QUALITY OF CARE & PATIENT SAFETY IN TELEMEDICINE

A clinical quality index and toolkit for measuring the quality of care delivered in health worker-to-doctor telemedicine programs

Prepared by:
INTELEHEALTH

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INTRODUCTION

Telemedicine may be defined as the use of information and communication technologies to provide healthcare at a distance. It can connect patients directly with remote doctors or can connect frontline health providers with doctors or specialists that are far from the point of care. Telemedicine has demonstrated an improvement in access to healthcare at lower costs.

However despite the rapid growth of telemedicine, there is not much data on the quality of care delivered in this setting. Many studies have raised questions about the comparison of quality of telemedicine as compared to in-person visits. Quality assessment and continuous improvement are important in an in-person clinical setting, and have resulted in major gains in patient safety, improvement in patient satisfaction and health outcomes. There are several quality measures that have been developed for in-person clinical settings, in this guide we present a quality index for a last mile telemedicine setting.

There has been an emergence of programs in this space of provider-to-provider telemedicine. These programs connect frontline health providers (or frontline health workers - FHWs) with remote doctors to provide teleconsultation services to patients living in rural or remote areas. FHWs are any kind of health worker who works directly in the community such as community health workers (CHWs), nurses, midwives, pharmacists. We refer to these programs as **"health worker-to-doctor telemedicine".**

OBJECTIVES

A major goal in developing this Clinical Quality Index is to achieve quality improvement and improve health outcomes for people utilizing the telemedicine service, keeping in mind their safety and wellbeing. A 'quality index' aims to set a standard for measuring the performance and improvement of population health, frontline providers of services, and other clinicians in the delivery of telehealth services. A 'quality indicator' is a mechanism used for assessing the degree to which a provider competently and safely delivers clinical services that are appropriate for the patient in an optimal timeframe. In this index we define a set of indicators that aim to comprehensively assess the quality of service delivery.

WHY IS A QUALITY ASSESSMENT IMPORTANT?

A quality assessment is important to evaluate if certain aspects of a healthcare delivery are functioning as per recognized standards and guidelines. This assures the healthcare providers and patients that the clinic/practice is working correctly or if improvements could be made. It is important that new innovations in telemedicine demonstrate that the quality is either the same as an in-person consult or that it improves the quality of care delivered. A regular audit also helps to create a culture of continuous quality improvement and ensures the program is up to date with best practices in evidence based medicine.

ABOUT INTELEHEALTH

Intelehealth is a non-profit that supports health organizations in implementing comprehensive primary health care delivery programs for hard to reach populations. The Intelehealth software platform contains protocols to guide frontline health workers to provide preventive and curative health services. When a patient case is beyond the level of training of the health worker, they can connect with a remote doctor over telemedicine for a consultation. This helps reduce the time, distance and money spent by the patient for receiving health care services and reduces unnecessary referral. Intelehealth supports programs all over the world such as in India, Philippines and Syria to deliver health care services to last mile populations where doctors are not easily accessible. We developed this quality index with a set of 47 indicators across 7 domains through a literature review, and from our experiences implementing last mile telemedicine programs. They were developed in consultation with FHWs, doctors, trainers and program managers and pilot tested in Intelehealth's telemedicine program in India.

"Access to health is a basic human right. We believe that everyone should be able to access the health services they need when and where they need them, without facing financial hardship"

METHODOLOGY

How to conduct a clinical audit using this quality index

We have broadly classified our Clinical Quality Index for Telemedicine into the following seven domains:

1. Adherence to standardized clinical processes
2. Patient-centered care coordination
3. Safe clinical practices
4. Patient satisfaction
5. Completeness in clinical data collection
6. Quality of consultation
7. Program quality

We propose that a clinical quality audit is carried out at least semi-annually, or if resources permit, quarterly or monthly. This audit is best carried out by a trained healthcare professional such as a doctor who is also familiar with working with frontline health workers. The auditor must be familiar with the standard operating processes and guidelines of the program. There are two methods of assessment used by the auditor- (1) Direct onsite observation of a teleconsultation and (2) Analysis of data captured in the electronic health record system.

Direct onsite observation - We propose a random sampling approach where the auditor selects a telemedicine clinic for a supervision visit at random in order to evaluate the care being provided as close to the actual situation as possible. The auditor should observe at least 5 cases per clinic and also sample across multiple health workers and doctors. The average score across all the cases observed will be the final score.

Assessment of EHR data - We propose a stratified random sampling approach where at least 5 clinics are selected at random and at least 2 cases per clinic selected for assessment.If resources permit, this is best done every month, through direct supervision visits to all clinics by a supervisor and a random sampling of 10 cases from the EHR. This would reduce temporal variations in quality assessment.

Scoring - The auditor directly observes a telemedicine visit or analyzes the health record and provides a score for each indicator. In order to reduce subjectivity in evaluating the quality, the auditor provides a score between 0 to 2, instead of a 5 point scale. '0' if the indicator definition is not met, '1' if it is partially met and '2' if it is completely met. For example, "FHW washed their hands correctly before conducting a patient exam". If the health worker correctly cleaned their hands, they would get a score of 2, if they skipped doing so they would get a score of 0. If they only partially did so (did not use soap, but just washed with water) the indicator would be scored as a 1. Any indicator that receives less than a perfect score, signifies an area of improvement.

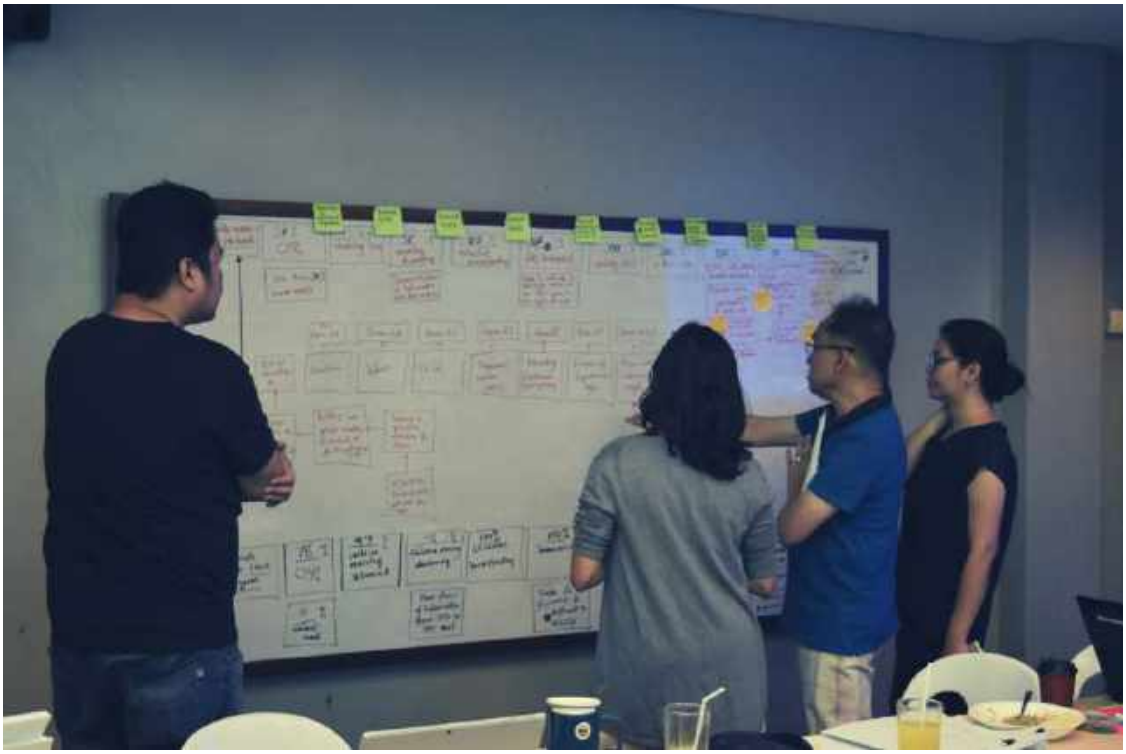
Participatory approach - The program managers, providers, health workers and other key stakeholders are encouraged to discuss the results of a quality assessment and identify the root cause for a poor score on a particular indicator. In the example above, perhaps the availability of water or soap may be difficult at the clinic and instead hand sanitization liquid can be provided to the health worker. Often times quality gaps are due to failed systems or gaps in processes. This kind of continuous process of quality assessment and quality improvement can improve patient outcomes in the telemedicine setting.

ETHICAL CONSIDERATIONS

Its important to ensure that quality improvement process is undertaken in a respectful and sensitive manner. All patient records should be deidentified when being extracted from the EHR to be used in a clinical audit. A clinical audit should only be conducted with the knowledge of the healthcare professionals whose work is being audited. If possible, they should be involved in the design of the audit process. Patients and providers should be approached in respectful manner. If a patient declines to participate in the audit and does not wish to have an auditor present during the consultation, it should not affect the care provided to them in any way. Proper consent must always be taken. Data about the providers whose consultations were audited should be kept confidential, as there may be a fear of loss or reputation. Health providers should be made aware that the intent of the audit process is not to be punitive, but to identify areas for improvement and coaching. The conclusions of the audit should not be linked to any specific patient or healthcare provider, nor should anyone be specifically called out in any reports or documents. Sensitivity and privacy are very important in the entire audit process.

THE CLINICAL QUALITY INDEX

It is very difficult to define and measure what “good quality health care” should look like and its definitions vary, not only widely across the practice of general medicine but also within each stream of medicine. Thus the need of the hour is to develop and implement a robust and detailed system of telemedicine quality indicators that can encompass, at its bare minimum, the patient safety angle in telemedicine. A given system can be measured in so many different ways depending on the collection and characterization of the data. Thus the selection of appropriate data is an important aspect of improving a process. In case of a healthcare organization, the metrics usually involve patient safety, adherence to clinical guidelines and protocols, patient satisfaction, besides others. We identified seven domains which were important in a telemedicine setting and identified 47 indicators across all domains. These were developed in consultation with FHWs, doctors, trainers and program managers.
Of these, 20 indicators are measured through direct observation, 21 are measured through the EHR data and 6 are measured by speaking with organizational stakeholders. 45 indicators are scored on a scale of 0-2 and two indicators (related to patient satisfaction) are scored on a scale of 1-5. The maximum score possible is 100. The numbers in parentheses next to the domain indicate the maximum score possible in that domain. The first set of indicators (domain 1-4) are measured by direct onsite observation of teleconsultations.



I. Adherence to standardized clinical processes (10)

In Intelehealth's programs, the frontline health worker first explains to them the flow of the teleconsultation. She/he informs the patient about data privacy and confidentiality and takes consent before collecting patient data in the EHR system. Then the patient is registered, their vitals are collected using simple point of care devices. The Intelehealth app has an in-built digital assistant that guides the health worker through preliminary patient assessment collecting their basic history of presenting illness, past medical history, family history and basic physical exams. The health worker then shares this data with the remote doctor and starts a teleconsultation.

1.	Adherence to standardized clinical processes	2	1	0	Comment	Data Source
1.1	All patient registration details were entered correctly i.e. photo, name, age, gender, location					Onsite
1.2	The FHW explained the telemedicine clinical process flow, data privacy and confidentiality to the patient.					Onsite
1.3	All vitals taken are with clinically standardised techniques.					Onsite
1.4	Proper use of history-taking and physical exam guides by the FHW following the protocols, i.e. no skipping of steps					Onsite
1.5	Time taken by the doctor to respond to the case was as per the guidelines set		NA			Onsite
	Total score - adherence to standardized clinical processes					

Where 2= Completely/ Not Applicable, 1= Partially and 0= Not at all

II. Patient-centered care coordination (16)

The Institute of Medicine defines patient centered care as "Providing care that is respectful of, and responsive to individual patient preferences, needs and values and ensuring that patient values guide all clinical decisions." In rural areas or hard to reach communities patients are often below the poverty line, may face some social barriers, or not be well educated. An important aspect of patient centered care is developing a treatment plan that is empathetic of their socio-economic condition. Including the patient in the decision making process can increase their adherence to the prescribed treatment plan. It also increases patient satisfaction, trust and improves the patient-provider relationship.

2.	Patient centered care coordination	2	1	0	Comment	Data Source
2.1	Patient was made to sit comfortably and made calm during the consultation					Onsite
2.2	Consent was taken every time - before examining the patient, touching tender part, etc.					Onsite
2.3	Adequate privacy (door closed, curtains cover, dividers, using a soft tone of voice etc.) was maintained during history taking and physical examination					Onsite
2.4	The patient was consulted by the doctor and made a part of the clinical decision making process					Onsite
2.5	Advice given by the doctor was adequately understood by the FHW and communicated correctly to the patient					Onsite
2.6	The FHW explained the prescription in detail and reiterated the medications and follow up/referral to the patient					Onsite
2.7	The prescription written was clear, simple and easy to comprehend. i.e. visual aids, vernacular language,etc.					Onsite
2.8	Easily accessible medications and tests were prescribed and/or help was provided for their stress free accessibility					Onsite
	Total score - Patient centered care coordination					

Where 2= Completely/ Not Applicable, 1= Partially and 0= Not at all

III. Safe clinical practices (10)

Patient safety is the cornerstone of good quality health care. Safety of the staff also takes priority. Training, continuous monitoring and evaluation can keep the patient-FHW interaction safe. Infrastructure monitoring can avoid exposure to any hazards.

3.	Safe Clinical Practices	2	1	0	Comment	Data Source
3.1	The FHW correctly cleaned hands before and after the visit					Onsite
3.2	FHWs used gloves / protective gear if in contact with blood and other body fluids or mucus membranes					Onsite
3.3	Biomedical waste generated was safely disposed as per the protocol set					Onsite
3.4	Medical equipments and items were stored correctly and cleaned/sterilised daily/after every use (as applicable)					Onsite
3.5	Patient evaluation occurred in a risk free environment (i.e. no risks of slips and falls, no fire hazard, no biomedical waste or infection hazard,etc.)					Onsite
	Total score - Safe clinical practices					

Where 2= Completely/ Not Applicable, 1= Partially and 0= Not at all

IV. Patient satisfaction (10)

One of the most important quality indicators is patient satisfaction. Here we use two simple patient satisfaction indicators that serve as an effective proxy to measuring quality of care as perceived by the patient. These are graded on a 5 point Likert scale.

4.	Patient Satisfaction	5	4	3	2	1	Data Source
4.1	I am satisfied with the telemedicine services provided						Exit interview
4.2	I would recommend the telemedicine services to someone else						Exit interview
	Total score - Patient satisfaction						

Where 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly disagree

V. Completeness in clinical data collection (16)

The next set of indicators are measured from analysis of cases through EHR data. Data entered in the medical record is important for the remote doctor to make an accurate diagnosis. Hence the quality of data being recorded in the system is very important. In addition, this data is important from a population health perspective as it can provide rich insights into the health of the community.

5.	Completeness in clinical data collection	2	1	0	Comment	Data Source
5.1	All vitals were recorded (height, weight, temperature, blood pressure, pulse and sPO2).					EHR
	The medical record conducted contained the following details which are complete and exhaustive to make a diagnosis					
5.2	Chief complaints/reason for visit					EHR
5.3	Past medical history					EHR
5.4	Family history					EHR
5.5	Allergies					EHR
5.6	Current medication history					EHR
5.7	Physical examination					EHR
5.8	The doctor recorded additional and essential history and recorded red flags, which was missing from the health worker's note					EHR
	Total score - completeness in clinical data collection					

Where 2= Completely/ Not Applicable, 1= Partially and 0= Not at all

VI. Quality of consultation (26)

This section of the Quality Index is perhaps the hardest to evaluate due to the inherent subjectivity in gauging whether a diagnosis made was accurate and if the management plan prescribed was correct. In a telemedicine setting a large number of remote doctors may be providing services with varying levels of training and experience. We recommend the use of standard treatment guidelines (STGs) that provide consistent prescribing practices across providers. Only a specific set of medications may be available at the point of care, and prescribing within this set would improve the accessibility to the patient. Whenever possible, prescriptions should include the generic name. Reason for deviating from the STG should be clearly articulated.

6.	Quality of consultation	2	1	0	Comment	Data Source
6.1	The Diagnosis given was well founded and appropriate to the history and physical exam.					EHR
	The medications prescribed were: Note: In case 6.2 = 0, rest will equal 0, even if it is in accordance with the medication.					
6.2	Clinically relevant (correct medications for the diagnosis)					EHR
6.3	Not indicated/ Contraindicated medications not given					EHR
6.4	Medications were not missed					EHR
6.5	Correct dosage					EHR
6.6	Correct Schedule					EHR
	The medical advice given was					
6.7	Adequate and appropriate to the condition.					EHR
6.8	Test prescribed were appropriate to case					EHR
6.9	Essential or important test(s) was not missed					EHR
6.10	Simple home remedies were advised					EHR
6.11	Follow up was recorded and stressed upon					EHR
6.12	Referral pathways were correctly advised and were not missed when indicated.					EHR
	Total score - quality of consultation					

Where 2= Completely/ Not Applicable, 1= Partially and 0= Not at all

VII. Program quality (12)

These set of indicators monitor if effective measures are in place at the programmatic level that promote the delivery of high quality care. These can be measured by speaking with the program leadership, interviews with providers and through review of reports. By the use of evidence-based clinical processes, Standard Operating Protocols for the end users, training and reviewing and periodically auditing the program, we can streamline care-delivery, thereby reducing the time required for the clinical evaluation and improving the quality of treatment.

7.	Program Quality	2	1	0	Comment	Data Source
7.1	Medical equipment is calibrated every 3 months or as per manufacturer's instructions to ensure precise results					Reports
7.2	Refresher training is provided periodically to all providers as per the set schedule					Reports
7.3	All training materials are periodically reviewed and updated					Reports
7.4	All training materials are readily accessible to providers for easy reference					Reports
7.5	The clinical data collection protocols are reviewed regularly to include recent advances in medicine					Reports
7.6	Standard operating procedures are periodically reviewed and updated					Reports
	Total score - Program quality					

CONCLUSION

We hope that your organization finds this Quality Index useful and that you are able to suitably adapt it for your own telemedicine program. Quality improvement is a continuous process. The most important aspect of this is an organizational commitment to patient safety, ethical and evidence-based care. Embedding these in the culture of the organization and reinforcing these values in all providers can pave the way for providing dignified healthcare to last mile communities.

We would love to receive feedback from you about this guide. **If you have any questions, want to provide feedback or are interested in learning more about Intelehealth, please email us at contact@intelehealth.io**

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