Policy and Evidence Review in preparation for NIHR Group Grant application: NIHR Global Health Research Group on remote consulting in primary care for disadvantaged communities in low- and middle-income countries
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Rachel Potter, Bronwyn Harris and Frances Griffiths
University of Warwick, UK

This briefing document was prepared in support of our NIHR Group Grant application. It provides a brief overview of the current policy and evidence landscape for remote consulting in the countries of our group network.

The current remote consulting landscape in the countries of our network: Bangladesh, Kenya, Nigeria, Pakistan, South Africa, Tanzania, Uganda

Pre-COVID, many LMICs had developed policies for digital innovation and digital health, including our study countries[1-7] and WHO has recently published guidance on how governments might approach decisions about digital options for healthcare[8]. With COVID-19, policy and guidance has changed in South Africa[9],Tanzania[10] and Pakistan[11] to better enable remote consulting. In Bangladesh there has been a rapid rise in the number of online health services[12] and COVID-19 advice platforms/call centres have been established by most of our study states.

Pre-COVID, we identified between 5 and 17 services operating through virtual/online provider platforms in our network countries[13]. Our stakeholder engagement suggests that in the last decade in Tanzania, Pakistan and Bangladesh, many start-up remote consulting services (commercial, not-for-profit, state-run) folded due to financial challenges including withdrawal of donor funding[13]. In remote rural and urban slum communities in our network countries, we have documented embedded remote consulting in primary care - mostly for emergencies, after-hours and for follow-up both for a singular health event (e.g. a medical procedure, acute illness) and for long-term health conditions, such as diabetes and hypertension[13,14]. Our work suggests there are advantages of embedded remote consulting: health-workers are familiar with local customs and context; patients are familiar with the health-workers, which can promote trust; remote consulting is part of the local system of primary care; patients save time off work and need for travel[13-15]. However, patients, health-workers and decision-makers raised concerns about ethics, data protection, privacy and establishing trust when communicating remotely; and health workers across all sites requested training.

In 2019 the WHO published a series of reviews and recommendations[16] which provide extensive evidence synthesis related to remote consulting globally. The evidence in these reviews was dominated by that from high income countries (HIC). To update the evidence, we re-ran the relevant searches used in the WHO reviews to identify any key new reviews and empirical studies[17] Again, the evidence was mainly from high income countries, with the exception of three reviews that each included a small number of studies from LMICs[18-20].

We know from experience that identifying evidence specifically on remote consulting (rather than other forms of digital health which may involve one-way communication or data transfer only) is not straightforward so we ran searches using previously successful approach [21-27] and looked for evidence from LMIC. For this we searched Medline, Embase, Web of Science and Google Scholar from Feb 2018-to October 2020. We identified–eight reviews [28-35] and six empirical studies[36-41] involving remote consulting.

Here we present the evidence and identify gaps in evidence for the effectiveness and cost-effectiveness of remote consulting. Guided by The Lancet Global Health Commission on High-

Quality Health Systems in the SDG Era framework [42] we also present our findings related to the themes of equity, the patient perspective and health system processes.

Effectiveness of remote consulting

All evaluations of remote consulting report on effectiveness for a specific health condition or population group, where remote consulting is delivered alongside or as a separate stream within existing more general healthcare provision[16]. Overall, evidence suggests that remote consulting improves health outcomes but occasionally brings no change or results in worse outcome. This is perhaps to be expected as the importance of face-to-face human interaction may be systematically different for different types of health problem[15]. The WHO reviews[16] have little to say about the use of remote consulting in disadvantaged communities.

In our LMIC-focused review we similarly found evidence about specific health conditions and populations (maternal, newborn and child health care) in two reviews[34,43] and four studies[36-38,44]). Other conditions included chronic care (n=3)[31,32,45] for non-communicable disease, diabetes, tuberculosis, HIV and cancer; general health (n=2)[29,30]; mental health for mothers living with HIV (n=1)[38]; and adolescent health (n=1)[28]). There was evidence that remote consulting increased mothers' attendance at antenatal and postnatal services[43], improved mothers' trust in the health workers[44], and improved maternal, newborn and child health[34]. It contributed to improved treatment adherence and blood glucose self-testing in diabetes, alongside increased patient-provider communication more generally[32], although impact on diabetes outcomes was less clear[31].

Evidence gap: We do not know the effect of embedded remote consulting where it is integrated into the provision of primary care, as it would be if it were to be more comprehensively rolled out.

Cost of remote consulting

The WHO evidence review team found no evidence on resource use in the effectiveness studies they identified, basing instead their information on programme documents and discussions with people implementing remote consulting platforms[46]. The WHO reviewers conclude that the evidence on resource use had very low certainty, and what evidence they had suggests remote consulting is not a good alternative, given the magnitude of resources required for establishing digital platforms. In our LMIC review, two papers that evaluate remote consultation interventions for specific health conditions conclude that due to innovation costs, it is only in scale up that platform-based interventions become cost-effective[47,48]. One paper reported that free-to-use services or those costed at the local rate per call were valued by patients for their affordability[45].We have found no evidence of cost/cost-effectiveness for embedded remote consulting.

Evidence gap: We have no economic analysis of embedded remote consulting in primary care.

Equity and remote consulting

The impact of remote consulting is likely to be different for different sectors of the population. Our published realist review, which drew on theory and empirical evidence, suggests patients who are less likely to be able to engage with and gain benefit from remote consulting are those with low digital literacy (and for text based communication low literacy), women, those with specific conditions making use of mobile phones difficult (vision and hearing impairment, lack of dexterity)[15]. Patients within communities with poor mobile connectivity and limited access to electricity will potentially be excluded. These findings are echoed in the WHO review and recommendations[16]. In our LMIC review, few studies measured impact on equity directly; several flagged the complexity of assessing the impact of mobile phone use on equity [15,49]. The one study which measured equity demonstrated that a dedicated helpline in Nigeria that

provided information about self-examination for oncology patients was mainly accessed by users with higher levels of formal education[28].

Evidence gap: There is little evidence of the impact of remote consulting on equity of access to health care

The patient perspective and remote consulting

The WHO review, which used mostly evidence from HIC, suggests users appreciate being able to communicate with health workers from their homes and see remote consulting services as offering reassurance and increased access including consistency and continuity of care[16]. For patients with long-term conditions and interventions that digitally provide them with data about their condition, there is evidence that patients feel more enabled to self-care[16].

From our LMIC focused review, where the evidence comes from remote consulting for specific health conditions, there was evidence that after some initial technological discomfort, health workers and service users adapted to using a remote service[38]. Factors contributing to the acceptability and use included*:* provision of personalised care[45] by a known and trusted health service provider or someone with authority and expertise (especially if a doctor)[36]; services tailored to local expectations and cultural practices[38] such as concerned family members able to participate[36]; low cost; reduced social stigma for certain conditions, such as family planning[37], HIV[38] and visible mental health interventions such as counselling for HIV[38]; mutually convenient and flexible time for users[29]. The knowledge that a service is available 24/7 was reassuring for diabetic patients[45].

Evidence gap: We do not know if embedded remote consulting is acceptable to patients and whether local clinics can accommodate the factors known to contribute to acceptability and use.

Health system processes and remote consulting

Griffiths and Goudge were co-authors of the WHO commissioned review on health-worker perception and experience of using mobile technology[35]. Results indicated health-workers find mobile technology enables them to provide immediate care for patients when needed, helps overcome challenges in providing care to remote populations and enables follow-up of missing patients[16,50]. However, health-workers have concerns about being expected to provide unbounded availability, about being expected to work beyond their clinical competence and about the need for/lack of sustained training and support.

The challenges for health-workers that we identified in our LMIC focused review include a lack of integration of remote services with referral systems and follow-up appointments, which could reduce patient continuity of care[36] and inadvertent disclosure of sensitive information, such as someone's HIV status, to others, for example through sending a text to the wrong phone[38]. We examined the studies for evidence of integration with health/clinical records. This was rarely reported. One study reported the remote consulting system related to diabetes was integrated with electronic medical records[51] and another recommended remote consultations should be documented in electronic medical records to improve continuity of care, and linked with electronic prescriptions[52]. From our local knowledge and stakeholder engagement we know recording of clinical encounters varies across our network countries and include clinic activity logs, clinic or insurance company records, patient held records. In all countries most record keeping is on paper, and completeness and accuracy is poor. We also know that health-workers are mostly using their own phones for remote consulting which raises issues of device and data management for confidentiality and security[53].

Evidence gap: We do not know how embedded remote consulting is integrated with the provision of primary care. We do not know what systems are in place to record patient

information and clinical details for remote consulting and ensure data confidentiality and security.

Ethics and remote consulting

The WHO reviews report health workers having concerns about data privacy and obtaining informed consent[16]. Apparent unbounded availability of health workers to their patients through remote consulting raises ethical questions about duty of care[54]. The management of digital data confidentially and securely is an issue for the health system, but there are further issues of data ethics[55]. With increasing data capture through remote consulting and the potential to use this for artificial intelligence (AI) applications, there is recognition of the need for ethical safeguards for the data[56], for example in the design and training of AI applications. A 2020 pre-print review[57] indicates that there is very little published literature on AI, health and ethics from the LMIC perspective despite the politicised nature of digitised health data and many examples of AI being deployed in LMIC[58].

Evidence gap: We do not know how ethical issues such as privacy and duty of care are being addressed when using remote consulting in primary care and health-workers and patient perspectives on data ethics.

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