts for technical assistance from organizations wanting to utilize ECHO personnel and resources for support in larger or more complex implementations of the ECHO model. This revenue source has exceeded $2 million cumulatively over the past three years, and we anticipate that it will grow going forward. The combination of these two revenue sources will enable ECHO not only to create a self-sustaining technical assistance division, but also to ease reliance on general grant funding for the rest of the organization.

Research, Data and Evaluation: Existing Funding and Capital Requirements

Over the next three years, Research, Data and Evaluation will be the largest division of ECHO as it increases efforts to develop the iECHO and iHealth databases and implement its big data strategy. The annual direct budget for this division will reach $3.7 million by 2016, split between efforts to improve existing ECHO software products and its big data division. The former is essential to streamline the iECHO and iHealth products for easier use and more widespread implementation. The goal is to make these products "plug and play" for new hubs, and provide seamless integration between spokes, hubs, and the global ECHO network, and to enable software fixes and improvements to be pushed to hubs, keeping the entire network up to speed. ECHO expects that the market for aggregate healthcare data among academic institutions, governments, and the private sector (including the pharmaceutical and insurance industries) will enable it to realize a long-term return on this investment and move the organization much closer to ongoing sustainability.

To accomplish all this, programmers and other IT professionals will be hired over the next few years, ramping staffing up from the current 15 FTEs to 38 by FY 2016. Hiring these professionals will be

the main use of funds for the research and data division. By the end of FY 2016, the big data strategy should be in implementation and derive significant revenue, reducing or eliminating the need for grant financing to sustain data and research operations beyond 2016.

Policy and Advocacy: Existing Funding and Capital Requirements

The annual direct budget for ECHO's policy and advocacy activities over the next three years will range from $400k-$500k and will be used toward raising awareness for the ECHO model in the public, private, non-profit, and for-profit realms of the medical industry. This division is essential to take ECHO to scale, since alongside the technical assistance division, it is the main "marketing" arm of Project ECHO. Building on the public relations and awareness foundation put in place through Dr. Arora's tireless efforts, ECHO will extend its outreach to make AMCs, relevant government entities, and insurers aware of ECHO and its proven effectiveness in improving healthcare outcomes as well as the economic benefits derived by the project.

Management and Administration: Existing Funding and Capital Requirements

In order to support the above activities, Project ECHO will have to build a deeper and more complete organizational infrastructure than it currently has in place. To do this, ECHO will spend up to $3.4 million annually on administrative and organizational expenses going forward. Approximately 50% of this expense will be personnel-related, including the current headcount (Dr. Arora, Dr. Thornton, Dr. Komaromy, as well as 5 FTE management staff) and new hires to increase organizational capacity. Specifically, ECHO plans for: two new C-level hires over the next three years (COO and CFO); two additional staff in the finance, accounting, and human resources department in addition to its current headcount of 1.7 FTEs; and 4.0 FTE administrative and clinic management positions in addition to the 6.5 FTEs it currently has. Please refer to the future ECHO staffing table in Appendix IV for more detailed information on ECHO's planned hires in all departments.

By far the greatest non-headcount administrative expense is F&A expense due to the University of New Mexico Health Science Center (UNMHSC), which is a portion of all grant funding received by ECHO. The percentage of each grant that UNMHSC receives in the form of F&A expense is negotiated with each grant, and ECHO estimates that average F&A going forward as a percentage of total grant funding will be 13.3%. This comprises up to 80% of all non-personnel related administrative expense. The remainder of the administrative funding requirement includes facilities and maintenance expenses, supplies, and indirect communication costs.

Appendix I: ECHO Financial Projections

Project ECHO National Office

Pro Forma P&L, Annual by Division

	FY 2014	FY 2015	FY 2016	*FY 2017**
NM Clinics				**FY17 not included in funding request*
Revenue				
Fee Income	$276,319	$284,608	$293,147	$301,941
Government Funding	$572,538.75	$472,736	$472,736	$472,736
Grants: Operations	$911,967	$878,884	$779,442	$935,331
Grants: Research	$878,884	$878,884	$559,442	$671,331
Total Revenue	**$2,639,709**	**$2,515,113**	**$2,104,767**	**$2,381,338**
Expenses				
ECHO Personnel	$469,940	$536,568	$521,929	$589,370
Faculty Time	$517,925	$591,356	$575,222	$649,550
Non-Headcount	$608,165	$694,391	$675,445	$762,723
Direct Overhead	$291,374	$332,685	$323,608	$365,423
Total Expenses	**$1,887,403**	**$2,154,999**	**$2,096,204**	**$2,367,066**
Operating Income - NM Clinics	**$752,306**	**$360,114**	**$8,563**	**$14,272**
Technical Assistance				
Revenue				
Hub Membership Fees	$52,583	$255,667	$507,625	$779,792
TA Contracts	$678,868	$500,000	$600,000	$750,000
Operations Grants	$0	$250,000	$0	$0
Total Revenue	**$731,451**	**$1,005,667**	**$1,107,625**	**$1,529,792**
Expenses				
ECHO Personnel	$360,180	$528,102	$551,245	$564,782
Non-Headcount	$108,800	$257,040	$272,000	$272,000
Direct Overhead	$77,106	$78,484	$79,294	$61,767
Total Expenses	**$546,086**	**$863,625**	**$902,538**	**$898,549**
Operating Income - Technical Assistance	**$185,365**	**$142,042**	**$205,087**	**$631,242**
Research, Data and Evaluation				
Revenue				
Big Data and Other IT Revenue	$121,083	$198,667	$218,583	$228,583
Operations Grants	$2,500,000	$3,000,000	$3,500,000	$3,500,000
Total Revenue	**$2,621,083**	**$3,198,667**	**$3,718,583**	**$3,728,583**
Expenses				
ECHO Personnel	$2,282,845	$2,528,789	$3,038,761	$3,224,057
Consultants	$439,340	$452,520	$466,096	$480,079
Non-Headcount	$10,320	$11,893	$13,742	$15,884
Direct Overhead	$181,720	$167,972	$202,767	$205,727
Total Expenses	**$2,914,225**	**$3,161,174**	**$3,721,366**	**$3,925,747**

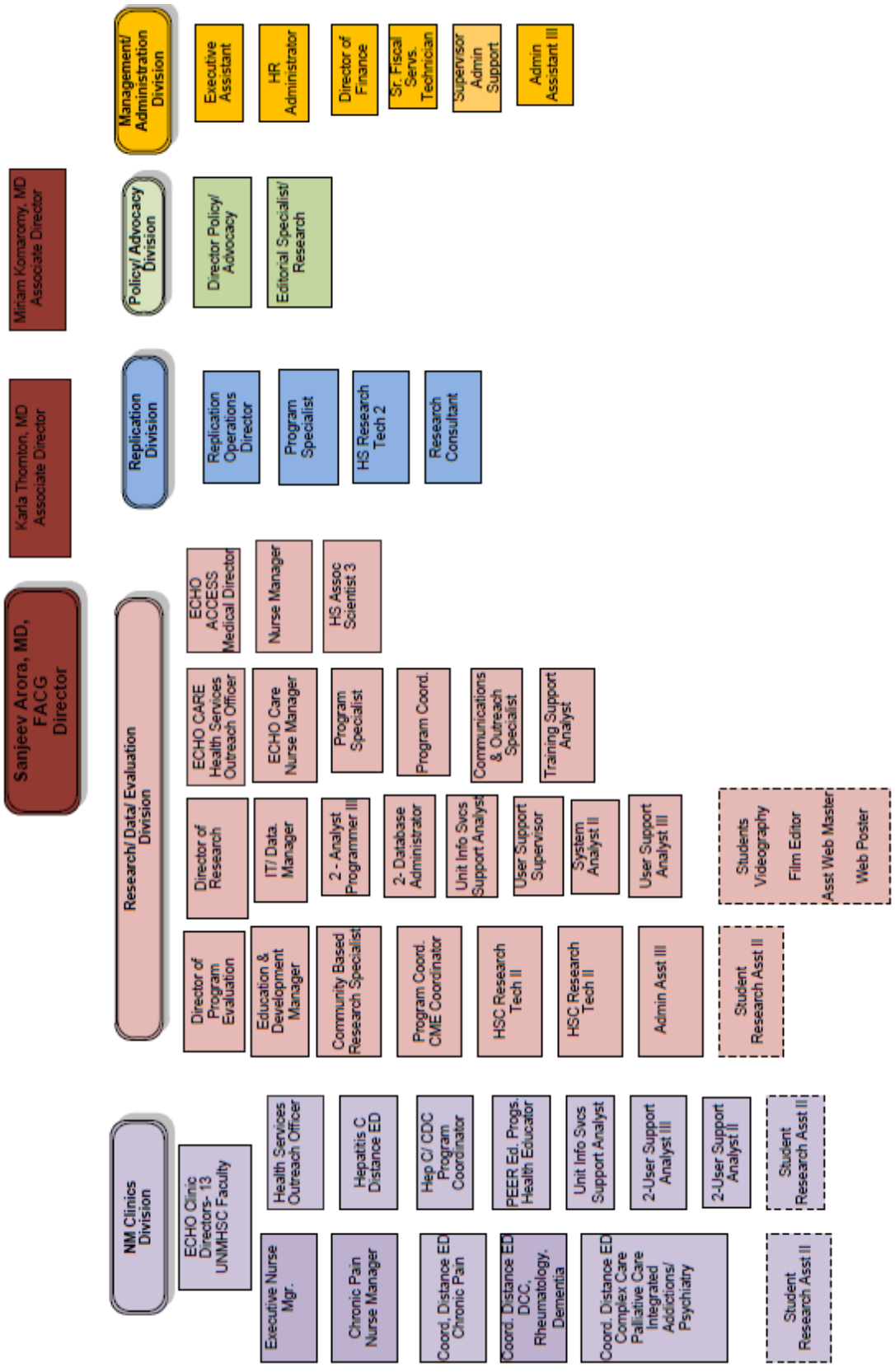
Operating Income - Research and Data	**($293,142)**	**$37,493**	**($2,783)**	**($197,164)**
Policy and Advocacy				
Revenue				
Operations Grants	$500,000	$500,000	$500,000	$500,000
Total Revenue	**$500,000**	**$500,000**	**$500,000**	**$500,000**
Expenses				
ECHO Personnel	$204,595	$210,732	$217,054	$223,566
Consultants	$129,218	$133,094	$137,087	$141,200
Non-Headcount	$73,440	$73,440	$73,440	$73,440
Direct Overhead	$23,560	$18,910	$19,478	$20,062
Total Expenses	**$430,812**	**$436,177**	**$447,059**	**$458,268**
Operating Income - Policy and Advocacy	**$69,188**	**$63,823**	**$52,941**	**$41,732**
Management and Administration				
Revenue				
General Operations Grants	$2,270,136	$2,697,754	$3,191,280	$3,075,343
Total Revenue	**$2,270,136**	**$2,697,754**	**$3,191,280**	**$3,075,343**
Expenses				
ECHO Management	$888,371	$1,025,934	$1,056,712	$1,088,413
Administration	$310,122	$319,426	$356,426	$367,119
Facility Expense	$46,202	$51,083	$56,477	$59,702
Recurring Overhead (incl. F&A)	$1,121,034	$1,268,114	$1,329,704	$1,374,749
Accounting (incl. personnel)	$201,903	$207,960	$214,198	$220,624
HR (incl. personnel)	$80,761	$83,184	$85,679	$88,250
Other Costs	$335,461	$345,525	$355,891	$366,567
Total Expenses	**$2,983,854**	**$3,301,225**	**$3,455,087**	**$3,565,425**
Operating Income - Overhead and Administrative	**($713,718)**	**($603,471)**	**($263,807)**	**($490,082)**
Net Operating Income	**$0**	**$0**	**$0**	**$0**

Appendix II: ECHO Financial Projections Assumptions

Assumptions Informing Project ECHO Financial Projections	
P&L Line Item	**Related Assumptions**
NM Clinics	
Revenue	
Fee Income	Direct fee income from payers (excludes Medicaid Match funds)
Government Funding	Includes committed NM government funding plus future anticipated allocations.
Grants: Operations	Committed grants allocated equally between Operations and Research, plus needed future grants (FY16 and FY17) to fund operations.
Grants: Research	
Expenses	
ECHO Personnel	Non-faculty personnel (see Personnel table for detailed headcount info).
Faculty Time	UNM faculty serving as paid clinic facilitators (see Personnel table for detailed headcount info).
Non-Headcount	Allocations based on historical clinic costs, including travel, supplies, communications, and all other non-headcount clinic expenses.
Direct Overhead	
Technical Assistance	
Revenue	
Hub Membership Fees	For all future hubs: $10k annual membership fee, $500 annual Data Access fee, plus $500 additional annual fee per tele-ECHO clinic.
TA Contracts	Based on existing TA clients including VA and DoD. Projecting similar annual levels going forward from government entities seeking intensive implementation help from ECHO.
Operations Grants	Committed grant funding for FY14, none anticipated to be necessary in future years.
Expenses	
ECHO Personnel	4.5 FTE headcount by FY14 to sustain direct replication / technical assistance operations.
Non-Headcount	Primarily travel-related expenses as TA personnel support new ECHO implementations
Direct Overhead	Supplies, communications, etc. A marketing budget of up to $60k per year is also included.
Research, Data and Evaluation	
Revenue	
Big Data and Other IT Revenue	Ramp-up of Big Data services (see narrative). Projected to see rapid increase in future years past FY2017 once ECHO Big Data operations are fully developed and functional.

Operations Grants	Grant funding through FY14 committed. Funding R&E Big Data efforts will be a primary use of funds for new grant funding.
Expenses	
ECHO Personnel	Personnel ramp to 27 FTEs in FY14, up to 35 by FY17 (see Personnel table).
Consultants	External assistance in grant funded research and evaluation projects. Includes UNM-HSC faculty time dedicated to R&E.
Non-Headcount	Supplies, communications, etc, including hardware expenses
Direct Overhead	
Policy and Advocacy	
Revenue	
Operations Grants	Policy and Advocacy will be funded by grants and, in the future, subsidized by revenues from TA and Big Data. Grants through FY2014 are already committed.
Expenses	
ECHO Personnel	Up to 3.4 FTE including Consultants. P&A personnel efforts are key to ECHO's marketing and awareness efforts.
Consultants	Includes UNM-HSC faculty time dedicated to P&A.
Non-Headcount	Primarily travel-related.
Direct Overhead	Supplies, communications, etc, including hardware expenses
Management and Administration	
Revenue	
General Operations Grants	Operations grants will fund ECHO administration alongside subsidy from other divisions. In future years as Big Data and TA revenue increases, the majority of O&A will be covered by surpluses from those divisions. Grant funding through FY14 is already committed.
Expenses	
ECHO Management	Full-time COO and CFO to be hired in FY2014. See Personnel exhibit for detailed assumptions.
Administration	Expansion of admin assistants and similar positions. See Personnel exhibit for detailed assumptions.
Facility Expense	Based on historical figures and projected headcount increases.
Recurring Overhead (incl. F&A)	Mainly (95%) F&A due to UNM, projected to average 13.3% of grant allocations going forward based on existing contracts.
Accounting (incl. personnel)	Increase in accounting personnel (see Personnel exhibit).
HR (incl. personnel)	Increase in HR personnel (see Personnel exhibit).
Other Costs	Based on historical figures and projected headcount increases.

Appendix III: Project ECHO Org Chart



Appendix IV: Future Staffing Table

Position	FTEs (at fiscal year-end)				
	FY 2013	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**
NM Clinics					
Faculty	5.3	5.7	6.1	6.1	6.5
Non-Faculty	14.0	16.3	17.6	17.6	18.9
TOTAL	**19.3**	**22.0**	**23.7**	**23.7**	**25.4**
Replication					
Replication Management	1.0	1.5	1.5	1.5	1.5
Training and Implementation	2.0	1.0	1.0	1.0	1.0
Research and Admin Support	1.0	2.0	2.0	2.0	2.0
TOTAL	**4.0**	**4.5**	**4.5**	**4.5**	**4.5**
Research and Evaluation					
UNMHSC Faculty and Consultants	3.0	4.0	4.0	4.0	4.0
Informatics	4.0	5.0	6.0	7.0	8.0
Analytics	5.0	7.0	8.0	10.0	10.0
Head of Product Development	1.0	2.0	2.0	2.0	2.0
Product Developers	10.0	13.0	13.0	15.0	15.0
TOTAL	**23.0**	**31.0**	**33.0**	**38.0**	**39.0**
Policy and Advocacy					
UNMHSC Faculty and Consultants	1.0	1.0	1.0	1.0	1.0
Networking	0.0	1.4	1.4	1.4	1.4
Data Specialists	1.0	1.0	1.0	1.0	1.0
TOTAL	**2.0**	**3.4**	**3.4**	**3.4**	**3.4**
Overhead and Administrative					
Management	1.5	3.0	3.0	3.0	3.0
Clinic Management	1.5	3.0	4.0	4.0	4.0
Finance & Accounting	1.0	2.5	2.5	2.5	2.5
Human Resources	1.0	1.0	1.0	1.0	1.0
Administrative	4.0	6.0	6.0	6.5	6.5
TOTAL	**9.0**	**15.5**	**16.5**	**17.0**	**17.0**
Total Headcount	**57.3**	**76.4**	**81.1**	**86.6**	**89.3**

Appendix V: ECHO Staff and UNMHSC Board Biographies

Project ECHO Executive & Key Staff Biographies

Director of Project ECHO – Sanjeev Arora, MD, FACP, FACG

Dr. Arora is the Founder of Project ECHO and is a Distinguished Professor of Medicine with tenure in the Department of Internal Medicine at University of New Mexico Health Sciences Center. The ECHO model was developed as an innovative paradigm to expand access to specialty medical care for vulnerable populations and underserved areas. Using videoconferencing technology integrated with clinical management tools, ECHO builds capacity among community-based clinicians via case-based learning and co-management of patients. This helps rural clinicians develop knowledge and self-efficacy so they can adopt research findings and deliver best practice care for complex and chronic health conditions. The first TeleECHO clinic was developed in 2003 to respond to a growing health crisis hepatitis C and has since expanded to cover over a dozen other specialty areas and at Academic Medical Centers across the United States and around the globe. The Veterans Health Administration and the Department of Defense have also adopted the ECHO model to enhance access to specialty care. In 2007, Project ECHO came in first among more than 300 entries from 27 countries in winning the Changemakers award. This international competition was sponsored by the Robert Wood Johnson Foundation (RWJF) and Ashoka Foundation to identify programs that are changing the paradigm of how medicine is practiced. In 2011, ECHO published a prospective cohort study in the New England Journal of Medicine, to prove that treatment for HCV by primary care providers using the ECHO model is as safe and effective as treatment by specialists at an Academic Medical Center. Over the last 10 years Dr Arora has received more than 27 million dollars of grant support. In 2013, Dr Arora was awarded the Second Rosenthal Award from the Rosenthal Family Foundation, American College of Physicians and the American Telemedicine Association (ATA) President's Award.

Associate Director of Project ECHO – Karla Thornton, MD, MPH

Dr. Thornton obtained her medical degree from the University of Texas Southwestern and her Masters in Public Health from the University of Michigan. She completed her Internal Medicine residency, Chief residency, and Infectious Diseases fellowship at the University of New Mexico School Of Medicine. She joined the faculty in 1999. Dr. Thornton's interests have focused on HIV and Hepatitis C (HCV). In 2005 she established an HIV/HCV coinfection clinic and became a regional expert. Because of her expertise, she was hired by Dr. Sanjeev Arora to provide consultation for HIV/HCV coinfected patients presented to the Project ECHO (Extension for Community Healthcare Outcomes) HCV clinic. Through this program she

trains other providers how to comprehensively care for patients with chronic HCV. She now serves as the Associate Director of Project ECHO. In addition to training providers, she has been committed to reaching underserved populations to teach them about important health issues. In July 2009 she started the New Mexico Peer Education Project: Prisoner Health is Community Health. This program trains New Mexico state prisoners to be peer educators and experts in HCV, addictions, and other relevant health issues. Despite the limited effort allocated to research as a clinician-educator, Dr. Thornton has been actively involved in outcomes research. Most recently she was the second author on a study comparing the outcomes of patients treated for HCV in underserved areas and prisons as compared to an academic health center. This study was published in the New England Journal of Medicine in 6/2011.

Associate Director of Project ECHO – Miriam Komaromy, MD

Dr. Komaromy is the Medical Director for the Project ECHO Addiction Treatment Program, aimed at engaging and supporting primary care medical providers in treating addiction. For the past 7 years she has served as the Medical Director for Turquoise Lodge Hospital, an addiction treatment hospital funded by the State of New Mexico. She is a board certified in Addiction Medicine and Internal Medicine, and was trained at the University of California, San Francisco, where she also served on the faculty for a number of years. Dr. Komaromy is a Board Chairman for the NM non-profit Heroin Awareness Committee.

Director of Research – Glen Murata, MD

Dr. Murata has been an independently-funded investigator for over 25 years and authored over 170 peer-reviewed manuscripts. His research has focused on chronic, debilitating diseases such as chronic obstructive pulmonary disease, chronic renal failure, and type 2 diabetes. His principal interests are outcomes research, clinical prediction rules, and use of information technology to improve patient care. He mentors numerous other VA investigators in the areas of data management and study design through his directorship of our new Center for Health Systems and Informatics Research sponsored by the VA Southwest Health Care Network. He has served on the Executive Partnership Council of Region One for the Office of Information and Technology, Department of Veterans Affairs; on the Health Care Quality and Effectiveness Study Section of the Agency for Healthcare Research and Quality; and as the Director of the Biomedical Informatics Core of the UNM CTSC. Dr. Murata is one of 3 founding faculty members for Project ECHO – an internationally recognized program that trains primary care clinicians to deliver specialty care in underserved areas. This program has won numerous national and international awards for technological innovation and is considered a model delivery system by several federal agencies including VA. As Project ECHO's director of research, he mentors several of its faculty in the areas of community-based study design, data acquisition and analysis, and multivariate modeling and acts as the principal consultant to other medical schools and federal agencies replicating the model including the Departments of Veterans Affairs and Defense. He is the principal architect for disease

registries and health analytics software that currently support the patient-centered medical home in the VA Southwest Health Care Network – all of which have been submitted by VA's Office of Technology Transfer, VA Research & Development Service or UNM Science & Technology Corporation to the US Patent and Trademark Office for non-provisional patents. He has also developed 2 computerized decision-support tools for patients and their providers to guide insulin and statin treatment – again both under review for non-provisional patent protection. As Chief of the NMVAHCS Informatics Service, he supervises 3 faculty members, 2 nursing staff, and 3 technical staff on database interrogation and dissemination of results.

Clinical Evaluation Director – Summers Kalishman, PhD

Dr. Kalishman, an associate professor in Family and Community Medicine at the University of New Mexico School of Medicine has participated in evaluation of AHRQ, HRSA, and NIH federally supported initiatives in education and research. Her recent focus includes evaluation associated with clinician workplace learning, and faculty development in education and leadership at the academic center. She is interested in application of educational theories and constructs like self-efficacy, communities of practice, diffusion of innovation, deliberate practice, and adaptive expertise to faculty development and workplace learning with these populations. She studies adoption and use of technology in healthcare by clinicians and patients. She is interested in knowledge and use of best practices and associated protocols in clinical settings. Her work involves use of educational principles and adult learning theory to shape empirical interventions and evaluation studies. She looks at associated reasons and patterns for adoption of learning about best practices in educational scholarship.

Director of IT/Data – William Szaroletta, PE

Mr. Szaroletta has technical degrees from Michigan, Stanford, and Georgia and is a registered professional engineer. He had over 30 years of experience in the engineering and IT areas in both small start-up and large corporations. He has authored over 30 technical publications and been awarded 15 US patents. He has led the IT effort at echo for one year managing a group of 12 IT professionals.

Director of Replication Initiatives – Erika Harding, MA

Ms. Harding received her International Baccalaureate (IB) from the United World College of the American West, a BA in political science from Barnard College and did her graduate work at UNM in Latin American Studies. She served as UNM's Representative in Mexico, while working as the UNM Latin America Data Base analyst for political and economic issues. She has a long history of work in public education, public health policy and health education, including working in the areas of reproductive health and melanoma prevention. She served as Education and Outreach Manager for UNM Health

Science Center's Project ECHO, and was responsible for the design and implementation ECHO's flagship Diabetes Community Resource Education Worker (CREW) training program, which has been the model for other CHW training initiatives based on the ECHO model of care. She now leads ECHO's replication team and initiatives, facilitating the expansion of the ECHO Model to other US states and regions and around the world.

HR Administrator – Leah Boetger, MS Ed, SPHR, CPLP

Ms. Boetger is charged with setting up human resources processes and structures for Project ECHO. Prior to coming to Project ECHO in May 2013, she worked as a Senior Human Resource Development Consultant with UNM HR Employee & Organizational Development. She earned her master's degree with a concentration in workforce education and development from Southern Illinois University. She has been working in the field of adult education, organizational development and training since 1992 beginning in the healthcare field, later in the financial industry, and currently in higher education. Her areas of specialization include quality principles, interpersonal communication, and management competency development. In 2008, she earned her CPLP credential, which means she is nationally recognized as a Certified Professional in Learning and Performance by American Society for Training & Development (ASTD) and the workplace learning community, later in 2010 Leah was certified as a Senior Professional in Human Resources (SPHR) through the Society of Human Resources Management (SHRM).

Director of Finance – Amy Hunter Baird, BBA

Ms. Hunter Baird has been with Project ECHO since July 2009, serving as the Director of Finance for Project ECHO. She has over 30 years of experience in accounting and finance with the University of New Mexico. She completed a B.B.A. with a concentration in accounting at the University of New Mexico.

Project Manager, ECHO Care – Carol Hinton, MHSA, BS

Ms. Hinton is the program manager at Project ECHO for a grant funded by the Center for Medicare and Medicaid Innovation to introduce a new model of primary care termed "ECHO Care". Her work experience has focused on the administrative side of providing healthcare, serving in operations management roles at the University of New Mexico Hospital and at Health Plus Inc., a managed care organization now known as Presbyterian Health Plan. She has a Bachelor's of Science degree in management and a Master's degree in health services administration from Arizona State University. As a community volunteer, Carol has been involved in leadership and governance with the United Way of Central New Mexico and various school boards and is a graduate of the Leadership Albuquerque Program.

Executive Nurse Manager – Jeanne F. Boyle, MSN, RN

Ms. Boyle serves as a clinical programs manager and liaison for replication of the ECHO Model. For the ten years prior to joining ECHO, Ms. Boyle was a clinical neurology and rheumatology manager and research nurse with a special focus on muscular dystrophy, motor neuron diseases, movement disorders, rheumatologic conditions and chronic pain. Throughout her long nursing career she has completed several research projects and associated publications. Ms. Boyle has a passion to serve the underserved and has been on the board of directors for two non-profit health organizations. Ms. Boyle also currently serves on an NIH award for interprofessional pain education and is developing a new program in the Indian Health Service.

Editorial Specialist/Research – Andrea Bradford, MSc

Ms. Bradford received her BA in History from the University of California, Santa Barbara, a postgraduate diploma in Government (European Policy & Policy Making) from the University of Manchester, and an MSc in International & European Politics (Political Economy) from the University of Edinburgh. She worked for the Scottish Government under the Health and Social Care Directorate as a Policy Officer in the Partnership Improvement and Outcomes Division. Her policy called 'Hub' aimed to coordinate social and medical care to avoid redundancies and reduce costs. Ms. Bradford joined Project ECHO in 2009, and currently serves as the Editorial Specialist/Research. Ms. Bradford serves as the grant writer for Project ECHO and oversees grant applications, publications and all written materials. She now also leads ECHO's communication efforts including social media, press releases, and website content.

Business Consultant – Zach Grafe, BBA

Mr. Grafe serves as a consultant to Project ECHO, working alongside Dr. Sanjeev Arora and Erika Harding on organizational strategy, replication planning, and implementation. He performs detailed financial analysis and modeling for ECHO and also helps with business planning for internal strategy and communication with stakeholders. Mr. Grafe formerly worked with a New Mexico venture capital fund and has a background in private equity and management consulting. He specializes in complex financial modeling; data tracking and analysis systems; and analytical support for communications including business plans, grant applications, and publications. He is passionate about using his strategic and analytical skills to help organizations create scalable, sustainable social change. He graduated *Summa Cum Laude* from Texas A&M University with a BBA in finance.

UNM Health Sciences Center Board of Directors

NOTE: full director biographies may be found at http://hsc.unm.edu/HSCBoD/directors/index.html

Suzanne Quillen, Chair

- CEO of the Advanced Care Hospital of Southern New Mexico
- Member, University of New Mexico Board of Regents
- Chair, Health Sciences Center Board of Directors

John "Mel" Eaves

- President and Share Holder, Eaves & Mendenhall, P.A.
- Member, Health Sciences Center Board of Directors

Lieutenant General Bradley C. Hosmer, USAF (Ret.)

- Chair, Board of Directors of the Armed Forces Services Corporation
- Private Consultant, Department of Defense and Industry
- Member, University of New Mexico Board of Regents
- Member, Health Sciences Center Board of Directors

Conrad D. James

- Member, technical staff at Sandia National Laboratories
- Representative in the New Meixo State Legislature from 2011-2012
- Member, Health Sciences Center Board of Directors

Michael Olguin

- Owner, Michael Olguin Insurance Associates
- Staff Consultant to late Congressman Harold Runnels on House Interior and Insular Affairs Committee, Washington D.C.

- New Mexico State Representative for Socorro, Catron and Valencia Counties
- Member, Health Sciences Center Board of Directors

Ann Rhoades

- President and Board Member, People Ink
- Co-Founder and CEO, CareLeaders Corporation
- University of New Mexico – Robert O. Anderson School of Business National Advisory Board
- Member, Health Sciences Center Board of Directors

Appendix VI: Menu of Replication Resources

Project ECHO® (Extension for Community Healthcare Outcomes)

Project ECHO ® Replication – Menu of Resources

Directions: Please check the appropriate box if you would like to have the information/documentation sent to or if you would like to be signed up for a specific Project ECHO® service. Boxes that are shaded in are not applicable.

Getting Started

We have developed a step-by-step process to support the creation of a successful collaboration. Below is a list of recommended steps; it is not essential that they be completed in the order presented:

Send Me	Sign Me Up	Activity-Item
		Attend Orientation Event – Free monthly event in Albuquerque, NM, USA. Please register at: http://echo.unm.edu/orientation.html
		Complete Statement of Collaboration for Replicating Partners – This is a "front-end" document that outlines the roles and responsibilities between Project ECHO® and replicating partner organizations. Typically this is signed by the replicating partner program director or university leadership.
		Complete Project ECHO® Terms of Use Agreement – This is a legal contract, in draft form, which serves to protect Project ECHO®'s Intellectual Property. This should be reviewed, revised as necessary, finalized and signed by legal counsel of the replicating partner.
		Due Diligence Questions. In the case of partnerships with for-profit or not-for-profit organizations (as opposed to Academic Medical Centers or universities), we need to demonstrate "due diligence" in making sure our collaborations are successful and our partners are good world citizens.
		Register for iECHO –Anyone interested in replicating Project ECHO® should **participate in a number of different teleECHO™ disease clinics**. The best way to do that is to **register with our online partner database, iECHO**. Here is the

		link: http://echo.unm.edu/providers-partners/index.html
		Steps for Replication – This outline can help you create a timeline, budget and implementation strategy for your replication program.

Building Organizational Support

Building a high level of organizational support is essential in developing a successful Project ECHO® replication program.

Send Me	Sign Me Up	Activity-Item
Tools to Build Support for Implementing Project ECHO® in Your Organization: We have Dr. Arora's Project ECHO® overview PowerPoint in 3 time lengths: 20, 40 and 60 minutes.		
		Dr. Arora's 60 Minute PowerPoint
		Dr. Arora's 40 Minute PowerPoint
		Dr. Arora's 20 Minute PowerPoint
Send Me	**Sign Me Up**	**Activity - Item**
Executive Summaries of Project ECHO® Programs:		
		United States Army Pain ECHO (APE)
		ECHO Care – Innovative Care Delivery Model
		ECHO Access – Innovative Care Delivery Model
		Western States CDC Collaborative – Four-state pilot replication for HCV
		CHW Training: Diabetes Community Resource Education Worker (CREW)
		CHW Training: Community Addictions Recovery Specialist (CARS)
Literature on Project ECHO® Impact and Outcomes:		
		New England Journal of Medicine Article
		Health Affairs Article
		Hepatology Article

Other ECHO® Materials:		
		Project ECHO- Awards and Honors
		Project ECHO® Program Summary
		Project ECHO® Overview -Talking Points
		Implications and Potential for Replication
		National and Global Replication Partner List
		List and Links to all Project ECHO® related movies
Articles About Project ECHO® Replication Programs:		
		Community Health Center, CT - ECHO® program pamphlets
		Connecticut Replication Article
		Irish Times Article
		University of Nevada Article
		University of Chicago Article

Building Your Project ECHO® Knowledge Network or Hub

Here are some tools to help you as you move into the active planning phase.

Send Me	Sign Me Up	Activity-Item
		Hub/Spokes Core Elements
		IT Sample Purchase List and Budget
Training and Technical Assistance: We offer the opportunity for training with Project ECHO® staff and medical directors in the following areas:		
		IT training on TeleECHO™ Architecture (infrastructure)
		IT training on iECHO (clinic management) and iHealth (patient tracking and outcomes)
		Technical support training for implementation of teleECHO™ clinics

		Evaluation Training: Clinician-Focused - survey tools, focus group tools and strategies
		Evaluation Training: Patient-Focused - mostly based in the use of iHealth
		Research and Evaluation Design Training
		Glen Murata's Research Design Presentation (PDF)
		Summer Kalishman's Evaluation Theory Presentation (PDF)
Form Your Hub Team of Multidisciplinary Participants and Consultants		
		Intellectual Property Waiver for Project ECHO® participants and consultants
		Conflict of Interest Forms
		Sample job descriptions for Hub roles
Seek Champions or Interested Community Primary Care Clinicians (Spokes)		
		Statement of Collaboration with Community Partners
Explore Funding Sources		
		Sample Project ECHO® Grant Proposal Outline
		ECHO Revenue Source Menu and Idea Sheet

Launching Your TeleECHO™ Clinics

Here are some resources for the operational phase of your Project ECHO® program.

Send Me	Sign Me Up	Activity-Item
Use Standardized Forms and Processes:		
		Patient relationship disclaimer
		Disease-specific patient case presentation templates
		Disease-specific patient recommendation forms
		Patient Management/Tracking tool and database (iHealth)
		Clinic Management tool and database (iECHO)

Incentivize Participation:		
		How to seek partnerships with credentialing organizations
		How to gain Continuing Medical Education (CME/CE) credit

Appendix VII: Steps for Replication Implementation

Project ECHO® (Extension for Community Healthcare Outcomes)

Project ECHO® Replication – Steps for Implementation

(This is a companion document to the Project ECHO® Replication Menu of Resources)

Getting Started – Approximately 2 months

1. **Attend Orientation Event** – Free monthly event in Albuquerque, NM, USA. Please register at: http://echo.unm.edu/orientation.html.
2. **Sign and Return Statement of Collaboration for Replicating Partners** – This is a "front-end" document that outlines the roles and responsibilities between Project ECHO® and replicating partner organizations. Typically this is signed by the replicating partner program director or university leadership.
3. **Revise, Sign and Return Project ECHO® Terms of Use Agreement** – This is a legal contract, in draft form, which serves to protect Project ECHO®'s Intellectual Property. This needs to be reviewed, revised as necessary, finalized in collaboration with Project ECHO® and signed by legal counsel of both the replicating partner and Project ECHO®.
4. **Register for iECHO** –Anyone interested in replicating Project ECHO® should **participate in a number of different teleECHO™ disease clinics**. The best way to do that is to **register with our online partner database, iECHO**. Here is the link: http://echo.unm.edu/providers-partners/index.html.
5. **Build Organization Support** – It is important to build support for the ECHO® mission and model within your organization. See Menu of Resources to assist this process.

Move to Action – Approximately 2-3 months

1. **Assess:**
    a. Gaps in care and community needs.
    b. What disease(s) might be a good target? It is important to be thoughtful about the target disease:
        - availability of "Hub" team members (these are the multidisciplinary disease specialists that facilitate the teleECHO clinics).
        - interests of community clinicians/"Spoke" champions.
        - more or less protocol-driven.
        - external motivators: highly toxic treatments, Drug Enforcement Administration (DEA) certification requirements, etc. There are various external factors that motivate community clinicians.
        - some diseases will find more traction than others.

c. Potential partners and organizational resources: what does your Academic Medical Center (AMC) or organization have that outlying communities do not?

2. Identify:

a. Funding/Revenue Sources.
b. Program objectives.
c. Qualities of Interdisciplinary Hub team members: multiple perspectives, respectful of primary care teams, co-management & collaboration, training mentality (think about covering approximately 10% of their salary for each teleECHO™ clinic or initiative).

Roles of Interdisciplinary Hub team members:

- Physician Specialist(s)
- Pharmacist
- Social Worker
- Nurse Specialist
- Psychologist
- Others

d. Curriculum for didactic presentations.
e. IT (teleECHO™ architecture for Hub, telecommunications equipment for Spokes, software and IT support) – see Menu of Resources:
    - Videoconferencing Bridge (Hub)
    - Videoconferencing Recording Device (Hub)
    - Webcam Interfacing Capacity/Software (Hub)
    - Large Screen Display (Hub)
    - High Definition Camera (Hub)
    - iHealth and iECHO Software (free)
    - Microphone/Headset (Spokes)
    - Small Video Camera or PC Camera (Spokes)
f. Community resources.

3. Develop:

a. Incentives for participation:
    - Continuing Medical Education (CME)/Continuing Education (CE)/ Continuing Education Unit (CEU) credit for every hour of participation
    - Special credentialing programs or certifications
    - Enhanced knowledge and skills to serve as local expert in conditions common to primary care
    - National exposure
    - Research collaboration – potential for "big data"
b. Community champions for Spokes: generally requires traveling to outlying communities and clinics and giving Grand Rounds.
c. Program evaluation strategies and tracking tools (see Menu of Resources)
d. Your Project ECHO® program staff:
    - IT user support facilitates telecommunications between Hub & Spokes.
    - Administrative/coordinator organizes didactic, case presentations, reportables, CME.

- Nurse/manager oversees clinic and public health information, collects reportable information, and monitors patient safety.

Prepare to Launch – Approximately 1 month

1. **Develop standardized forms and processes for managing teleECHO™ clinics and patient cases** – See list of resources for sample forms and tools that can be helpful.
2. **Practice teleECHO™ clinics** – Do 1-3 "dry runs" to work out problems with IT and connectivity, clinic protocols, etc…

Appendix VIII: Core Elements for Replicated ECHO Hubs

List of "Core Elements" for Running a Project ECHO® Hub (AMC)

Please note that Project ECHO (Extension for Community Healthcare Outcomes) at the University of New Mexico Health Sciences Center (UNMHSC) provides consultation and technical assistance in the following areas:

Technology Elements

- Hardware
  - To see community clinic participants (spokes): each hub will need a pair of high-definition displays. These displays should be sized to the room, but the minimum size should be 60" diagonal with a minimum resolution of 1920x1080 at a refresh rate of 120Hz or greater.
  - To hear spokes: each hub will require a set of speakers that should be sized to the room. We are now recommending USB 3.0 to connect the speakers to a central computer.
  - For spokes to see multidisciplinary hub team: each hub will require a high-definition web cam that preferably has Pan-Tilt-Zoom capability. We are now recommending USB 3.0 to connect the webcam to a central computer.
  - For spokes to hear multidisciplinary hub team: each hub will require a room microphone setup that is sized to the room. We are now recommending USB 3.0 to connect the microphone to a central computer and that the microphone setup have echo cancellation capabilities.
- Software
  - To facilitate teleconferencing in the teleECHO clinics, we recommend a software package that has world-wide support capabilities.
  - To support clinic management, CME facilitation, attendance tracking and research on clinician outcomes, we recommend that each hub have an instance of iECHO established for them.
  - To support patient management, data tracking, outcomes evaluation and research on patient outcomes, we recommend that each hub have an instance of iHealth established for them.
- IT user support is essential for running effective teleECHO clinics.
- Connectivity, including high-speed internet/broadband, conference call system, phones and faxes

Program/Clinic Management Team

- Administrator/clinic coordinator: organizes didactic presentation; sends clinic announcements, agendas and invitations; organizes patient case presentations; responsible for tracking reportables, CME credits, attendance and participation using iECHO or similar product.
- Nurse/Manager (nurse expert in a particular disease population or healthcare need served by the clinic): conducts research to evaluate gaps in care and assess community needs; oversees

community outreach and community clinician recruitment and training in best-practices; ensures patient confidentiality protections and regulatory standards are implemented; documents patient care recommendations and serves as liaison and educational point-of-contact between sessions; schedules patient case re-presentations and monitors patient safety; compiles program evaluation and patient outcomes data.

Multidisciplinary Expert Team

- Multiple perspectives, backgrounds and professional roles, but always exhibiting excellence in a professional specialty role.
    - Must have: physician specialist plus other disease-specific clinicians (nurse practitioner, physician assistant, physical therapist, certified diabetes educator, dietician, etc.).
    - Recommended: pharmacist, behavioral psychologist or psychiatrist, social worker.
- Soft communication style with strong interpersonal skills: respectful of primary care teams, emphasis on co-management and collaboration, training/mentoring mentality, spirit of nurturing and respect for video-conference etiquette.
- Commitment to public service, serving underserved populations and demonopolizing knowledge. Must be willing to forego fee-for-service model for public good.
- Attention to detail and highly organized, willing to follow-up on patients, if needed, after hours.
- Strong desire to teach to the learner, as community participants may represent many different education levels and learning styles.
- Engaging, in spite of the barriers of distance education. Use of interactive adult learning approaches for effective training.
- Passionate about Project ECHO's mission, as well as public and community health.
- Must have familiarity with the primary care clinical setting.
- Comfortable with technology.

Standardized Forms and Processes

- Disease-specific patient case presentation templates, usually fillable PDFs or iECHO tools.
- Patient case management system (filing system, electronic medical record system with "ticklers" for follow-up and alerts for red-flag issues, or iHealth).
- Patient treatment recommendations forms to be returned by fax (via HIPAA-compliant fax lines) or encrypted email back to clinician at community clinic.
- Electronic clinic invitations (sent weekly) and agendas.
- Attendance lists and clinic-specific evaluation forms for CME credit (via iECHO or other system).
- Close collaboration with CME office at hub or Academic Medical Center (AMC).

Incentives for Participation

- CME/CEU/CE or other relevant professional credit provided free of charge.

- Certification or accreditation with professional licensure and training organizations for completion of established curriculum.
- Mandated training (such as for prescription of opiates or buprenorphine) by federal or state agencies.
- Opportunities for collaborative research, grant writing and publication.
- Insurance or 3rd party reimbursement directly to the participating clinician or their clinic/organization.
- There are many other intangible benefits, which also need to be developed: an atmosphere of professional camaraderie helps to break isolation of rural clinicians, the opportunity to be recognized by peers as a disease specialist and receive community referrals, etc.

Funding Streams

- Grant monies.
- Support from state legislatures.
- 3rd party reimbursements to hub or spokes or both.

Support from pharma or other industries.

Appendix IX: Replication Projects Table

Project ECHO® (Extension for Community Healthcare Outcomes)

Replication Projects*			
Name	**Type of Institution And healthcare system context**	**TeleECHO Clinics**	**Start Date**
ECHO India – Mumbai, Chandigargh, & Lucknow	Foreign AMC	1. Autism	2009
Maulana Azad Medical College – New Delhi, India	Foreign AMC	1. HIV	2010
Harvard, Beth Israel Deaconess Medical Center – Cambridge, MA	US AMC Fee-for-Service	1. HCV 2. Gerontology – ECHO AGE	2011
Institute of Liver and Biliary Sciences – New Delhi, India	Foreign AMC	1. HCV	2012
LA Net – Los Angeles, California	US AMC Fee-for-Service	1. Nephrology 2. Adult Psychiatry	2012
St Joseph Hospital – Phoenix, AZ	US AMC Fee-for-Service	1. HCV	2012
University of Nevada – Reno, NV	US AMC Fee-for-Service	1. Diabetes/Cardiovascular Risk Reduction 2. Sports Medicine 3. Thyroid and Diabetes 4. Antibiotic Stewardship 5. Mental Health	2012
University of Utah – Salt Lake City, UT	US AMC Fee-for-Service	1. HCV	2012
University of Nevada – Las Vegas, NV	US AMC Fee-for-Service	1. Rheumatology	2013
Uruguay	Foreign AMC	1. Liver Disease	2013
Envision New Mexico – Albuquerque, NM	US AMC Fee-for-Service	1. Childhood Overweight Medical Management 2. Pediatric Nutrition 3. TelePsychiatry 4. Asthma/Pulmonary	

University of Washington – Seattle, WA	US AMC Fee-for-Service	1. HCV 2. Chronic Pain 3. HIV 4. Addiction	2009
University of Illinois at Chicago	US AMC Fee-for-Service	1. Hypertension 2. Breast Cancer 3. ADHD 4. Childhood Obesity	2010 (HTN) 2012 for others
University of South Florida, ETAAC and Florida/Caribbean – Tampa, FL	US AMC Fee-for-Service	1. General HIV 2. Adolescents/Pediatrics HIV 3. HCV/HIV Co-Infection 4. Psychiatry and HIV 5. Spanish Language HIV	2011
Lackland Air Force – San Antonio	Dept. of Defense Public Health Model	1. Diabetes	2011
U.S. Navy – Camp Pendleton North, CA	Dept. of Defense Public Health Model	1. Chronic Pain	2012
Northern Regional Medical Command – Fort Bragg, NC	Dept. of Defense Public Health Model	1. Chronic Pain	2013
Pacific Regional Medical Command – Honolulu, HI	Dept. of Defense Public Health Model	1. Chronic Pain	2013
Southern Regional Medical Command – Fort Gordon, GA	Dept. of Defense Public Health Model	1. Chronic Pain	2013
Western Regional Medical Command – Fort Lewis, WA	Dept. of Defense Public Health Model	1. Chronic Pain	2013
Brazil, State of Parra	Foreign Dept. of Health	1. HIV	2012
Community Health Center, Inc. – Middletown, CT	Non-profit Hybrid Fee-for-Service and ACO	1. HIV 2. HCV 3. Chronic Pain	2011
Community Health Center, Inc. – Tucson, AZ	Non-profit Hybrid Fee-for-Service and ACO	1. Chronic Pain	2013
Albuquerque Tracking Center – Albuquerque, NM	VA Public Health Model	1. Diabetes 2. Cardiovascular 3. Pain	2011
Ann Arbor Tracking Center – Ann Arbor, MI	VA Public Health Model	1. Liver 2. Nephrology	2011
Cleveland Tracking Center – Cleveland,	VA Public Health	1. Diabetes 2. Heart Failure	2011

OH	Model	3. Vascular Surgery 4. Chronic Pain	
Connecticut Tracking Center – West Haven, CT	VA Public Health Model	1. HCV 2. Chronic Pain	2011
Denver Tracking Center – Denver, CO	VA Public Health Model	1. Diabetes 2. Chronic Pain 3. Pulmonary	2011
Greater LA Tracking Center – Los Angeles, CA	VA Public Health Model	1. Diabetes (San Diego) 2. HCV 3. Chronic Pain 4. Women's Health	2011
Pittsburgh Tracking Center – Pittsburgh, OH	VA Public Health Model	1. Diabetes (San Diego) 2. HCV 3. Chronic Pain 4. Women's Health	2011
Portland Tracking Center – Portland, OR	VA Public Health Model	1. HCV/Liver 2. Nephrology 3. HIV planning	2011
Richmond Tracking Center – Richmond, VA	VA Public Health Model	1. Diabetes/CV risk reduction 2. Liver 3. Chronic Pain	2011
Salem Tracking Center – Salem, VA	VA Public Health Model	1. Diabetes 2. Cardiovascular 3. Chronic Pain	2011
San Francisco Tracking Center – San Francisco, CA	VA Public Health Model	1. HCV 2. HIV Planning	2011

Appendix X: Big Data Chart

Project ECHO® Big Data Vision & 3 Year Plan (Draft)

Year 1

- Create and Install Big Data S/W
- Create Data Warehouse.
- Collect de-identified & summary Health Information from Project ECHO replication hubs.

Estimated Cost: $ 680K-$ 885K

Year 2

- Create suite of standard queries and reports.
- Collect clinic participation information.
- Collect data from VA and NM HIE.
- Provide Data Marts for user study.

Estimated Cost: $ 995K-$1310K

Year 3

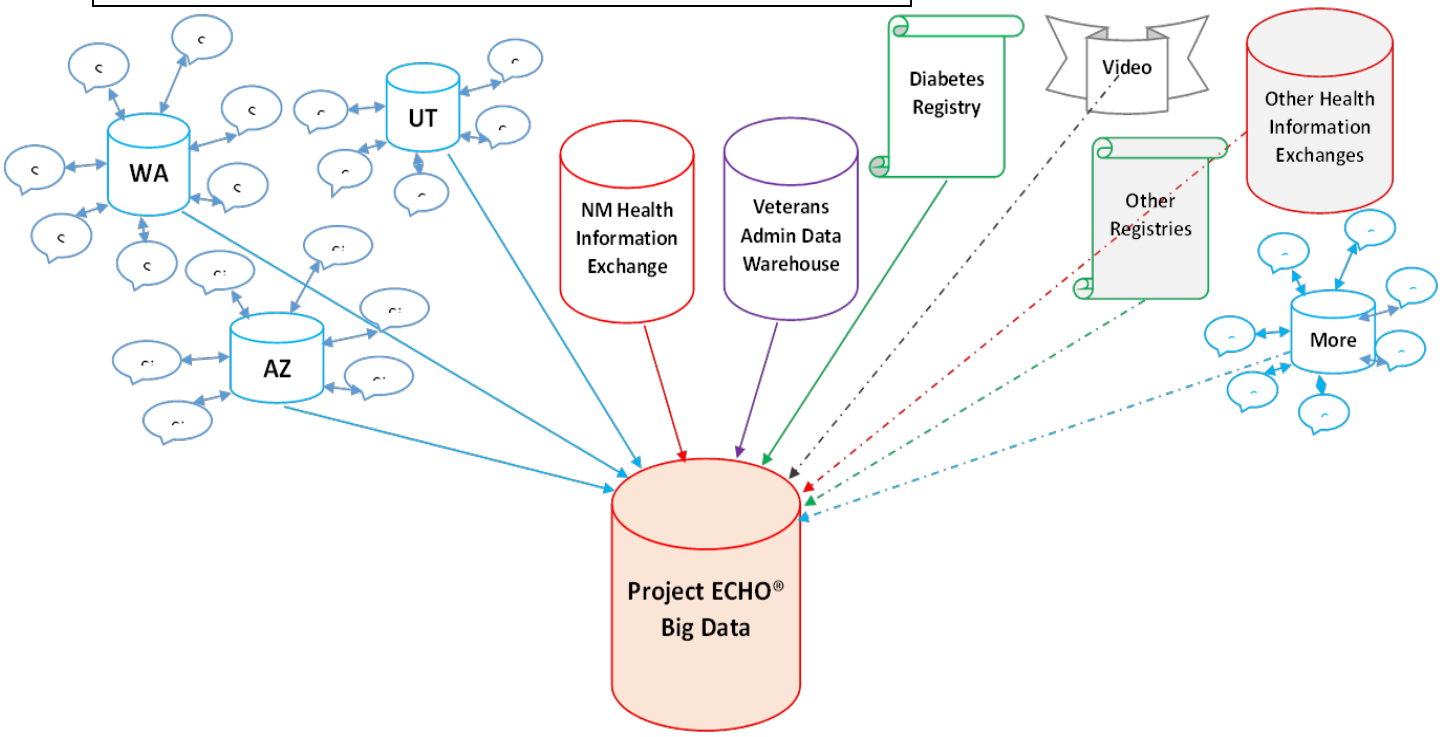
- Build user portal w/ demand reports and extracts.
- Collect data from Diabetes Registry.
- Project ECHO provide modeling consulting.
- Generate statistical analysis.

Estimated Cost: $1315K-1850K

Future

- Add more HIE and Registries.
- Expand to more teaching hospitals.
- Scan video for Data Mining
- Generate statistical analysis.

Estimated 3 Year Plan Total Cost: $3-$4 million



Appendix XI: Statement of Collaboration – Replication

Project ECHO® (Extension for Community Healthcare Outcomes)

Statement of Collaboration:
Outlining Project ECHO® Collaborations with Replicating Partners

The mission of Project ECHO® (Extension for Community Healthcare Outcomes) at the University of New Mexico Health Sciences Center (UNMHSC) is to develop the capacity to safely and effectively treat chronic, common, and complex diseases in rural and underserved areas, and to monitor outcomes of this treatment. In pursuit of this mission, Project ECHO® faculty, staff and partners have dedicated themselves to de-monopolizing knowledge in order to expand access to best-practice medical care across the United States and globally.

This is a non-contractual agreement outlining the roles and responsibilities between Project ECHO® and any partner replicating our innovative model of care. A contractual companion agreement will also need to be signed by replicating organization legal representatives.

In the spirit of collaboration, the ECHO Institute offers to/commits to the following programs and tools:

1. Host introductory-level Project ECHO® orientation events in Albuquerque, NM for interested individuals and organizations.
2. Subsequent to orientation, the ECHO Institute will provide a more detailed training in Project ECHO® best practices and tools via an extended visit to the ECHO Institute in Albuquerque, NM, through on-site training or via videoconferencing or asynchronous video modules. These include, but are not limited to:
    a. Disease-specific clinic management
    b. Recruiting community partners
    c. IT tools (hardware and software)
    d. Curriculum resources and training materials, protocols and processes
    e. Research design and evaluation processes, resources and tools
3. Provide use of existing archived teleECHO™ didactics when available.
4. Provide licensed use of IT tools, evaluation tools (both provider and patient-focused) and curriculum materials developed by Project ECHO®.
5. Host an ongoing "metaECHO™," a virtual sharing of programmatic best practices among established and new replication partners using program challenges and successes as case studies. In addition, this will facilitate opening new possibilities for Project ECHO® engagement based on metaECHO™ thinking, including literature reviews and global health challenges.

6. Will create a program of certification or verification of Project ECHO® replication programs demonstrating fidelity to the ECHO® model, as determined by the ECHO Institute.

In the spirit of mutual responsibility, replicating Project ECHO® partners are expected to:

1. Send team leaders (clinicians and/or administrators) to attend the Project ECHO® orientation and subsequent trainings in Project ECHO® implementation.
2. Use the ECHO name as part of the name of any and all projects which are developed in collaboration with or modeled upon the ECHO Institute, ECHO model or Project ECHO®(i.e. Scan ECHO is the Veteran's Health Administration replication project, CHC Project ECHO is the Community Health Center, Inc.'s replication project in Connecticut).
3. Follow the mission of Project ECHO® which is to serve the underserved. Using Project ECHO® and it's licensed materials for unapproved commercial purposes (such as selling any product or process associated with Project ECHO®) is prohibited. Financial arrangements with local or national payers to sustain the ECHO® project are acceptable, while selling the model or products is not.
4. Implement the Four-Point ECHO® model:
    a. Use technology (teleECHO™ conferencing and the internet) to leverage scarce healthcare resources.
    b. Improve outcomes by reducing variation in processes of care and sharing "best practices."
    c. Use case-based learning: co-management of cases with a team of multidisciplinary specialists.
    d. Monitor outcomes. It is understood that evaluation is the most difficult and expensive element of the model, and while Project ECHO® encourages use of a HIPAA-compliant centralized database in the evaluation of outcomes, it is not a requirement.
5. Use the trademarked Project ECHO® logo.
6. Agree to cite Project ECHO® and the ECHO® model in all publications and written materials describing this work. The use of the trademarked Project ECHO® logo, title and/or model infers appropriate training from experienced faculty and staff at Project ECHO® at UNMHSC.
7. Respect Project ECHO® copyright and intellectual property rights, along with any contracted terms of use, in the use of Project ECHO® didactics, curricula, software, resources and other materials.
8. Use the term "teleECHO™" to differentiate clinic activities from traditional telehealth or telemedicine (e.g. Hepatitis C teleECHO Clinic; Rheumatology teleECHO Advanced Training; teleECHO Orientation.) We encourage all ECHO® replication partners to continue this differentiation and use the term "teleECHO™" in all written materials and communication.
9. Track outcomes (with our assistance and tools, as necessary) to whatever extent possible and participate in the sharing of data outcomes with the objective of improving best practices and disease management worldwide. As more sites adopt the ECHO® model, the opportunity for global collaboration, research and data sharing/aggregation exists. Such collaborations should be conducted under separate agreement.
10. Protect patient confidentiality and privacy considerations in all aspects of Project ECHO® operations and management, in accordance with all local, state and federal mandates.

11. Use Project ECHO® IT tools, including iHealth, iECHO and teleECHO™ architecture, when appropriate. Any modification of these tools is prohibited without consultation and approval from Project ECHO® at UNMHSC. Commercial use or selling of these tools is prohibited.
12. Provide feedback to Project ECHO® at UNMHSC via metaECHO™ and direct communications. Feedback regarding challenges and solutions will be incorporated into Project ECHO® practices and used to improve Project ECHO® replication efforts worldwide. Open and multi-directional communication is highly valued.
13. Collaborate with Project ECHO® on research opportunities when possible. We request the opportunity to review any presentations, abstracts or manuscripts prior to publication.

_____ (replicating Project ECHO® partner organization) is committed to this collaboration and working with Project ECHO® at UNMHSC.

_____

(Replicating Partner Representative)

ECHO Institute is committed to this collaboration and working with _____.

_____

(Project ECHO®)

Appendix XII: Terms of Use Contract

PROJECT ECHO® INTELLECTUAL PROPERTY TERMS OF USE AGREEMENT

Effective [DATE], The Regents of the University of New Mexico, for its public operation known as the Health Sciences Center ("UNMHSC"), specifically for the School of Medicine a state institution of higher education and [NAME AND IDENTIFICATION OF ACADEMIC MEDICAL CENTER] ("AMC") agree as follows:

BACKGROUND

The University of New Mexico Health Sciences Center has developed Project ECHO® (Extension for Community Healthcare Outcomes), a pioneering telehealth and distance learning program designed to improve patient care and create healthcare workforce multiplication. Project ECHO includes intellectual property developed and owned by The Regents of the University of New Mexico ("UNM") the rights to which have been assigned or licensed to UNMHSC for protection and to be made available for public use and benefit. AMC desires to obtain the rights and licenses necessary to conduct Project ECHO Activities at AMC and UNMHSC desires to provide the rights and licenses to AMC to enable it to conduct Project ECHO Activities, all in accordance with Project ECHO's mission and the terms and conditions of this Agreement.

MISSION STATEMENT

The mission of the Project ECHO is to develop the capacity to safely and effectively treat chronic, common, and complex diseases in rural and underserved areas, and to monitor outcomes of this treatment.

ARTICLE I – DEFINITIONS

A capitalized word or phrase in this Agreement shall have the meaning ascribed to it in the attached Glossary.

ARTICLE II – CONDUCT OF PROJECT ECHO ACTIVITES AT AHC

2.1 Conduct of Project ECHO Activities at AMC. Subject to the terms and conditions of this Agreement, UNMHSC grants to AMC the nonexclusive right to conduct Project ECHO Activities at AMC, provided that the ECHO name be used as part of or integrated into the name of any and all projects resulting from this collaboration or modeled after Project ECHO or the ECHO Institute™.

Draft

2.2 Grant of License. In order to permit the conduct of Project ECHO Activities at AMC, UNMHSC hereby grants to AMC a nonexclusive right and license to use and reproduce the Licensed Intellectual Property in the conduct of Project ECHO Activities at no cost.

2.3 Noncommercial Purposes Only. Without the prior written consent of UNMHSC, which consent may be withheld or conditioned at UNMHSC's discretion, AMC shall use the Licensed Intellectual Property and conduct Project ECHO Activities in a manner consistent with the Project ECHO mission, which is to serve the underserved. Using Project ECHO for unapproved commercial purposes is prohibited. By way of example, selling the ECHO model, Licensed Intellectual Property, curriculum materials, software, hardware, access to hardware, or consultation services related to ECHO model, mission, resources or the replication of ECHO projects outside of AMC is expressly prohibited. To seek permission for any other commercial, please contact the ECHO Institute Director, Dr. Sanjeev Arora.

However, financial arrangements with local or national payers to sustain the ECHO project are acceptable. By way of example, AMC may:

a) use ECHO Model™ and Licensed Intellectual Property to develop grants and funding for their own ECHO project, including solicitation of federal, nonfederal and foundation monies.
b) receive funding from insurance and third-party healthcare payor organizations to fund patient care, training and other ECHO-related activities.
c) receive funding from city, county, state or federal legislative sources including Medicare, Medicaid, departments of health, etc. to support ECHO-related activities.
d) accept funding from pharmaceutical companies to support ECHO-related activities.

2.4 Consulting Services. The ECHO Institute may, under separate arrangements with AMC, provide consulting services and training to AMC with respect to training for and the conduct of Project ECHO Activities at AMC.

ARTICLE III – RESPONSIBILITIES OF AMC

3.1 Conduct of Project ECHO Activities at AMC. AMC shall implement and conduct Project ECHO activities at AMC in accordance with this Agreement and in accordance with the Project ECHO Guidelines.

3.2 Obligations of AMC. In connection with its conduct of Project ECHO Activities, AMC shall:

(a) pay and be responsible for all costs and expenses of AMC related to the performance by AMC of the Project ECHO Activities including the costs of acquisition of any equipment and third party software necessary for the operation of the Project ECHO Activities by AMC.
(b) comply with all Applicable Law and ethical rules, including copyright;
(c) require that the Permitted PCCs and AMC Specialists comply with all Applicable Law and ethical rules with respect to their participation in the Project ECHO Activities.

Draft

(d) conspicuously brand Project ECHO Activities conducted at AMC using the Project ECHO Licensed Brand Marks (Exhibit A) customized for their specific project.

(e) conduct Project ECHO Activities as high quality, professional services consistent with the quality of the Project ECHO Activities conducted by the ECHO Institute. If the quality of the activities at AMC falls below that standard, AMC shall use reasonable efforts to restore such quality within a reasonable period of time. AMC agrees to permit representatives of UNMHSC and the ECHO Institute to review from time to time the quality of the Project ECHO Activities conducted at AMC.

ARTICLE IV – INTELLECTUAL PROPERTY RIGHTS

4.1 Ownership of Licensed Intellectual Property. This Agreement does not provide AMC with title or ownership to the Licensed Intellectual Property or the Project ECHO Activities, but only the limited rights of use as provided in this Agreement. AMC shall reproduce and include in all copies of the Licensed Intellectual Property the copyright notices and proprietary legends of UNMHSC and/or UNM as they appear in the Licensed Intellectual Property and on media containing the Licensed Intellectual Property.

4.2 License Grantback. As part of the consideration for the grant of rights to AMC under this Agreement, AMC hereby grants to UNMHSC and to UNM a worldwide, nonexclusive, fully sub-licensable, royalty-free right and license at no cost to use and exploit any Agreement Intellectual Property prepared, developed, or conceived by AMC, its agents, employees, or contractors, in the conduct of the Project ECHO Activities by AMC or using the Licensed Intellectual Property.

ARTICLE V – DISCLAIMER OF WARRANTIES & LIMITATION OF LIABILITY

5.1 DISCLAIMER OF WARRANTIES. THE LICENSED INTELLECTUAL PROPERTY AND ANY SERVICES PROVIDED BY UNMHSC OR UNM IS PROVIDED "AS IS.' NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, EXPRESS OR IMPLIED, ARE MADE WITH RESPECT TO THE LICENSED INTELLECTUAL PROPERTY OR PROJECT ECHO AND UNMHSC AND UNM EXPRESSLY DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLED, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY, TITLE, OR FITNESS FOR A PARTICULAR PURPOSE AND ANY OTHER IMPLIED WARRANTIES WITH RESPECT TO THE CAPABILITIES, SAFETY, UTILITY, APPLICATION OF THE LICENSED INTELLECTUAL PROPERTY OR PROJECT ECHO.

5.2 LIMITATION OF LIABILITY. IN NO EVENT SHALL UNMHSC, UNM OR PROJECT ECHO BE LIABLE TO AMC OR ANY THIRD PARTY FOR ANY SPECIAL, CONSEQUENTIAL, INDIRECT, EXEMPLARY, PUNITIVE OR INCIDENTAL DAMAGES (INCLUDING LOST OR ANTICIPATED REVENUES OR PROFITS RELATING TO THE SAME), ARISING FROM ANY CLAIM RELATING TO THIS AGREEMENT OR THE CONDUCT OF THE PROJECT ECHO ACTIVITIES BY AMC, WHETHER SUCH CLAIM IS BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE) OR OTHERWISE, EVEN IF AN AUTHORIZED REPRESENTATIVE OF SUCH PARTY IS ADVISED OF THE POSSIBILITY OR LIKELIHOOD OF SAME.

ARTICLE VI - TERM

6.1 Term. This Agreement will remain valid and in force until the date that is one year after the Effective Date, and thereafter shall automatically renew for consecutive one year terms unless either UNMHSC or AMC shall provide the other with written notice of non-renewal at least ninety (90) days prior to the anniversary of the Effective Date.

ARTICLE VII - MISCELLANEOUS

7.1 Miscellaneous Terms. The following terms shall apply to this Agreement: (a) in the performance of its duties and obligations under this Agreement, AMC shall comply with all Applicable Law, including U.S. export law; (b) AMC is an independent contractor of UNMHSC; (c) AMC may not transfer, assign, or sublicense any of its rights, powers, duties, or obligations under this Agreement; (d) this Agreement constitutes the entire agreement between UNMHSC and AMC with respect to the subject matter hereof, supersedes all prior Agreements with respect thereto, and may not be modified except by written agreement; (e) This Agreement shall be construed under and governed by the laws of the State of New Mexico without regard to its conflicts of laws principles: (f) any legal action brought under this Agreement must be brought in state or Federal court in New Mexico; (g) any notices to be given under this Agreement shall be given in writing.

IN WITNESS WHEREOF, UNMHSC and AMC have caused this Agreement to be signed by their duly authorized representatives as of the day and year indicated above.

ECHO Institute	AMC
By: _____	By: _____
Printed Name: Dr. Sanjeev Arora	Printed Name: _____
Title: Director, Project ECHO	Title: _____
Date: _____	Date: _____

Regents of the University of New Mexico

By: _____	By: _____
Printed Name: Kristin Gates	Printed Name: _____
Title: Director of Finance, UNM School of Medicine	Title: _____
Date: _____	Date: _____

Draft

GLOSSARY

"Agreement" means this PROJECT ECHO® TERMS OF USE AGREEMENT.

"Agreement Intellectual Property" means any inventions, discoveries, improvements, works of authorship or the like, including patents, patent applications, and certificates of invention; trade secrets, know-how or similar rights; copyright materials; trademarks, service marks, logos, and trade dress; and similar property under any laws or international conventions throughout the world.

"AMC Specialist" means providers employed by or affiliated with AMC who are specialists in a medical field in which AMC conducts Project ECHO® Activities.

"Applicable Law" means: (i) for an AMC that is not a federal entity, all applicable state statutes and regulations, as well as all applicable Federal statutes, regulations, and policy requirements; and, (ii) for an AMC that is a federal entity, all applicable Federal statutes, regulations, and policy requirements.

"Effective Date" means the date set out on the opening paragraph of this Agreement.

"Licensed Intellectual Property" means the Licensed Software Programs, the Licensed Brand Marks, the Licensed Materials, and the Licensed Know-How identified on attached Exhibit A and such intellectual property as UNMHSC develops after the date of this agreement that it makes available to AMC.

"Permitted PCCs" means primary care Clinics that provide health care to significantly underserved or uninsured patient populations, including rural and frontier providers, and providers to prison populations.

"Project ECHO® Activities" means the design, structure, and process constituting the telehealth and distance learning program developed at UNMHSC Project ECHO® that utilizes teleconferencing, videoconferencing, internet-based assessment tools, online presentations, telephone, fax, and email communications to connect specialists with primary care providers in rural areas and prisons for the purpose of improving patient care.

"Project ECHO® Guidelines" means written guidelines, operational rules, and reporting requirements developed by the ECHO Institute from time to time for the conduct of Project ECHO® Activities at all institutions and organizations that conduct Project ECHO® Activities.

"ECHO Institute" means the Project ECHO® Activities conducted at the University of New Mexico Health Sciences Center.

Draft

EXHIBIT A
LICENSED INTELLECTUAL PROPERTY

Licensed Brand Marks:

"ECHO"
"PROJECT ECHO" (the wordmark)
"PROJECT ECHO" (the design)

Health Care, Electronic Health Care Management, and Advisory Services:

"iECHO"
"iHEALTH"

Licensed Materials and Know-How:

Copyrighted materials concerning the set-up and operation of a Project ECHO® facility and various didactic and teaching materials of a technical and instructional nature relating to health care.

Draft