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Appreciative inquiry and the co-creation of an evaluation framework for Extension for Community Healthcare Outcomes (ECHO) implementation: a two-country experience

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Abstract

Persistent gaps exist in healthcare workers' capacity to address HIV and tuberculosis in Asia and Africa due to constraints in resources and knowledge. Project ECHO (Extension for Community Healthcare Outcomes) leverages video-enabled technology to build workforce capacity and

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promote collaboration through mentorship and case-based learning. To understand current perceptions of ECHO participants and develop a comprehensive evaluation framework for ECHO implementation, we utilized modified appreciative inquiry guided focus group discussions (FGD) in India and Tanzania and called it SCORE (Strengths, Challenges, Opportunities, Results, and Evaluation). Content and thematic analysis of transcripts from FGDs and key-informant interviews triangulated perceptions of diverse stakeholders about ECHO implementation and identified key elements for development of the framework. The perceived strengths (S) were capacity building and establishing communities of practice. The perceived challenges (C) included securing resources, engaging leadership, and building systems for monitoring impact. Improved internet connectivity, addressing logistical challenges, encouraging session interactivity, and having strategic scale-up plans were perceived opportunities (O). Additionally, gathering measurable results (R) led to development of a comprehensive evaluation (E) framework. Contextualizing and facilitating SCORE with qualitative analysis of findings 6–12 months post-ECHO implementation may serve as a best practice to assess mid-course corrections to improve ECHO implementation quality.

Keywords

Evaluation; Qualitative research; Systems thinking; Strategic planning; HIV; Tuberculosis; Appreciative inquiry

1. Introduction

The U.S.President's Emergency Plan for AIDS Relief (PEPFAR) has made substantial progress toward the global elimination of human immunodeficiency virus (HIV) and tuberculosis (TB), including offering life-saving antiretroviral treatment (ART) to more than 15 million people, and ultimately averting 18 million premature deaths worldwide (Office of the Global AIDS Coordinator—United States Government Department of State, 2020). According to the World Health Report titled "Working Together for Health" (World Health Organization, 2006; Collins, Glass, Whitescarver, Wakefield, & Goosby, 2010), 57 countries reported critical shortages of health workers, the majority of which (63%) were in sub-Saharan Africa. An estimated global shortfall of 2.4 million doctors, nurses, and midwives (World Health Organization, 2009) has led to gaps in service delivery, staff capacity, training and knowledge dissemination, and managing complex multi-specialty disease conditions (Eichenberger, Weisser & Battegay, 2019). Gaps in workforce capacity remain a major obstacle to scaling up the global HIV and TB responses (Collins et al., 2010). In addition to a shortage of skilled workers, international medical education varies substantially from country to country (Holtzman, Swanson, Ouyang, Dillon, & Boulet, 2014) and many healthcare workers need retraining or taskforce shifting (Collins et al., 2010). There is an uneven distribution of skilled workers between urban and rural settings (Collins et al., 2010). Inadequate compensation, lack of incentives, and motivators, are leading to disparities in quality and quantity of healthcare delivery, especially in remote and rural settings (World Health Organization, 2006; Collins et al., 2010). Workforce imbalances need to be addressed, and capacity built upon and sustained within PEPFAR-supported implementing partner agencies, and within local, and national governments that care for

people living with HIV (PLHIV) and people living with TB (The United States President's Emergency Plan For AIDS Relief, 2012; Office of the Global AIDS Coordinator—United States Government Department of State, 2020).

Project ECHO leverages video-enabled technology to disseminate and democratize knowledge, promote collaboration, and share best practices through mentorship, guided practice, and case-based learning (Arora, Geppert, Kalishman, Dion, & Pullara, 2007; Arora et al., 2014). As per United Nations Sustainable Development Goal 17, capacity-building is defined as the process and systems for developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt, and thrive in a fast-changing world. Furthermore, this goal identifies capacity-building as a transformation that is generated and sustained over time from within, to promote changing mindsets and attitudes (United Nations, Sustainable Development Goals 17). Project ECHO has built capacity in numerous countries around the world, including in the areas of system strengthening, workforce development and mentoring in PEPFAR-supported countries (Struminger, Arora, Zalud-Cerrato, Lowrance, & Ellerbrock, 2017). A fundamental outcome of Project ECHO is the establishment of communities of practice (Wenger, 2009; Wenger et al., 2011). Effective communities of practice involve continuous learning, professional development, and capacity building (Struminger et al., 2017). A multi-disciplinary team of subject matter experts, mentors, facilitators, and administrators join to form one or more "hub" sites connecting with a network of individual "spoke" sites across diverse geography and populations. This novel approach increased access to specialized types of medical care not available or practical otherwise (Arora et al., 2007). ECHO communities of practice offer opportunities for continuous learning and generally span across multiple learning sessions that may occur on a regular and recurrent basis. Learning sessions may focus on a long-term topic or curriculum, such as the various complex aspects of providing routine HIV or TB care and management.

We consider the Indian and Tanzanian ECHO programs to be complex learning systems set in dynamic environments, interacting with a wide variety of internal and external stakeholders, interests, and factors, often with disparate demands that can shift over time, requiring adaptive responses not easily predictable from a recipe-based linear approach (Rouse, 2008; Tolf, Nystrom, Tishelman, Brommels, & Hansson, 2015). For the successful development of effective public health interventions for such complex systems, strategic planning and iterative cycles of evaluation need to be combined, utilizing systems-thinking based tools or approaches (Williams & Van't Hof, 2016; Craig et al., 2008). Strategic planning may include both formal and informal mechanisms of situational awareness, stakeholder engagement, and problem solving (Stame, 2014).

Going beyond conventional formative and summative evaluation of initial strategic plans, building adaptive cycles of stakeholder feedback and evaluative reflection is necessary to reframe problem-solving approaches commonly used in public health, from a typical, one-time-assessment focus on "*what is the problem*" or "*what is going wrong*" (Sandars & Murdoch-Eaton, 2017) to an action research approach to solving problems through incremental iterative changes from within, compatible with developmental evaluation (Patton, 2010, Preskill and Beer 2012). While SWOT analysis, a tool embraced by

traditional public health strategic planning approach, focuses on strengths, weaknesses, opportunities, and threats, whether led by an external consultant or internally, often leads to negative consequences (Pickton & Wright, 1998), appreciative inquiry (AI) is an alternative strategic planning method that emphasizes "*what is going well*," and engages stakeholders in self-directed individual and organizational change (Cooperrider & Whitney, 2005; Fry, Barrett, Seiling, & Whitney, 2002; Hammond, 2013; Stratton-Berkessel, 2010). SWOT may include a lack of focus on the most important and highest impact goals, lack of a shared vision and strategic plans to support goals, thereby leading to deficiencies in evaluation plans after implementation (Bryson, 2011). Moreover, in practice, the SWOT method often focuses primarily on weakness and threats (Stavros & Cole, 2013).

AI leverages the collective goals of participants to motivate change through a process compatible with a developmental evaluation lens that focuses on understanding an innovation in context, adapting to changing contexts and responding to real events through an iterative process that can and should impact the direction of the work over time in a systematic way (Patton, 2008). A specific, AI process to support strategic thinking through a collaborative participatory process is called SOAR which stands for Strengths, Opportunities, Aspirations, and Results. SOAR allows fluidity and flexibility in decision-making as the issue being addressed continues to evolve (Stavros & Hinrichs, 2009). SOAR offers an opportunity to create shared understanding and action through the identification and discussion of strengths and opportunities and together reframe deficits and challenges through the eyes of possibility and a forward-thinking frame (Stavros & Hinrichs, 2009). Evidence shows SWOT leads to incremental improvements, whereas SOAR focuses on value generation and innovation (Stavros & Cole, 2013). Unlike SWOT, which is based on hierarchical organization, and a "*top down*" approach, SOAR provides the stakeholders opportunities to explore their potential, foster cooperation, and build a future based on self-driven thinking (Cooperrider, Whitney, & Stavros, 2008). While SWOT emphasizes identifying potential gaps and risk mitigation, SOAR emphasizes transformative, co-created change to achieve aspirational goals and measurable results (Stavros & Cole, 2013). Utilization of positive thinking approaches gives an important role to the shared definition and co-construction of the "successes"; this approach offering opportunities for evaluation as a tool for improving the effectiveness of the interventions (Stame, 2014; Stame & Lo Presti, 2015).

In order to understand the current challenges that can lead to opportunities for change, and to co-create an evaluation framework, we modified the SOAR methodology to include challenges ("C"), and the evaluation framework ("E") to create a modified AI approach (SCORE). Further, aspirations ("A") were integrated into opportunities ("O"). These adaptations (*i.e.*, SCORE) allowed us to document challenges, look at opportunities in the context of shared vision among diverse stakeholders and test it in two PEPFAR-supported countries, India and Tanzania.

India and Tanzania were intentionally selected as both countries are considered low-resourced, high-burden countries for both TB and HIV. Both the countries are approaching TB and HIV epidemic control and struggling to sustain it due to constantly evolving guidelines and insufficiently trained workforce (Narain, 2016; Tanzania Ministry of Health

and Social Welfare, 2013). India bears a disproportionately large portion of the world's TB burden with 14% of the global TB burden (1.4 million of the 10 million persons with TB) in 2019, including the most people with MDR TB — 130,000 persons of the 488,000 persons with MDR TB in 2018 (World Health Organization, 2020). Tanzania is a high-burden country with approximately 72,000 people becoming newly infected with HIV and 24,000 people dying from an AIDS-related illness per year (UNAIDS, 2018). Both HIV and TB require a multi-disciplinary team that manage, prevent, and control spread. PEPFAR has supported both Governments of India and Tanzania to implement HIV and TB care, treatment, and prevention through health systems strengthening, and scaling-up access to Antiretroviral Therapy (ART) and TB PreventiveTherapy (TPT) to minimize the impact of the epidemic.

The purpose of this study was to apply SCORE as an appreciative inquiry-based facilitation methodology to assess perceptions of high-quality ECHO implementation among public health workers in two countries with significant HIV and TB epidemics. Prior to the SCORE workshops, India facilitated more than 80 TB ECHO sessions from November 2016–February 2018; Tanzania facilitated 37 HIV ECHO sessions from November 2018–September 2019. In both India and Tanzania, as many as 30–35 spoke sites were mostly ART and/or TB clinics with 75–100 health care providers, including paramedical, ancillary health care workers, joined weekly learning sessions. Co-designing a comprehensive evaluation framework to assess high-quality ECHO program implementation based on the gathered perspectives will address gaps in capacity building and knowledge dissemination practices.

2. Methods

Because no baseline data or pre-determined indicators were available to measure processes or outcomes, a participatory action-research based evaluation methodology was utilized (Patton, 2010; Ivankova, 2015). We applied a developmental evaluation approach with ECHO stakeholders at local and global levels who were involved with planning, implementing, and supporting the ECHO initiative in India and Tanzania (Patton, 2010). Near real-time feedback to program staff facilitated incremental changes through continuous quality improvement and learning loops (Lewin, 1948). Utilizing an appreciative, strengths-based inquiry approach, we adapted effective principles of practice at various levels and modified it to Indian and Tanzanian contexts. A thematic analysis was conducted by reviewing focus group discussion (FGD) and key informant interviews (KII) transcripts to document individual quotations and perceptions regarding their perceptions of quality of ECHO implementation.

2.1. Participants

Participants included local and national stakeholders comprised of Ministries of Health leaders, implementing partners, healthcare providers, and other healthcare workers. Stakeholders were invited to attend a workshop to reflect, communicate, and co-create an ECHO implementation evaluation framework. Inclusion criteria for the invitation was

determined by whether the stakeholder had presented or joined two or more ECHO sessions since inception of the TB or HIV ECHO programs in their country.

2.2. Focus group discussion

Workshops conducted in February 2018 in India and September 2019 in Tanzania included structured FGD to better understand the current status of Project ECHO implementation and data collection tools for the evaluation framework. The agenda included several didactic presentations about the AI methodology, an update on the status of the ECHO program implementation, followed by facilitated breakout sessions for each of the core domains of SCORE (Strengths, Challenges, Opportunities/Aspirations, measurable Results, Evaluation framework) in 5 homogenous FGD groups of 6–8 participants. These AI facilitated FGD were slightly different from a traditional FGD. An equal amount of time was allocated for each of the sessions focusing on strengths, challenges, opportunities/aspirations, measurable results. The goal of the FGD design was to enable open and honest discussions within each homogenous group (Table 1). Each session was followed by small group report backs, and a final reconvening of the full group to share and compare key discussions and perspectives. FGD facilitators and non-participant note takers were assigned to each group in India. However, due to limited resources and dedicated staff, only FGD facilitators and participant-volunteer note takers were available in Tanzania. All sessions in Tanzania were audio recorded after group verbal consent was obtained, however the sessions in India were not recorded.

2.3. Evaluation framework

For the evaluation (E part of the SCORE), findings from an appreciative inquiry-based workshop were used to develop a comprehensive evaluation framework with data collection tools, described elsewhere (Ghosh et al., 2021).

2.4. Key informant interviews

To deepen our understanding on usefulness and acceptability of appreciative inquiry-based SCORE workshops, semi-structured KII were conducted with a select group of ECHO champions. Key informants represented various academic, government or PEPFAR implementing partner agencies to provide insightful feedback and knowledge from their experience in a variety of ECHO programs across Africa, Asia, Latin America, or the USA (Office of the Global AIDS Coordinator—United States Government Department of State, 2020). Recruitment emails were sent to 15 eligible persons with prior experience with designing, facilitating, or implementing ECHO programs. All interviews were conducted in English using Zoom (Zoom Video Communications; San Jose, CA, USA); audio recordings were captured and transcribed electronically using Temi.com machine transcription and then reviewed and edited by the lead researcher to ensure accuracy and completeness. An interview codebook was developed based on *a priori* codes (based on the ECHO model and previous work) and compared by a primary and secondary coder to ensure inter-coder reliability, with code interpretation of at least 80% concordance (kappa statistic). for the first two interviews. All transcripts were imported and analyzed using a computer aided qualitative data analysis software — MAXQDA (VERBI GmbH; Berlin, Germany) Verbi

software (2019). Consistency or discrepancy between patterns of coding among the different key informants was assessed (Patton, 2015).

2.5. Analysis

A systematic thematic analysis was conducted by reviewing FGD transcripts to document individual quotations and perceptions and identify key themes. Thematic analysis was conducted on the qualitative data collected from flip chart notes from workshop participants and transcripts from audio recordings using MAXQDA. We began with a content analysis approach examining the frequencies of codes as a rough indicator of priority areas of concern. We, then continued close examination of the content of coded segments (quotations), including those with co-occurring codes, to identify themes and relationships (Strauss & Corbin, 1990; White & Marsh, 2006). Analytic memos, or a written investigation of a particular concept, theme or problem, reflected the emerging issues captured in the data (Patton, 2008). Between- and within-country analysis of the transcripts and notes led to development of codes grouped into the core SCORE themes. These codes led to the main constructs for measurement (Saldana, 2011). Our analysis was not restricted to our initial *a priori* codes, we utilized a hybrid coding methodology that began with a priori theory-based codes (based on the literature and practice around ECHO and previous work) but allowed analysts to add emergent codes grounded in the current data (Brixey et al., 2007, Saldana, 2011). Quantification of the codes using frequencies and percentages provided opportunities for initial prioritization, and aided comparisons between concordance and discordance for cross-case analysis between and within and Indian and Tanzanian participant groups.

2.6. Data triangulation

Multiple forms of triangulation were utilized to strengthen the validity of findings including methods triangulation, triangulation of sources, and analyst triangulation (Denzin, 1978, Patton, 1999). Regarding methods triangulation (Paul, 1996), multiple approaches to textual analysis were used. Analysis of code frequencies and co-occurrences utilizing MAXQDA and its visualization tools (*e.g.*, code matrix browser, code relations browser, MAXMaps) as well as more interpretive reading of coded segments – content analysis and thematic analysis – were integrated within the analysis of the SCORE workshop-based focus group discussions and KII (White & Marsh, 2006, Braun and Clarke, 2014). Furthermore, thematic analysis of the notes and transcripts from SCORE workshops were triangulated with themes that arose from KII. This was followed by integration and synthesis of overall findings. Concordance and discordance in themes between SCORE workshop-based codes and KII were assessed by comparing patterns between results from the workshop discussions and KII. Inter-rater reliability was also assessed between coders of key informant interview transcripts. Preliminary results of the integrated analysis were further validated through peer-debriefing discussions with stakeholders, concluding with final synthesis and write-up.

2.7. Ethical considerations

The assessment received ethical approvals as an evaluation from the National Institute of Tuberculosis and Respiratory Diseases in New Delhi, India; the National Institute of Medical Research in Dar es Salaam, Tanzania; the University of Illinois in Chicago, United States; and the University of Maryland in Baltimore, United States. This project was

reviewed in accordance with the Centers for Disease Control and Prevention human research protection procedures and was determined to be exempted from human subject research as a program evaluation.

3. Results

3.1. Participants in India

In India, 34 workshop participants were assigned to four homogenous breakout groups according to their employment-based position and responsibilities. The decision maker (DM) group included 6 leadership decision-making positions, represented by the four Indian National TB Centers of Excellence, WHO-India Country Office, CDC-India Office, and State Tuberculosis Officer (STO) Delhi. The subject matter experts and implementers (SME) group included 17 National Institute for TB and Respiratory Diseases (NITRD) faculty (i.e., primary TB ECHO implementers included clinicians, medical officers in India) and District TB Officers (DTO). The health care providers (HCP) group included 11 paramedical staff comprised of laboratory technicians (LT), outreach field supervisors (STLS), and directly observed therapy (DOT) workers. The workshop was conducted over two days, eight hours each day (n = 16 h) by four facilitators and two note takers (Fig. 1).

3.2. Participants in Tanzania

In Tanzania, 30 participants were assigned to three homogenous stakeholder groups. The DM group included five administrative decision makers from Ministry of Health (MOH), CDC, and UMB. The SME group included 15 SMEs, nutritionists, and implementer physicians from UMB. The HCP group included 10 facility-level medical officers, nurses and social workers. The workshop was conducted over two days, five hours each (n = 10 h) by three facilitators and two note takers (Fig. 1).

3.3. SCORE results

While Table 1 questions using the SCORE approach facilitated discussion on perspectives in India and Tanzania, Tables 2–5 displays select quotations that are categorized deductively as strengths, challenges, opportunities/aspirations, and measurable results in richer details. A total of 581 (India=214, Tanzania=367) coded segments were categorized into ten *a priori* codes excluding emergent codes that were identified through manual coding and analyzed using MAXQDA. Perspectives around scale-up and expansion of Project ECHO in their respective countries were predominant (Fig. 2). Procuring administrative resources, logistics, and funding, capacity building, appropriate communication in local language, establishing communities of practice, developing high-quality course content for ECHO sessions, internet related perspectives, developing a monitoring and evaluation system to document outcomes, engaging participation, measuring public health impact, were identified themes that matched *a priori* code list. While motivators and incentives were more prevalent among participants from Tanzania, garnering political will and leadership engagement emerged were two emergent critical codes to be added to the a priori code list. An additional emergent theme related the value of videoconferencing beyond ECHO that were discussed by both countries while efforts towards ECHO research primarily mentioned by participants in India (Fig. 2).

The largest number of codes related to stakeholder's perceptions of strength (n = 214) followed by perceptions of aspirations and opportunities (n = 141). The distribution of perceived challenges were the lowest (n = 107) (Fig. 3). More detailed and comprehensive quotations categorized by SCORE are available in Tables 2–4. Selected exemplar quotations to illustrate the main themes related to SCORE are discussed below.

3.4. Strengths

The content of the FGDs varied across the groups such the discussions with DMs in Tanzania and India more heavily focused on scaling up and building capacity similar to overall codes. India HCP appeared more focused on measuring public health impact while SMEs wanted to ensure high quality ECHO session content. Tanzanian SMEs wanted to build systems for monitoring and evaluation for follow-up of recommendations, and documentation of outcomes from attending ECHO sessions while DMs from both India and Tanzania as well as Tanzanian SMEs perceived garnering political will and leadership engagement as a key priority.

3.4.1. Capacity building, expanding partnerships, and communities of practice—

A predominant strength articulated by stakeholders in both countries was the value of ECHO for building capacity and learning. As one stakeholder noted, "Every *time we are trained, we get new knowledge, it is a continuous process, there is follow-up*" (AI participant, India). "*Building communities of practice, deepening existing relationships and engaging new partners"*, was another strength that was cited by participants in both countries. Both Indian and Tanzanian participants expressed interest in expanding ECHO sessions for private providers, civil societies, and medical colleges that were outside the government sector. Participants shared a clear sense of accomplishment about establishing communities of practice and building capacity, a sense of satisfaction, and acknowledgement as exemplified by select quotes: "*You solve common problems and you don't feel alone*." (AI participant, Tanzania).

3.4.2. Resource saving, communication, scale-up and expansion—

Using technology to save patient and provider financial resources, patients, and time were recurrent strengths in both countries. There was a generalized belief amongst participants that ECHO was a "*resource and time savings*" option. As providers "*we wouldn't have to go physically to training sites to be trained in-person and could get knowledge virtually through ECHO*." (AI participant, India).

Another stakeholder from Tanzania mentioned how cases which are presented during case presentations at ECHO sessions get recommendations from experts who can refer to additional diagnostics as part of the treatment plans. Since these are part of the official recommendations, patients do not get charged for these additional diagnostics. "*Case presentation that would require additional laboratories or treatment referral usually results in cost exemptions since they are recommended from Project ECHO session experts, thus leading to cost savings for the patients at some of the hospitals that participated in those ECHO sessions."* (AI participant, Tanzania) (Table 2).

3.5. Challenges

Perceptions related to challenges or barriers were identified from 101 quotations. Procuring administrative resources, logistics, and communication were perceived as a challenge across stakeholders and countries. Scaling up was a concern for both Tanzania HCPs and SMEs and signified a potential disconnect from the DMs who viewed scaling up as a strength as seen in 3.4.2. Even though ECHO session content was viewed as a strength by Indian SMEs, they also viewed it as a potential challenge (Table 3).

3.5.1. Resources, infrastructure, and logistics—Securing resources and infrastructure, including the availability of dedicated room and laptop, and logistical challenges such as attendance, timing, and language used were mentioned by participants. "*Timing [of the sessions are usually from] 11–12 or 12–1 pm, but ideal would be 2–3 pm and invitees should alternate between healthcare workers/laboratory technicians so that clinic is not closed every time there is an ECHO session*" (AI participant, India). In Tanzania, while SMEs thought the one-hour time assigned to the ECHO sessions was adequate, HCP thought that the ECHO sessions should be longer. A suggestion was made that the ECHO champion and coordinator, who could be HCP or clinic manager, could work together to adjust time and length of ECHO sessions based on the complexity of the case presented. The non-availability of a dedicated room with IT infrastructure for participating in the ECHO sessions was another issue brought up by HCPs in both Tanzania and India. To facilitate routine participation, a systematic room scheduling scheme at clinics with reservation logs that are observed so rooms are not double booked. Simple solutions like these may help programs be more effective and efficient, and potentially save resources.

Participants from both countries noted that ECHO saved time and financial resources, but noted that substantial time was needed to coordinate individual sessions. For example, considerable energy was required to recruit experts and to develop and present fresh topics. Additionally, SMEs and HCP shared their concern about whether the one-hour session time was adequate to fully cover the topic of interest, engage participation, and offer enough time for questions and discussion. Thus, this was coded as "logistical and infrastructure" instead of "resources."

3.5.2. Session content—Perceptions related to maintaining high-quality course content with interaction, and sustaining interest and availability of experts were persistent challenges mentioned by stakeholders from both countries. As one of the HCP commented, "*Having input from facilities and spokes in developing and dissemination of [the] curriculum*" (AI participant, India) would help garner buy-in from participants. For example, the absence of the role of nutrition in HIV/TB care and management was emphasized as a curriculum oversight by one SME in Tanzania who suggested incorporating nutritional status in the case summary sheet for case presentation and inclusion in didactic presentation topics in the curriculum as a short-term outcome. Session content related quotations by Tanzanian SMEs demonstrated a potential challenge that needed addressing, "*Case not routinely outlining the full investigation and physical findings*."

HCPs in India emphasized the need to communicate topics that are relevant to non-professional workers (DOT staff) and laboratory technicians in Hindi, "*Lack of interest because of barriers in understanding in English"*(AI participant, India). Also, "*have sessions that [are] coordinated and run to promote learning and interaction" of non-English speaking staff* (AI participant, India). Other key communication quotations related to the workshop included: "*Communication about the meetings not shared in advance*" (AI participant, India) — they did not know that first Wednesday of the month is reserved for Lab technicians/Health volunteers since email is shared only with District TB Officers [SME] "*due to multiple tasks, time management is a huge challenge: need to ensure that there is no saturation of topics, networking/liaising with multiple disciplines takes time affecting expanding partnerships*" (AI participant, India).

One HCP from India mentioned "*Having > 120 people on sessions is both a challenge and a strength"*. Other session-related comments were "i*t would be helpful to link the didactic presentations to the cases*" and "*consider choosing a didactic topic and then finding a case* [to match the session topic]." The struggle to link case presentation with didactics was common in both India and Tanzania. Seeking feedback from the participants on the curriculum development and facilitating interaction were key issues that SMEs seem to grapple with in Tanzania. Some other participants commented on "selection of topics" and "*how accurate [is] the course content?*" and whether "*the recommendations during didactic related to the course content of the presentations and the case studies*."

3.5.3. Technology infrastructure and internet connectivity—Maintaining stable internet connectivity was a strongly articulated challenge in both the countries. Technological infrastructure challenges quotations included: "*upgrade the infrastructure to provide uninterrupted services*," (AI participant, Tanzania) and "*hard to see the computer screen when in a large group*" (AI participant, India). This led to participant's inability to view and absorb the content covered in the ECHO sessions. Sometimes inaudible and visual disruptions seemed to be a barrier during some sessions.

3.5.4. Expansion, scale-up and replication—Another key theme that emerged consistently within all groups in both countries related to concerns about sustainability. One of the Implementers from India mentioned, "*I often worry about how to preserve interest? And ensure providers attended consistently*" (AI participant, India) was something a SME brought up. A similar sentiment emerged from Tanzania wherein one participant expressed that there was a need for "*continuous sensitization and consistent commitment from spokes*." (AI participant, Tanzania). A few implementers from India also revealed concerns about "*how they could sustain interest of the participants by providing new topics to continue for them to return to attend the sessions*." (Table 3).

3.6. Opportunities

Productive discussions ensued on opportunities for improvement and aspirations for the future (Table 4). Both Indian and Tanzanian HCP aspired to measure ECHO's public health impact. Tanzanian HCP aspired to sustain long-term ECHO participation and Indian DM and SMEs aspired to build capacity.

3.6.1. Need for sustainability, scale-up, and expansion plans—Determining ways to own, improve, and sustain high-quality ECHO program implementation, participation and continued interest of participants was a concern discussed by stakeholders. Fears of scaling up without an expansion plan was brought up as a challenge in both India and Tanzania. Some even said that they were concerned about not having enough resources for expansion to additional sites. The DM group encouraged development of a transition plan in place within two to three years to ensure that the MoH of Tanzania can assume management and implementation of ECHO programs completely and integrate them within the government health system. A decision maker from Tanzania noted, "*This would ensure funding and resources dedicated to ECHO as it would be part of the national strategic plan, within the country's health budget, and not an Annex*." (AI participant, Tanzania).

Many of the participants in India seemed inspired about "*Nationally, 100% coverage of all states, all districts with ECHO to reach TB free India strategy by 2025*" (AI participant, India). Similar sentiment was shared by Tanzanian stakeholders, a Tanzanian decision-maker noted "*Within 5 years, my long-term aspiration is that ECHO will be absorbed within government, MoH, not UMB's ECHO, but TZ ECHO, written in the national strategic plan, not just an appendix*." (AI participant, Tanzania) (Table 4).

3.6.2. Resources, logistics, and infrastructure—Potential divergence was noted about resources. Some participants from both Tanzania and India noted that ECHO was "saving resources", as clinicians were saving time and money by being able to provide expert consultation remotely; yet others in India mentioned that "*time [resources] would have to be managed more judiciously*" (AI participant, India) as additional time was spent to coordinate and recruiting new experts. Presenting new topics or scientifically relevant guidelines to keep the ECHO participants engaged "*needed time and resources for preparation*" (AI participant, India).

3.6.3. Routine monitoring opportunities—Several opportunities to integrate clinical monitoring were cited. One of the HCP from Tanzania mentioned, "*Routinely monitor ECHO and show impact of ECHO on patients and providers; lower number of referrals is an outcome to strive for long-term*" (AI participant, Tanzania). Another HCP from India mentioned, "*Monitoring prescription practices in private vs. public sector*" (AI participant, India). One of the SMEs from India mentioned "*Development of a clinical database to monitor patient outcomes and document whether recommendations were followed*" (AI participant, India) would be an aspiration.

3.6.4. Session content—"*Sessions should be more interactive*" was a strongly supported sentiment from both India and Tanzania SMEs and HCPs. Several comments were related to developing a government recognized system to link presentation at ECHO sessions with "*continuing professional development credits (CPD)*" (AI participant, Tanzania), which could be linked to medical license renewal.

3.6.5. Addressing internet connection challenges—One of the SME in India mentioned despite having highly advanced India's IT system, the technical glitches during ECHO sessions continue. One of the Tanzanian decision makers commented, "*Having*

a long-term aspiration of having fiber optic cables to increase connectivity since this will have to be done by the country" (AI participant, Tanzania). "*Empowering ECHO facilitators/champions to get training on IT and zoom connections could help sessions go more smoothly*", (AI participant, Tanzania) was an option discussed in Tanzania. There was consensus from both countries on "*Communities and national effort (should be made) to improve connectivity*." (AI participant, India). Resources should be reserved for "*Technical maintenance and upgradation of infrastructure to provide uninterrupted services will be key for scale-up*" was a convergent theme from both countries. A Tanzanian decision maker mentioned about the technology revolution in Tanzania with a vision to improve telecommunication infrastructure. "*Since network is growing bigger and bigger, corporate social responsibility to focus on telecommunication*" (AI participant, Tanzania). However, this seemed more like a long-term aspiration that would entail MoH level sustained engagement.

3.6.6. Incentives and motivators—An emergent theme from stakeholders in both countries was the inclusion of incentives and motivators to improve and sustain participation for both presenters and participants. Any supplementary incentive would be beneficial for developing case presentations, as this requires time and energy to prepare effectiveness. "*Small monetary incentives (e.g., 20,000 TZ Schillings) should be considered to ensure sustainability of ECHO sessions*" (AI-participant, Tanzania). This could also be tied to long-term aspirations for the government to officially acknowledge ECHO and integrate it into continuing profession education credits or licensing procedures that would encourage a minimum number of ECHO presentations (*e.g.*, 3–5 presentations) a year for professional license renewal. This may increase enthusiasm and participation for didactic and case presentation by HCP. SMEs could also include this in their curriculum vitae for additional recognition. Addressing this challenge would benefit both the SMEs who prepare for ECHO sessions as well as HCP who are then motivated to attend these sessions.

3.6.7. Garnering political will and leadership engagement—Need to engage leadership and garner political will, emerged as a critical opportunity for sustaining expansion and quality of ECHO implementation. A medical provider (HCP) from Tanzania mentioned how Project ECHO was being used for communication through Ministry of Health messages or memos. "*Sometimes instructions from ministry are delayed, we get this information and updates from ECHO sessions. We can ask questions and engage in negotiations and interactions proactively*." (AI participant, Tanzania) (Table 4).

3.7. Measurable results for routine monitoring and evaluation

Based on the discussions of strengths, challenges, and opportunities, for the R part of the SCORE, workshop participants in both countries identified measurable indicators for routine monitoring and evaluation. This was a large group activity (without stakeholder breakout groups) in Tanzania that concluded with adding data source for the indicators, which may include already available data or may need additional resources for data collection as well as frequency of data collection; the India workshop did not include these additional discussion of data source and frequency of data collection (Table 5).

3.8. Key-informant interview results

Nine key informant interviews were conducted. In assessing inter-coder reliability in the coding of the key informant transcripts, we found 85% agreement in the application of codes between the two analysts. Even though 8 out of the 9 participants accepted a participatory workshop of this nature, there was much varied opinion about availability of dedicated resources including the availability of external resources such as an expert evaluator with effective facilitation skills, expertise in qualitative data analysis to be able to facilitate a SCORE workshop. All (100%) agreed to conducting such a workshop 6 months to a year post ECHO implementation and engagement of Ministry of Health will be critical for such a workshop. There was general consensus that implementing SCORE if adapted, customized and contextualized would be important.

3.9. Data triangulation

As noted above, multiple forms of triangulation were utilized to strengthen the validity of findings, including methods triangulation, triangulation of sources, and analyst triangulation (Cohen and Crabtree, 2006, Denzin, 1978, Patton, 1999). Comparisons within our data highlighted that while building capacity was a perceived strength, improving internet connectivity and scale-up/expansion of ECHO were emphasized as opportunities for improvement through SCORE, as well as discussed in the KII transcripts. Regarding triangulation of sources(Paul, 1996), we compared and contrasted the FGD results within and across the employment-based positions of the stakeholders (DM vs. SME vs. HPs) in Tanzania and India. We chose to break out into focus groups that were homogenous by employment position and responsibilities to promote honest and frank discussion without undue hierarchical constraints. Again, capacity building was a perceived strength across all positions in both countries while internet connectivity was a challenge and offered an opportunity to improve quite consistently among all stakeholder groups within and across both countries. There was concordance in perceptions of ECHO building communities of practice across AI workshop-based codes and KII. While incentives and motivators was a strong motivating factor that emerged through SCORE, it was not brought up by KII (which highlights the need to get the perceptions of direct participants). While leadership engagement and political will was key among KII, it was brought up by stakeholders in Tanzania and not so much in India. For analyst triangulation, a second coder was used during MaxQDA facilitated analysis and inter-rater reliability of 90% was obtained, Findings were discussed within the evaluation team (peer-debriefing) before finalizing and sharing with a couple of the ECHO stakeholders as a member check-in step in the triangulation process (Hsieh, 2005).

4. Discussion

SCORE identified 12 main elements required for the evaluation framework and data collection tools to assess quality of ECHO implementation: (i) building capacity building, (ii) engaging participation, (iii) establishing and sustaining communities of practice, (iv) scaling-up, expansion, scale-up, and sustainability, (v) institutionalizing high-quality ECHO session content and recommendations, (vi) procuring resources, logistics, funding, and infrastructure, (vii) alleviating challenges with internet connectivity, (viii) measuring public

health impact, (ix) facilitating communication and local language, (x) monitoring and evaluating performance, documentation, and follow-up (xi) garnering political will and leadership engagement, (xii) promoting incentives and motivators (Table 1). Small-scale, routine, and incremental changes, (developmental evaluation) in addition to planning for long-term, larger-scale changes in implementation over time (Carr & Kemmis, 1986, Langley, Nolan, Nolan, Norman & Provost, 2009) led to changing intensity, quantity, and quality of information. Moreover, using an AI approach to conduct multiple focus group discussions facilitated engaging stakeholders in co-developing an evaluation framework (Ghosh et al., 2021). Additionally, unanticipated discussions on use and utility of Zoom platform in relationship to Project ECHO were documented.

4.1. Reflection on perspectives gathered about status of Project ECHO in India and Tanzania

Proud sentiments were shared about the current status of ECHO in stakeholders' respective countries. SCORE workshops enabled stakeholders (e.g., HCP, decision makers, SME representing hubs or spokes) to achieve a clear understanding of their role, functions and contribution to the program, thus playing a major role in designing questions and planning for expectations and outcomes. Moreover, the intentional use of homogenous groups, facilitated a safe space for information gathering, especially amongst groups that are considered subordinate to their supervisors in attendance. For example, the revelation of the language barrier among HCP was not revealed to the SME and Implementers until the SCORE workshop in India that led to rapid change in use of appropriate language (*e.g.*, Hindi) for ECHO sessions with health care providers (e.g., laboratory technicians) immediately. While the HCP group primarily included paramedical staff and laboratory technicians, in Tanzania this group was comprised of information technician and data officers. Thus, results from this HCP stakeholder group, through promoting safe spaces to share perspectives openly, helped gather perspectives on what was working and unveiled opportunities for change and improvement. While a limitation of a homogenous group is that sharing does not happen across employment-based positions (*e.g.*, HCP may not be comfortable speaking their minds with DMs in the room), the debriefs with larger groups in the end facilitated that information sharing/revelation of new topics. Having the open and honest discussions within the employment-based positions (*e.g.*, within HCP or within DM or SME) is unique to this design and served information gathering for SCORE, and is recommended for subsequent SCORE workshops.

Stakeholders from both countries boasted about how ECHO was "spreading knowledge from classes to masses" and was playing a role in building capacity of TB and HIV providers. Few quotations from India included "*Ability to interact with professional colleagues working in various DTO chest clinics, lab, implementing the RNTCP programs"* or "*Sharing the experience with international expert faculty in the field of mycobacteriology and treatment management including newer TB drugs*." One such quotation from Tanzania was *"I am proud to be the one providing the right answers"* (Table 2). They were also able to highlight areas of improvement. Specifically, addressing internet connection issues, facilitators encouraging interaction during sessions, engaging political leaders (*i.e.*, MOH officials) during ECHO sessions, as well as, drafting formal scale-up

plan, were critical domains identified for sustaining high-quality ECHO implementation. Technological infrastructure (*i.e.*, accessing broadband connectivity) needs both immediate and long-term attention and remediation. It will be important to consider broadband and telecommunication improvements or alternate options as part of the countries' ECHO program scale-up and expansion plans.

Emergent codes indicated incentives for participation linked to professional development were revealed as a key theme within the FGDs. Incentives such as Continous Professional Education (CPE) credit procedures for professional licensing and incentive options should be considered to formalize and encourage participation at hubs and spokes. Increasing demands and expansion of ECHO-related activities was evident. Additional recommendations emerging from the analysis included the development of an expansion plan that included eventual transition towards MOH implementation, coordination, and management. A scale-up plan would be adequately supported, both financially and with dedicated human resources from MOH with eventual transition to the country officials implementing ECHO instead of support from PEPFAR-implementing partners, as suggested in Tanzania. National governmental support and political leadership engagement will be key to implement and sustain these efforts to integrate with national public health vision and long-term public health goals. Dedicated staff to conduct routine monitoring and evaluation activities should be part of the national plan to routinely assess the impact of Project ECHO and modify course corrections accordingly.

From our analysis, responding to administrative challenges, such as the number and timings of sessions, need careful attention and coordination for all ECHO-related activities. Designating one implementing partner to coordinate all activities was brought up as a potential solution in Tanzania to manage consistency in session quality, attendance, and participation in Tanzania. Moreover, the impact on quality of on-going ECHO activities including implementer fatigue, routine monitoring of attendance, session quality, and session participation will be important considerations. Reminder trackers and WhatsApp groups are mechanisms to communicate and respond to ECHO related interactions that the Tanzanian implementing partner uses routinely. In contrast, India uses iECHO (a web-based ECHO proprietary participation monitoring database developed and managed by the ECHO Institute). iECHO provides a common tool at no-cost to partners, helping lower barriers to participation and supporting the reporting needs of partners. However, iECHO data is not being used routinely to adjust participation outcomes in India.

A Participatory Digital Attestation Platform (PDAP) technology which is now being pilot tested across various ECHO platforms (*e.g.*, in Tanzania) holds promise to empower staff and partners to set up, coordinate, monitor, and motivate large scale capacity building initiatives (Socion, 2020). PDAP is a digital platform that enables participants to track, organize, and share their training content with peers, monitor their training certifications that can be a motivator and incentive. Professional certifications instead of monetary remunerations could help in sustaining interest and incentives. Maintaining timely and topical case studies with corresponding didactic sessions warrants careful review and consideration. MOH could leverage this PDAP technology to promote national communities of practice, accreditation, skill building and capacity assessments as part

of their national workforce development strategies. Similar technology may address the challenges of managing participation, incentives, and motivators such as obtaining certifications/participation credits, that were highlighted by workshop participants, with a potential to transfer the responsibility of maintaining documentation on participation and skill/capacity building activities to participants themselves through such PDAP technologies.

4.2. Reflection and lessons learned from implementing a modified appreciative inquiry-based SCORE approach in India and Tanzania

4.2.1. Why engage in SCORE?—A modified appreciative inquiry-based SCORE approach offers an opportunity of engagement that provides freedom and latitude to equitably engage multiple partners across potential barriers of status or education to produce self-directed change (Cooperrider & Whitney, 2005; Yudarawati, 2019). This approach encouraged a diverse set of stakeholders in both countries to participate in a strategically facilitated workshop where participants felt comfortable sharing their unique experiences freely in both India and Tanzania.

Improving communication, collaboration, and learning from peers, networking to share updates and national guidelines to stay current in the field, while feeling a sense of belonging (Mabery, Gibbs-Scharf, & Bara, 2013), are key principles of ECHO's virtual communities of practice (Wenger et al., 2011)that led to a process of co-creation of domains for an evaluation framework (Table 2). Various studies have acknowledged that although participation is a negotiated practice with diverse stakeholder groups involved in framing and defining the parameters of participation, intentionality and inclusion are primary considerations for such workshops (Chouinard & Milley, 2018). Participatory practice through the AI methodology entails a normative, action-oriented approach to the co-creation of knowledge, a motivation and political input to democratize the inquiry process and better represent the local and national context (Choinard & Milley, 2018). SCORE process focuses on positive ways to produce change in experiences and understanding of the world, and an inclination to act together (Lewis, Passmore, & Cantore, 2008).

4.2.2. Who should be included in the SCORE process?—Successful change management requires attention, focus, and commitment of positive change catalysts in the form of clear roles and responsibilities (Cooperrider & Whitney, 2005). We included leadership in the form of sponsors, an AI consultant who guided the process objectively, a core SCORE workshop organizing and conducting team comprised of leading Project ECHO implementers and SMEs, and of course, participants. While leadership or the core decision makers in India and Tanzania were the champions who organized, coordinated, and led by affirmation, the consultant, (first author) worked with the core team to develop SCORE questions to use in the facilitation process (Table 1), and conducted a stakeholder analysis to understand the stakes, inter-relationships, and boundaries, which is critical in identification of a list of stakeholders for inclusion (Williams & Van't Hof, 2016). The core team determines the inclusion of eligible stakeholders in homogenous smaller groups to enable free and unbiased sharing of perspectives, acknowledging that in a highly diverse, culturally complex, agile setting, the SCORE approach can offer a platform to alleviate issues of inequity, power, voice, capacity and skill (Choinard & Milley, 2018). In India and

Tanzania, core SCORE team members determined that the smaller group discussions needed to be homogenous based on employment positions and responsibilities.

Findings from various studies suggest selecting the correct stakeholders becomes all the more complex in the international development context, as there are numerous stakeholders representing very diverse roles and constituencies (*e.g.*, multiple agencies, donors, beneficiaries, politicians, evaluators, community program managers) (Bamberger, Vaessen, & Raimondo, 2016), all with often competing and contrasting issues, interests and voice. How community is defined, who represents the community, who speaks for whom, and who is selected for inclusion, remains controversial. The implications of inclusion and exclusion directly influence the participatory process (Cousins & Chouinard, 2012). Having the homogenous groups during SCORE thus facilitates honest sharing of perspectives, especially in international development country contexts. However, managing participant numbers for such smaller homogenous groups would be a notable consideration for an effective FGD.

4.2.3. How should SCORE be conducted?—Inquiry is an intervention (Cooperrider & Whitney, 2005). The process entails how stakeholders discover best practices (Guzman et al., 2015), think and talk about dreams, designing possibilities for change, and then sustaining momentum for performance to attain that change. For example, Alvarez et al. (2010) reported the use of workshops at the outset to support evaluation design and to train participants and near the end of the project to bring communities together to increase the reach of the findings to various stakeholder groups. As Cornwall and Jewkes (1995) argue, "*asking the who question enables us to look more closely to focus attention on the central issues of power and control*" (p. 1668). It is critical to consider who initiates the participatory process, whether it comes from the top down or the bottom up, from the funder or from the community, whether stakeholders are selected, volunteer for the task, or are obligated or compelled, all has a direct effect on the process and outcomes (Oakley, 1991), and importantly frames the boundaries of action and the knowledge jointly created in the process (Cornwall, 2008; Guijt & Shah, 2001). We demonstrated that while developmental evaluation ideally involves strong internal champions for evaluation and adaptive planning, in practice the capacity to co-lead evaluation may need to be a process that matures over time, and we see our efforts as a step in this direction. As internal as well as external decision makers see that participatory and iterative approaches to strategic planning and evaluation result in feasible and actionable recommendations, we expect that greater buy-in and resources will become available for more developmental and broadly inclusive evaluation approaches.

Table 1 demonstrates the development of facilitating questions for the SCORE workshop that were drafted after several meetings with the core SCORE team. The decision to use a homogenous team was a result of identifying the hierarchical nature and composition of the stakeholders. The role of the facilitator was key to ensuring stakeholders had a clear understanding of the SCORE process, mitigating any power imbalances, and encouraging critical, honest, reflective feedback from the participants. Cross-culturally sensitive facilitators who are cognizant to nonverbal gestures, make eye contact, respect time, and encourage a safe space to share, promote a productive discussion, resulting

in co-creation and information sharing. Similar efforts for virtual sessions would be a consideration worth exploring. Evaluating whether expectations and outcomes were mutually met or not will significantly affect how results of the workshop are utilized.

The availability of resources determines the scope of SCORE methodology, including access to computer-based qualitative analysis software (*e.g.*, MAXQDA) to effectively conduct some the analyses. However, less formal qualitative analyses could be conducted that are less resource intensive. To our knowledge, the ideal amount of time to conduct an AI has not been previously published. Despite the workshop in Tanzania lasting for 10 h compared to 16 h in India, a larger number of quotations were obtained from Tanzania (367) than India (214) (Fig. 2). Transcription from audio recordings in Tanzania may be more complete than relying on the flip chart notes alone from the Indian experience, which may have contributed to this discrepancy.

KII indicated that the SCORE process may be resource intensive yet had potential to be a qualitative interim evaluation approach that supplements other objective strategies. One key-informant felt that there did not have to be an evaluator facilitating the AI workshop, good facilitation skills to promote gathering honest responses could be sufficient, although such skills are critical requirements to undertake a SCORE process. One key-informant reported that as part of their Project ECHO's interim evaluation after a year of implementation in their country. they conducted key-informant interviews through site visits which was resource intensive and preferred this SCORE process instead.

The AI workshop in India was not recorded and we had to rely on written notes from various note-takers. However, content seemed to be captured comprehensively. In Tanzania, the workshop was recorded and transcribed; hence, verbatim notes were more completely captured, and a larger number of quotations were included in the analysis. Conducting the SCORE process virtually has not been attempted and needs to be explored.

4.2.4. When should SCORE be conducted?—To our knowledge, no literature exists on appropriate timing to conduct SCORE workshops. Nor is there a recommendation for the specific stage in the life cycle of a policy/program implementation when SCORE should be considered to influence change. Based on our experience, it was helpful to conduct SCORE workshops 9–12 months post-implementation of both the TB and HIV ECHO programs. Any earlier than nine months to a year of implementation, using SCORE may not yield best results since stakeholders would lack experience and understanding of the programmatic potential. Thus, full consensus was received by key informants that an ideal time to conduct SCORE would be 9–12 months post implementation (includes time to plan a SCORE workshop) to be able to utilize the findings for course corrections to adopt change. Moreover, using the AI-based SCORE methodology utilizes the power of conversation in an agile complex adaptive system inspired by communities of practice to qualitatively reveal self-identified potential for change.

4.2.5. Limitations—AI workshops in India and Tanzania were a convenience sample selection of stakeholders that were organized and recruited by local implementing partners. This selection may have influenced the results. We attempted to minimize this bias by

developing *a priori* selection criteria (e.g., representatives from various employment-based positions, such as physician experts who presented cases and /or didactic presentations were SMEs; laboratory workers or paramedical staff who were HCP, DM who were primarily ECHO coordinators and MOH officials) to adequately represent a variety of influencers and their perspectives. Following the code book closely during analysis ensured minimization of interpretation bias.

Despite contribution to AI for a more participatory process, this study recognizes that the validity of the findings is relevant to the composition of the FGDs. The selection of the participants was based on a convenience sample. More engaged and vocal participants may have been more enthusiastic and vocal about their opinions. Also, analytically, quantification of qualitative coding was used only for prioritization and should not be overinterpreted. Nevertheless, the appreciative philosophy accepts flexibility to adapt, and contextualize though use of local language and culture (Yudarwati, 2019). Lack of similar availability of time (at least 16 h) to conduct the AI workshop in Tanzania led to absence of a large group reflection session to gather reflective feedback.

5. Conclusions

To our knowledge, this was the first time the AI-based SCORE methodology has been utilized for ECHO programs to co-create an evaluation framework and to build ownership by facilitating revelation of a multitude of perspectives from diverse stakeholders. Comprehensive evaluations of Project ECHO implementation would include the following 12 elements: (i) building capacity building, (ii) engaging participation, (iii) establishing and sustaining communities of practice, (iv) scaling-up, expansion, scale-up, and sustainability, (v) institutionalizing high-quality ECHO session content and recommendations, (vi) procuring resources, logistics, funding, and infrastructure, (vii) alleviating challenges with internet connectivity, (viii) measuring public health impact, (ix) facilitating communication and local language, (x) monitoring and evaluating performance, documentation, and follow-up (xi) garnering political will and leadership engagement, (xii) promoting incentives and motivators (Ghosh, et al., 2021). It is our hope that the insights here shed light for evaluators and strategic thinkers and planners on determining factors to conduct the SCORE workshops in their context. Given public health system’s conundrum to be able to manage and plan for evaluation resources in this era of shrinking economy, we have attempted to demonstrate the value of engaging stakeholders to maximize limited resources. The SCORE approach has the potential to be implemented as a best practice that should be beneficial for interim course corrections. The ability to initiate, inquire, imagine, innovate, and inspire to implement change (AI approach) may be integral to the development of an evaluation framework incorporating program improvement process.

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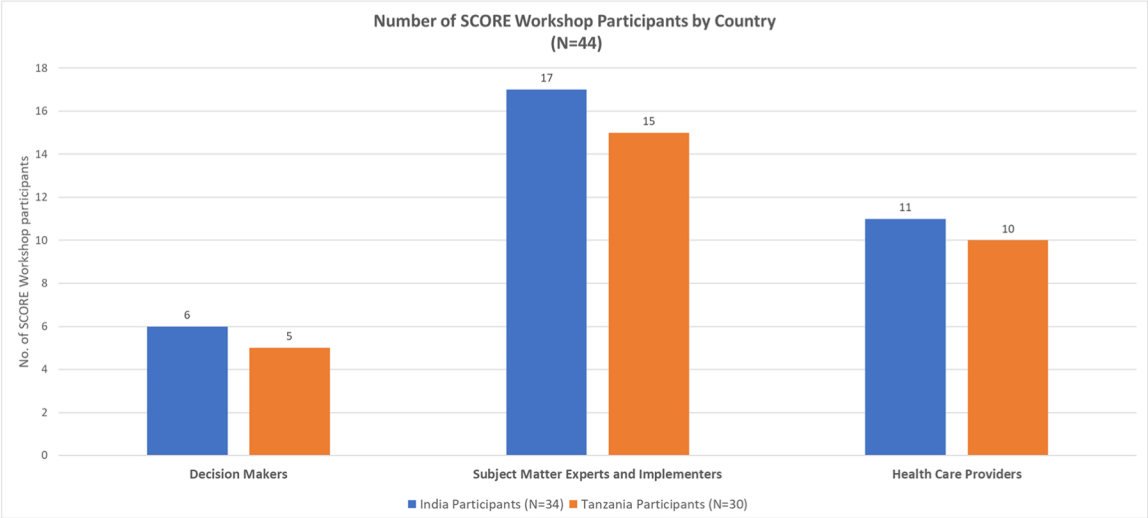

Fig. 1.
Number of SCORE workshop participants by Country, India (2018) and Tanzania (2019).

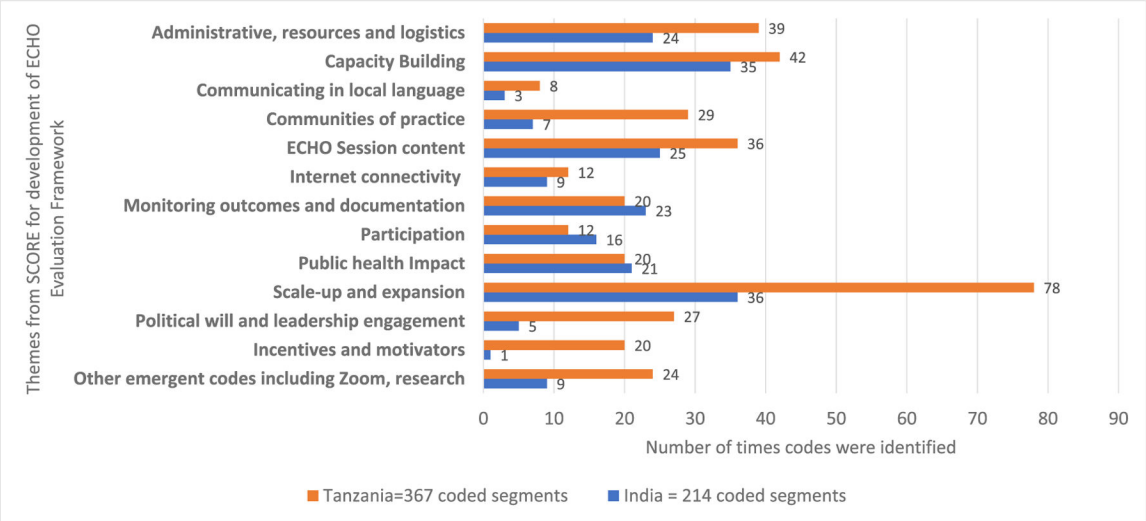

Fig. 2.

Distribution of perceptions of high-quality ECHO implementation from SCORE workshops in India and Tanzania.

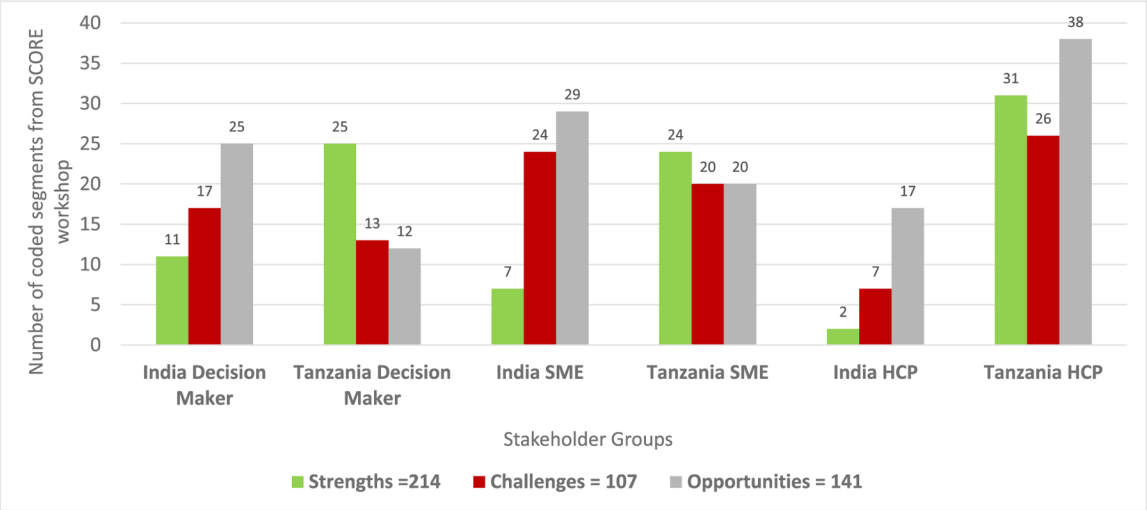

Fig. 3.

Perceptions of Strength, Challenges and Opportunities by Stakeholder Groups gathered from SCORE Workshops conducted in India and Tanzania.

Table 1

Facilitating questions to frame the appreciative inquiry approach – Strengths, Challenges, Opportunities, Results and Evaluation (SCORE).

Strengths	Challenges	Opportunities/Aspirations	(Measurable) Results	Evaluation Framework (constructs)
What is *your* ***personal proudest achievement*** since you started participating in the start of the ECHO program?	What domains of the ECHO program are ***particularly challenging for you?***	Given the strengths and challenges outlined in the previous session, what are ***the top 3 opportunities*** where we might focus our efforts? Who are possible ***new partners*** we might consider engaging in our work? What ***new services***, partners or processes etc. we may consider?	Considering the strengths, challenges, opportunities, and aspirations, what ***meaningful measures*** would indicate we are on ***track to achieve success*** for the ECHO program? (measures may be at multiple levels: ECHO implementer, provider, patients, community outcomes)	1) Building capacity 2) Establishing and sustaining communities of practice 3) Engaging participation 4) Internet connectivity and technology 5) Procuring resources, logistics, funding, infrastructure 6) Scaling-up, replication and expansion 7) Facilitating communication in appropriate language 8) Developing high-quality course content for ECHO sessions 9) Garnering leadership engagement and political will 10) Promoting incentives and motivators 11) Monitoring/measuring public health impact 12) Setting up a monitoring and evaluation system for documentation and follow-up
What are you ***most proud*** *about the ECHO program?* How do these things that you are proud about reflect your strengths?	What are the ***burning issues or challenges*** experienced by the ECHO program?	Given our long-term aspirations, what does ***success look like 6 months to a year from now***? (short-term vision/outcome)	What would a list of prioritized measures for short-term, medium-term, and long-term successes look like?	
What are the ECHO program's ***area of excellence***?	What has been the ***biggest challenge*** associated with the ECHO program?	What's your ***vision of success*** in 2 ***years*** from now? (medium-term vision/outcome)	What data sources exist where we can get these measures from?[a] Who should be responsible for collecting these measures?[a]	
What can ***other ECHO programs learn*** from India's TB ECHO or Tanzania's HIV ECHO program?		Where do you see ECHO in 3/5 ***years*** from now? (long-term vision/outcome)	How often would it be practical to collect each of these measures?[a]	

[a]Inquired in Tanzania only

Table 2

Select quotations from Appreciative Inquiry based SCORE approach in India and Tanzania: STRENGTHS.

Strengths	India	Tanzania
Building Capacity	"*We are proud that knowledge is spreading from classes to masses*"	"*It's a benefit for both the hospital and staff*"
	"*We are proud about real time patient care and management*"	"I am proud to be the one providing the right answers"
	"*Real time patient case management and care preventing death*"	"*A team of regional hospitals that can support the hospital at peripheral sites that do not have mentorship and expertise available*"
Establishing and sustaining community of practice	"*Collective problem solving*"	"*ability to interact with professional colleagues working in other clinics, lab, implementing best practices*"
	"*Ability to interact with professional colleagues working in various DTO chest clinics, lab, implementing the RNTCP programs*"	"*Sometimes instructions from ministry are delayed, we get this information from ECHO sessions and we can ask questions and engage in negotiations*"
	"*Sharing the experience with international expert faculty in the field of mycobacteriology and treatment management including newer TB drugs*"	"*Every time we are trained, we get new knowledge-it is a continuous process, there is follow-up. SMEs give their recommendations in writing and it's easy to follow.*"
	"*All available experts to solve problems collectively*"	"*Reducing interprofessional bridges, i.e., increase communication between providers*"
	"*Having > 120 people on sessions is both a challenge and a strength*"	"*Creating safe and comfortable ECHO environment for spokes to attend ECHO sessions and learn from each other*"
Engaging Participation	"*Time saving (transportation, money, less case reminders fostering cooperation between staff and patients) for both staff and patients*"	"*ECHO increases number of people getting information at the same time - multiplier effect*"
Procuring resources, logistics, funding, infrastructure	"*Saving time of patients and practitioners*"	"*Saving time of patients and providers*"
	"*resource and time savings*" option since providers "*wouldn't have to go for in-person trainings and could get knowledge virtually through ECHO*"	"*Cost saving at some of the hospitals where if a case is presented, patients get exempt from the costs associated with diagnostics since it's part of the recommendations*"
Scale-up, replication, and expansion	"*Expansion of TB ECHO throughout the country with NITRD as a national hub in a phased manner in 3–5 years*"	"*Experience of index testing has scaled up and expanded across the country*"
Facilitating communication in appropriate language		"*Increasing interprofessional bridges, i.e., increase communication between providers*"
		"*Having one implementing partner coordinate all ECHOs in the country*"
Developing high-quality course content for ECHO sessions	"*Quality of patient care is improved since good timely information is shared*"	"*Saving people's lives with high quality case-based learning*"
	"*course content was interesting*"	"*Saving people's lives with case-based learning*"
		"*If a case is presented at the ECHO session, then patients sometimes get exemptions as they cannot afford tests, they are grateful*"
	"Have an ECHO champion lead other champions since they are at the same level (peer support) for presentations as well as follow-up"	*"My government has embraced technology to support HIV programs"*
		"The Chief Medical Officer and his engagement in HIV ECHO program helps build the program"

Table 3

Select quotations from Appreciative Inquiry based SCORE approach in India and Tanzania: CHALLENGES.

Challenges	India	Tanzania
Establishing and sustaining community of practice	*"Having > 120 people on sessions is both a challenge and a strength"*	
Engaging Participation	*All staff" should be reconsidered to allow "full participation" of lesser-qualified staff since they are usually left out in order to keep health services open to patients*	
Internet connectivity and technology	*"Technical glitches-broadband disconnections and audio/ video quality"*	*"Connectivity issues - 3 or 4 out of 23 sites cannot connect or have intermittent connectivity"*
	"Uninterrupted power supply"	*"Need an IT person to set up equipment"*
	"Highly advanced IT system in India, yet these IT issues persist"	*"Empower facilitator and ECHO champions with IT"*
Developing high-quality course content for ECHO sessions	*"[the] video library [hosted at ECHO Trust website] had plans to be organized better so that ECHO clinic participants could refer to that library at a later time."*	*"Unavailability of a dedicated room was another issue brought up by HCP. To facilitate routine participation, a systematic room scheduling scheme at clinics with reservation logs that are observed so that rooms are not double booked would help save resources and use them more effectively and efficiently"*
	"hard to see the computer screen when in large group."	*"Preparing presentations takes a lot of time"*
	"Align with didactic with case presentation"	*"Absence of the role of nutrition in HIV/TB care and management"*
	"topics are good, whether speaker has justified the topic or not, [or if] knowledge of speaker is up to date"	*"Getting contracts with better cell phone service is another idea that may help mitigate this challenge as well"*
	"sessions should be more interactive"	*"the recommendations during didactic related to the course content of the presentations and the case studies*
	"how they could sustain interest of the participants."	*"Case not routinely outlining the full investigation and physical findings"*
Facilitating communication in appropriate language	*"Lack of interest because of barriers in understanding in English"*	
	"Communication about the meetings not shared in advance - they did not know that first wednesday of the month is reserved for LTs/HVs since email is shared only with DTOs"	
	"Communication about the meetings not shared in advance - they did not know that the first Wednesday of the month is reserved for Lab technicians/health volunteers since email is shared with only DTOs"	
Procuring resources, logistics, funding, infrastructure	*"upgrade the infrastructure to provide uninterrupted services"*	
	"hopefully there will be funding to sustain ECHO next year,"	*"Having limited resources for expansion worries me as UMB is already stretched thin"*
Monitoring/measuring Public Health Impact	*"no feedback on recommendations of ECHO clinic (Did patient outcomes change)?"*	
Scaling-up, replication and expansion	*"Need to ensure there is no saturation of topics"*	
	"how to preserve interest?" and "[ensure] that providers attend consistently,"	*"Need continuous sensitization and consistent commitment from spokes"*

Table 4

Select quotations from Appreciative Inquiry based SCORE approach in India and Tanzania: OPPORTUNITIES.

Opportunities	India	Tanzania
Developing high-quality course content for ECHO sessions	*"saving resources" as clinicians were saving time and money by being able to provide expert consultation remotely; yet SMEs in India mentioned that "time [resources] could have to be managed more judiciously"* *"How are selection to topics made? How accurate are the course content"* *"Development of video studio-library to edit and store recorded program"*	*"Successful transition of HIV clinical ECHO from ICAP to UMB without interruption in quality of sessions including MOH in all activities overall*
	"How are selection to topics made? How accurate are the course content"	
	"Development of video studio-library to edit and store recorded program"	
	"Case selection for ECHO presentation and selection of presenter and speaker – suggest selecting cases other than MDR-TB"	*"Having a feedback mechanism for everyone to be able to see how it's done by specialist"*
		"Having input from facilities and spoke in developing and dissemination of curriculum"
		"integration of QI with HIV ECHO"
		"Having input from facilities and spokes in developing the curriculum" would help in buy-in and participation"
Scaling-up, replication and expansion	*"Start ECHO at district level to engage lab technicians, health care volunteers, DOT providers, private colleges, private providers"*	*"Successful transition of HIV clinical ECHO from ICAP to UMB without interruption in quality of sessions including MOH in all activities overall*
	"NITRD should become a super hub and provide leadership and support to build MDR-TB capacity in the[South Asia] region"	*"Additional zonal hubs will need to be set up to manage additional spokes," and "spokes eventually becoming hubs".*
	"Nationally, 100% coverage of all states/all districts with ECHO to reach TB free India strategy by 2025"	
	"Need to expand beyond MDR-TB topics, include diabetes, mental health"	*"Growth from 1 ECHO program to 6 ECHO program areas"*
	"Clinical management ECHO has capacity to create ripple effect which might be used for other programs"	*"A long-term vision is to assess the proportion of spokes and hubs following the ECHO implementation protocol"*
Internet connectivity and information technology	*"Uninterrupted good bandwidth and good internet speed"*	*"Communities and national effort to improve connectivity"*
		"Having a long-term aspiration of having fiber optic cables to increase connectivity since this will have to be done by the country."
Setting up a monitoring and evaluation system for documentation and follow-up	*" Modifying patient care and adverse event monitoring real-time"*	*"Routinely monitor ECHO and show impact of ECHO on patients and providers"*
	"Outcome of the case studies or if recommendations were followed or not are not shared"	*"This would ensure funding and resources dedicated to ECHO as it would be part of the national strategic plan, within the country's health budget, and not an Annex."*
Promoting incentives and motivators	*"Promoting research and clinical monitoring and follow-up database for ECHO cases presented is needed"*	*"Incentive for presenter - a nominal amount of 20,000 Tz Schillings"*
		"continuing professional development credits (CPD)" which could be linked to medical license renewal"

Table 5

Results (Measurable) indicators proposed by SCORE participants in India and Tanzania, data sources and frequency of data collection.

	Construct	Measurable results (Indicators)	India	Tanzania	Potential data Sources proposed in Tanzania	Frequency of data collection proposed
1	Engaging Participation	Number and percentage of Participants, hubs and spokes attending ECHO sessions	Y	Y	Registration information, MOH/ ECHO coordinators/iECHO	Weekly/Quarterly/ Monthly
		Number and percentage of spokes that drop out	Y	N	ECHO coordinators	Quarterly
		Number of spokes/hub/geographic spread	Y	Y	MOH/ECHO coordinators	Quarterly
		Number and percentage of ECHO sessions, high volume facilities conducted among the ones that were planned	Y	Y	ECHO coordinators/MOH	Quarterly
		Number of new ECHO sessions added	Y	N	ECHO coordinators	Semi-annually
		Number of participants per topic/theme/profession	Y	N	iECHO or routinely collected programmatic data	Quarterly
2	Developing high-quality course content for ECHO sessions	Number of cases sent for presentations/number of cases presented/ Number of spokes presented	Y	Y	MOH/ECHO coordinators	Quarterly
		Types of cases presented (e.g., Lab, Clinical, guidelines etc.)	Y	N	iECHO	Quarterly
		Number of didactic/case presentations	Y	N	iECHO	Quarterly
		Number of ECHOs downloaded/recorded*	Y	Y	You Tube	Quarterly
		% of participants who found topic relevant and interesting	Y	Y	iEcho or routinely collected programmatic data	Quarterly
		% of participants who were satisfied with ECHO session	Y	Y	Surveys	Quarterly
		% of participants who learned something new	Y	Y	Surveys	Quarterly
		Number of sessions that followed start/end time	N	Y	Feedback report by email/phone call to ECHO coordinators/UMB	Quarterly
		% of sessions with interactions/asking questions	Y	N	ECHO coordinators	Quarterly
3	Building Capacity	Increase in knowledge from post-tests*	Y	N	Pre-post tests	Every session
		% who gained knowledge from ECHO sessions	Y	Y	Pre-post tests	Quarterly
4	Appropriate language for communication	% of sessions reporting language barriers	Y	N	ECHO coordinators	Quarterly
5	Facilitating communication	Number of WhatsApp message reminders sent	N	Y	ECHO coordinators	Quarterly
6	Measuring Public Health Impact	Number of referrals for HIV clinic by type of referral (skills, investigation at hospitalization)	N	Y	MOH	Quarterly
		Increase in utilization of services by type	Y	N	MOH/ECHO coordinators	Annually
		Number of providers change in practice	Y	N	FGD or data from sites	Annually
		Proportion of recommendations followed*	N	Y	FGD or data from sites	Semi-annually or Annually

	Construct	Measurable results (Indicators)	India	Tanzania	Potential data Sources proposed in Tanzania	Frequency of data collection proposed
		Number of times recommendations were followed*	Y	Y	FGD or data from sites	Semi-annually or Annually
		Improvements in disease reporting/national notifications due to ECHO	Y	N	timeliness checks for surveillance	Quarterly
		Improvement in programmatic indicators (testing, retention, outcomes) due to ECHO	Y	Y	Programmatic/PEPFAR/national indicators assessed nationally by MOH or partners	Semi-annually/ Annually
		Number (%) of spoke participants believing they can present from confidence gained	Y	Y	Surveys	Quarterly
7	Establishing and sustaining community of practice	Number of SMEs per zone/state	Y	N	Excel spreadsheet managed by implementing partner	Quarterly
		Level of engagement by spokes	Y	Y	Surveys	Quarterly
		Number of spokes trained or mentored	Y	Y	MOH/ECHO coordinators	Quarterly
		Number of PHI staff engaged with ECHO	N	Y	MOH/ECHO coordinators	Annually
		Number (%) of private providers joining ECHO among those invited	Y	N	MOH/ECHO coordinators	Annually
8	Scaling-up, replication and expansion	Number of zonal/state hubs*	Y	Y	MOH/ECHO coordinators	Quarterly
		Increase in number of intuitions or partner agencies	Y	N	MOH/ECHO coordinators	Annually
		Number of spokes desire to become hubs	Y	Y	MOH/ECHO coordinators	Quarterly
9	Internet connectivity related	Number (%) of ECHO sessions with internet disruptions or technical issues among total ECHO sessions conducted	Y	Y	Feedback report by email/phone call to ECHO coordinators/UMB	Monthly
		Number of IT trainings conducted per ECHO champions (to not depend on IT staff to initiate ECHOs)*	Y	Y	Training reports	Semi-annually
10	Promoting motivators/incentives	Number of CPD points awarded*	Y	Y	MOH/ECHO coordinators	Quarterly
11	Procuring administrative, resources, logistics, funding, infrastructure	Number of spokes signing in timely (Timely attendance)	N	Y	MOH/ECHO coordinators	Quarterly
		% reporting session timing as a challenge	Y	Y	MOH/ECHO coordinators	Quarterly
		% of participants believing that ECHO saves times and resources for patients and providers	Y	Y	Surveys	Annually
		% participants wanting to use Zoom for other activities	Y	Y	Surveys	Quarterly
		Are there guidelines/SOPs on ECHO?*	N	Y	MOH/ECHO coordinators	Quarterly
		How many spokes and hubs are following the ECHO SOPs?*	N	Y	MOH/ECHO coordinators	Quarterly
12	Garnering political will/leadership engagement	Number of stakeholder meetings conducted/Number of sensitization meetings conducted	Y	Y	MOH/ECHO coordinators	Quarterly/Monthly
		Number of MOH or non-central government training coordinator (MOH) staff attending	Y	Y	Attendance sheets	Weekly