भारतीय आयुर्विज्ञान अनुसंधान परिषद
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कल्याण मंत्रालय, भारत सरकार

Indian Council of Medical Research
**Department of Health Research, Ministry of Health
and Family Welfare, Government of India**

E-Office no: 164090   **Date: 15/09/2023**

Request for Expression of Interest (EOI)

For ICMR's Implementation Research Study on Effective Use of Digital Technologies for Non-Communicable Diseases Care in Public Health Care Systems in India

Overview

Non-communicable diseases (NCDs) currently comprise the largest proportion of the disease burden in the health care system. Managing non-communicable diseases needs lifelong care support, including lifestyle interventions and a reliable information system to track and follow up with patients to monitor indicators and prevent complications.

The digital technology refers to the integration of electronic devices, software applications, and data-driven processes to enhance and streamline various aspects of healthcare delivery, patient care, and health management. Digital technologies can collect, store, and retrieve information in real-time, not only from the clinic where care is sought but also from other clinics and laboratories for a patient. Further, digital technologies can collate, analyze, and transmit health-related information, leading to improved diagnostics, treatment options, and overall healthcare outcomes. Additionally, digital technologies can reduce data corruption and provide real-time authentic data for monitoring and decision-making.

Within the public health care system, the National NCD portal (Earlier known as Comprehensive Primary Health Care [CPHC]- NCD app) under the National Programme for Non-Communicable Diseases (NP-NCD) is operational and has screened 47 crore individuals aged above 30 years and registered 1.1 crore patients under treatment for hypertension and diabetes. The Ayushman Bharat Digital Mission (ABDM) aims to provide a backbone to digital health by creating an Ayushman Bharath Health Account (ABHA) for individuals, health professionals, and health facility registries. Nearly six crore ABHA identifications have been generated/linked with the NCD portal. Further, the e-sanjeevini telemedicine services has been established for a digital consultation in two platforms, eSanjeevani AB-HWC (a provider-to-provider telemedicine platform) through the hub and spoke model between health and wellness centers (HWCs) and doctors/ specialists in higher centers and eSanjeevani OPD (a patient-to-provider telemedicine platform). So far, more than one lakh spokes and 13,000 hubs have been established with 15 crore patient consultations. Additionally, there are numerous efforts outside of the public health system to use digital technologies for managing NCDs, including but not limited to electronic health records, remote monitoring and telemedicine, and self-management tools, and clinical decision support systems.

Challenges in Implementation

Despite the widespread coverage of digital technologies, there is a gap in the effective, seamless use of the digital infrastructure for NCD management due to various challenges. These challenges include technology adaptation of the health care processes; administrative struggles such as

inadequate infrastructure, user allocation, user authentication, etc.; human issues, including lack of capacity and distrust; logistical challenges, such as non-availability of appropriate devices, connectivity, and technical and operation support. Further, challenges exist within the current technology, which may be complicated and non-user-friendly. In addition, the non-existence of an interface between various digital applications has led to multiple data entries and increased the burden on ground-level healthcare providers.

Role of Implementation Research

Digital technologies can improve the reach-, quality- and continuum- of care for chronic conditions, as evidenced in the body of literature. An array of digital technologies for NCD care are available with various stages of national-level policy consideration, adaptation, adoption, and scale-up. However, the effective use of these technologies is contingent on the health systems in which they are operated. The various human resource, administrative, and logistical parameters within a state/district health system intervene in successfully implementing digital technologies for NCD care.

A decentralized district-level planning is the focus of the National Health Mission (NHM). Therefore, a key feature of this call for implementation research is to develop district-level strategies to improve effective coverage of digital interventions while operating within national and state-level guidelines and programs, leveraging the resources already allocated by districts/ states to maximize impact.

ICMR invites a call for expression of interest in response to the below priority implementation research question.

Priority Implementation Research Question
How can digital technologies, including telemedicine, effectively be used for the management of non-communicable diseases under the National Programme for Prevention & Control of Non-Communicable Diseases (NP-NCD)?

Purpose of the call

This is a call for expressions of interest in implementation research to learn how to improve the efficiency of the existing digital technologies in the management of NCDs in the public health care system. The project aims to identify and implement effective strategies to capitalize on the available digital technologies to improve NCDs' reach, quality, and continuum of care. The proposal should identify and implement strategies to address the challenges in digital adaptation. The project should provide insight into how to effectively plug specific healthcare gaps using digital technologies. The project should address the outpatient care and follow-up of the patients and may also include in-patient care. However, exclusive in-patient or emergency care digital technologies will not be part of this call.

The project will involve understanding challenges and facilitators from all stakeholders, including the digital application's end users and community.

The implementation research project will focus on

- Effectively addressing the challenges in technology adaptation of the health care processes, administrative challenges, human issues, and logistics
- Using digital technologies to improve care delivery rather than just a data collection tool
- Ensuring authentic data is available for provider, clinic, and health system decision-making.
- Support improving the up- and down-referral linkages for NCD care across the health system.
- Bringing a structure to the use of telemedicine, its quality utilization, and optimal cost-efficient use of specialist and non-specialist time for both outpatient and emergency care.
- Effective linkages between digital applications to simplify the process of data entry at the ground level
- Implement strategies to improve population awareness and engage patients in the effective use of the digital application.
- Strategies to monitor the NCD control for patients managed by the private sector through ABHA

The call is NOT for the development of new technologies or applications. However, enhancement of functionalities or simplification of the existing technologies may be undertaken. New elements, such as a patient-facing app or artificial intelligence may also be included. However, projects exclusively assessing the new apps will not be accepted.

The care delivery should focus on common non-communicable diseases. They must include cardiovascular diseases (including hypertension and secondary prevention), diabetes, and chronic respiratory diseases.

Expected Outcomes

The following outcomes are expected from the research project that shall be developed and implemented by the team under the guidance of ICMR:
- Improved care of NCDs specifically focusing on the above-mentioned diseases through the use of digital technologies in the implementing districts.
- Improved use of the information obtained from digital technology in decision-making for individual patients, healthcare facilities, and districts.
- Improved knowledge and awareness of digital technologies (digital literacy) among all levels of healthcare providers and district health administration.
- Generation of knowledge about human resources, finances, material inputs, and process modifications required to achieve the desired change.
- Enhanced understanding of the facilitators and solutions to overcome the barriers to the country's adoption, implementation, and sustainability of digital interventions.
- Increased collaboration between researchers, practitioners, and policymakers to facilitate the translation of research findings into policy-ready interventions developed through a defined process that is relevant to the Indian healthcare system.
- Strategies developed through the implementation research process to integrate the strengthening of healthcare systems and health interventions into national programs in a feasible and scalable manner.

Outline of the study:

Design
It will be an implementation research study with districts as units of intervention. It will have

a pre-post quasi-experimental, mixed methods design, following Consolidated Framework for Implementation Research (CFIR) or similar frameworks.

Target Population:
The medical officers, community health officers, nurses, and ANMs at HWCs, PHCs, Community Health Centres, Sub-district Hospitals, and District Hospitals; District health administrators; Patients with NCDs; and care providers and community members.

Setting
District Health and Medical Office, District hospital, CHC, PHC, HWCs

Research Teams
Research teams will comprise an implementation support team and a monitoring team (qualitative and quantitative research teams). National Health Mission and other healthcare functionaries at local facilities (specifically Community Health Officers, ANMs, and ASHAs) and district and state levels will be an integral part of the project, and they will be the main implementers of the interventions while the implementation team will support them in delivering these interventions. The inclusion of District Health functionaries in the research team and involvement in the research process, starting from design during implementation and dissemination, is strongly recommended.

Key interventions

The key interventions and activities will be spread across 4 phases.
(1) Preparatory and formative phase and baseline assessment (2) Planning and strategy development phase (3) Implementation phase and (4) Consolidation phase

- **Formative Phase**: will assess research gaps and identify baseline data on the use and spread of digital health technologies in a district. Qualitative identification of barriers and facilitators for access to NCD care will also be included.
- **Planning and strategy development phase:** An implementation model will be developed, starting from understanding the current implementation model (Model 0). Learning during formative research will be utilized to co-design the implementation model (Model 1) through participatory planning with stakeholders at various levels, community health officers, Nurses, Medical officers, and district and state-level health administrators. Model 1 of implementation will thus be developed.
- **Implementation phase:** The Model-1 developed will be implemented by the local health personnel with support from the implementation team, and its implementation will be observed by a monitoring team independently. The implementation will consist of iterative cycles of Plan-Do-Study-Act, which will involve the implementation of the planned model, followed by qualitative and quantitative outcome monitoring by the program learning team. Periodic review meetings will be conducted every 2-3 months to assess concurrent outcomes and develop newer adaptive models. The cycles will be repeated till the desirable process outcomes are attained.
- **Consolidation phase:** The implementation team will hand over the implementation entirely to the local health teams, while the monitoring team will continue to assess the implementation and outcomes.
- **Outcome Measurement**
  Outcome measurement of registration, follow-up using digital technologies, and use of dashboards in the monitoring of NP-NCD

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Scope

  The beneficiaries of interventions will be all adults at risk of NCDs.

Interested research teams may submit the EOI with the following components.

A. Concept proposal (<2000 words)
a. Proposed interventions and implementation strategies
A brief on the intervention implementation strategies should be included. The EOI is NOT for the development of new digital apps or technologies. The focus of the intervention should be to improve the effectiveness of the existing technologies in their intended use in the field.

Note that the implementation strategies should be embedded in the existing district health system by utilizing the manpower and infrastructure of the facilities. Implementation should focus on strengthening existing technology adaptation, improving processes, and addressing bottlenecks in the system affecting quality care for patients.

All implementation should be done by the state/district health functionaries. The research team's role is to provide implementation support and concurrent process and outcome measurements using qualitative and quantitative approaches.

b. Implementation research design and outline of research plan
A brief on the proposed implementation research design and research outcomes should be provided. The design should be mixed methods measuring the processes and implementation outcomes (not just the disease outcomes). Reproducibility and local adaptability will be key for scaling up a successful model in the future.

c. Selection of states and districts
The investigators may choose 1-2 districts for the implementation and provide justification for the chosen districts. Please note that operational feasibility would be key for this implementation research study. Include the collaborations that have been established with the potential stakeholders and participants, including state and district health and educational systems, along with the management of select institutions.

B. Research team (<500 words)
Summarize and justify the composition of the research team based on the expertise of the individual team members in designing and implementing the project. Also, highlight the skill set and expertise the members shall bring to the research team for developing the final protocol and research project implementation.

C. Established Relationships with the health system (<500 words)

Operational feasibility would be the key to this Implementation research study. The EoI should also describe the existing or proposed liaising with the district/state health system where the study is proposed to be undertaken.

D. Experiences in the health system and/or digital health research – three examples (<250 words each)

Provide a brief on the three best examples of implementation research/health system research/digital health research in which the proposed research team has led/conducted/participated. In the three examples, highlight the proposed research team member/s role and explain the integration with district/state health departments (if any).

E. Additional documents
One-page CV of the principal investigator and other key investigators in a single pdf
Please provide a one-page CV of the PI and key investigators from each identified area. Each CV should include:
a.   Academic and professional qualifications
b.   Current position and affiliation
c.   Up to five most relevant previous research grants
d.   Up to five most relevant previous publications

Review process:
The EOI documents will be evaluated and shortlisted by the Indian Council of Medical Research (ICMR). The ICMR expert team will screen the applications using five major criteria.
- Relevance and understanding of the problem -20%
- Intervention implementation strategies and research methods- 20%
- Research team composition -20%
- Capacity to conduct implementation research-20%
- Relationship with the health system-20%

What is the next step?
The shortlisted teams will be invited to collaborate and develop one single detailed proposal to be implemented in the selected sites and will be coordinated through ICMR HQ. An expert group will evaluate the developed proposal for the technical and operational aspects. The budget will be developed in consultation with ICMR HQ.

Who can submit the EOI?
The EOI can be submitted through ONLINE MODE ONLY by scientists/ professionals with regular employment in Medical Institutes/ Research Institutes/ Universities/ Colleges/Government organizations, NGOs, and volunteer organizations.
NGOs and voluntary organizations should produce documentary evidence of their recognition and have a DSIR certificate.

Points to be kept in mind while submitting the EOI

1. The EOI must address the specific research question in the call text.
2. Collaborative, interdisciplinary research teams will be encouraged.
3. Foreign collaboration is not allowed under the call.

Interested parties should fill out the Google form at the below link and submit an **Expression of Interest (EOI)** as per the Format given above. Only shortlisted PI will be contacted.

Link - https://forms.gle/TbAi8Aqhq8kCfDn88

Timeline

Activities	Date
Release of Call	15th September 2023
Last date for submission of EOI	1st November 2023
Shortlisting of EOIs	30th November 2023
Proposal Development Workshop	15th December 2023
Submission of a full proposal	30th January 2024

For any queries related to the call, please contact

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