

# Access to Information Communication Technology (ICT) by families of patients treated on a Cleft Lip & Palate Surgical Mission in the Philippines.

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## Introduction

There is an increasing evidence base to support the benefit incurred by patients treated on cleft lip and palate surgical missions undertaken in the developing world, particularly of a psychosocial nature(1). It is acknowledged, however, that the main difference in the care delivered by such missions as compared with that available in the developed world is the lack of follow-up(2) and multidisciplinary input(3). Several publications have documented the logistics and efficacy of addressing this disparity using telemedicine.

According to a report published by the World Health Organisation (WHO)(4) in 2009, telemedicine signifies the use of “Information and Communication Technology (ICT) to improve patient outcomes by increasing access to care and medical information” whether asynchronous, involving the exchange of pre-recorded data, or synchronous involving the immediate and real-time exchange of information. As such, various forms of ICT such as computers, the internet and mobile devices are involved in the delivery of telemedicine and thus ICT literacy represents a barrier to telemedicine diffusion(4). Whilst several human and cultural factors influence ICT literacy, basic access to ICT devices is one such factor and fundamental to the success of any telemedicine endeavor.

This study set out to establish the access to ICT devices and their perceived affordability by patients undergoing treatment on a Cleft Lip and Palate Surgical Mission to the Philippines, or by their families where ICT literacy could not be expected. We believe that it is the first study of its kind to address this barrier to telemedicine in this particular group of patients in a developing world setting.

## Methods

A non-incentivised, structured questionnaire was administered with the aid of a translator to all patients and /or their families operated on three consecutive days in a week-long cleft lip and palate mission held in the Tarlac Provincial Hospital, Tarlac, City, Philippines (Figure 1). The questionnaire was mostly closed-format in nature requiring answers to a mixture of dichotomous questions (e.g., on possession of ICT devices) and rating questions (e.g., on perceived expense of ICT usage). Prior to administration, both mission and local health workers assessed the questionnaire to ensure content and construct validity and it was then piloted on day two of the mission. As a result of this pilot it was agreed that answers should be solicited from patient's relatives (one per household) and that the most appropriate time for this was during the (second) post-operative ward round conducted the day after surgery or prior to the patient's anticipated discharge.

Data from the questionnaire was analysed using mainly descriptive statistics given the relatively small sample size.

## Results

The families of forty-five patients were questioned.

### ***A. Demographics of respondents:***

This is outlined in Figure 2.

<b>Sex</b>	Male = 14 Female = 31
<b>Relation to patient</b>	Parent = 44 Grandparent = 1
<b>Age</b>	11-20yrs = 7 21-30yrs = 14 31-40yrs = 14 41-50yrs = 6 51-60yrs = 4
<b>Dwelling</b>	Within Tarlac province = 22 Outside of Province* = 23  *Mean distance travelled 187km, range 32-470km

Figure 2: Demographics of Respondents

### ***B. Frequency of Internet Access:***

This is shown in Figure 3

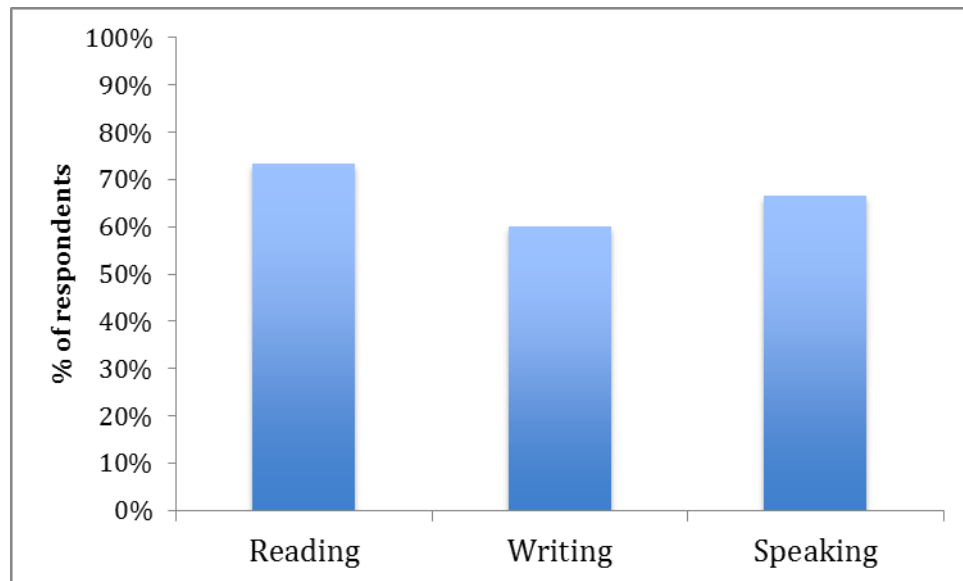


Figure 3: Frequency of Internet access

### ***C. English Proficiency***

Results for self-assessed proficiency in reading, writing and speaking are displayed in Figure 4.

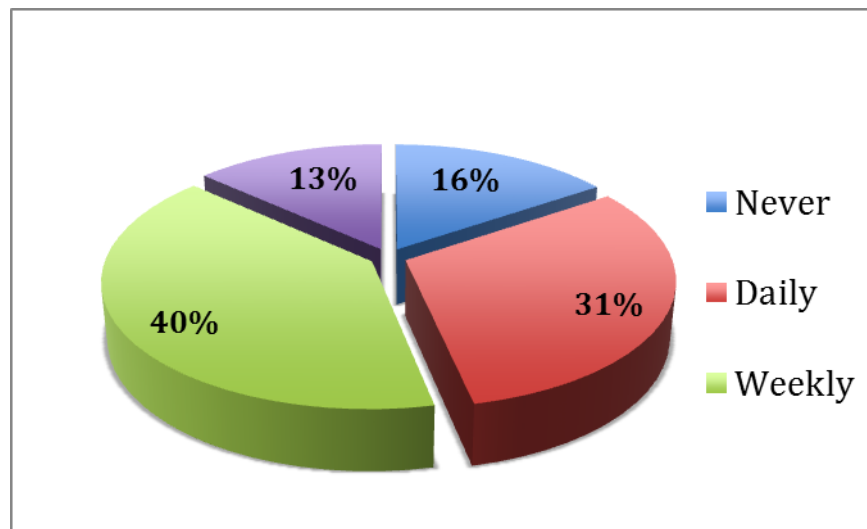


Figure 4: Self-assessed proficiency in the English language

25 (56%) of all respondents claimed proficiency in all three aspects of the English language (reading, writing and speaking). Six (13%) respondents claimed proficiency in reading only, five (11%) in speaking only, two (4%) in both reading and writing only and seven (16) in no aspect of English.

**D. Email access:**

Only seven (16%) of respondents reported use of email. Six of these reported subjectively-assessed confidence in communicating in English. The remaining one respondent still reported being able to read and write English, albeit hesitatingly.

**E. Social media usage:**

Results are displayed in Figure 5.

Figure 5: Social media usage by respondents

**F. Perceived Affordability of ICT access:**

Results are displayed in Figure 6.

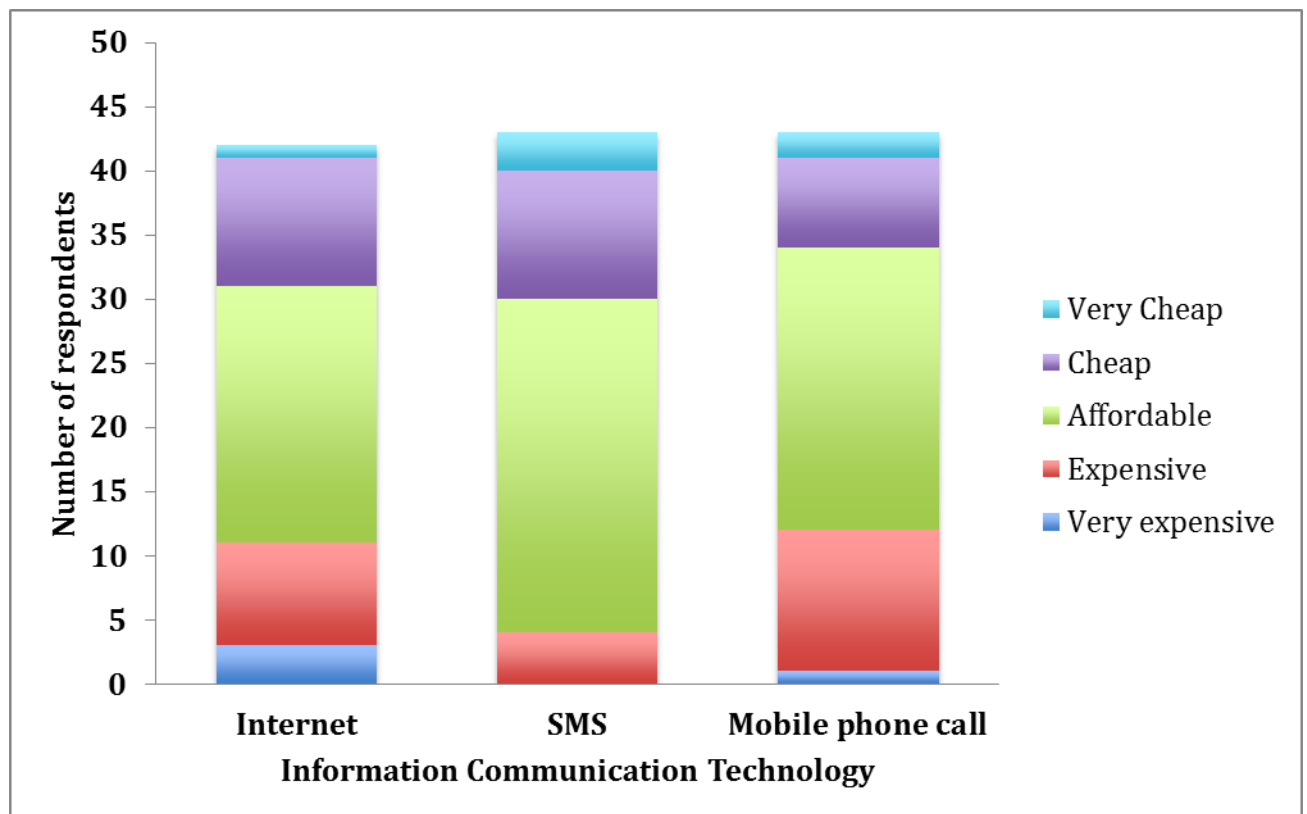


Figure 6: Perceived affordability of ICT access

## Discussion

Telemedicine likely offers greatest benefit to patients in developing countries where access to healthcare is of concern(4). It particularly holds great promise to remedy the deficiencies of care provided by humanitarian surgical missions with no adverse effects of this method of healthcare delivery as yet reported, according to a Cochrane review(5). In the field of cleft lip and palate telemedicine applications have been illustrated most notably in the delivery of speech and language therapy post-operatively(6, 7) but also in aspects of pre-operative workup(8). Barriers to the use of telemedicine, therefore, are of paramount importance to recognize and overcome if it is to be successfully implemented at any point in the delivery of patient care. The pre-requisite of connectivity requires both Internet capability and access to information communication technology (ICT) in all its available forms.

This study sought to explore variables influencing potential telemedicine connectivity among families of patients who underwent cleft lip and palate treatment during a surgical mission. Whilst the sample number is acknowledged to be low, precluding robust statistical conclusions, the sample is - by definition - highly representative of the patients who *should* benefit from telemedicine especially given that over 50% of patients resided outside the province in which they were treated. In a country where it is commonplace for grandparents to look after children to enable parents to work, it was noteworthy that parents overwhelmingly accounted for respondents. Two thirds of these were mothers of patients. Factors influencing *their* connectivity potential, to facilitate telemedicine on behalf of their children, are likely to involve complex social and cultural factors outside the scope of this study in addition to their access to ICT.

Inherent to any telemedicine communications involving overseas surgical missions is a proficiency in the English language if one assumes that the professional language of choice among the majority of mission healthcare workers is English. In our study only 56% of respondents could claim proficiency in all three aspects of English, namely reading, writing and speaking. This has implications for the developments of synchronous telemedicine avenues versus asynchronous with the latter more reliant on a command of the written aspect of language. One solution to this problem is to employ the help of translators and to involve local healthcare workers who are bilingual with the beneficial consequence of further mission / local expertise integration.

The study reveals that almost one fifth (13/45) of respondents do not access the internet or do so only monthly. This, of course, is not the same as saying that they do not *have* access to the internet and in fact may reflect an unfamiliarity with operating systems and web browsing. In this regard, other members of the

household – most notably the fathers of patients who did not answer the questionnaire – may access the Internet more frequently, particularly if they are in employment and able to access Internet in their place of work. This cannot be inferred, however, from the data: a Chi-square test demonstrates that the gender distribution of those respondents accessing the internet monthly or not at all is not significantly different to the gender distribution of the sample as a whole.

An overwhelming majority of respondents access Facebook. Given that seven parents stated that they never accessed the internet but that they did access Facebook it cannot be assumed that frequency of Facebook access reflects frequency of internet access. Nevertheless, Facebook is clearly a well accessed social media platform among respondents, far more so than Instagram or Twitter. Its use in telemedicine may be limited, however, given the medicolegal constraints on sharing patient information and the very public nature of the Facebook platform.

Perhaps one of the most interesting and useful aspects of this study is the perceived affordability of ICT access and its distribution for a given portal of access. Of three potential portals (internet, text messaging and mobile phone calls), text messaging was considered to be both ‘very expensive’ by no respondents, ‘very cheap’ by the most and was the only portal considered ‘affordable’ by the majority. Although seven respondents claimed never to access the internet, two declined to comment on affordability and none of the remainder claimed that internet access was ‘very expensive’ – in fact two considered it to be ‘affordable’ suggesting that reasons for never accessing internet were independent of cost. Mobile phone calls were considered to be ‘affordable’ by the least number of respondents and ‘expensive’ by the most. Thus, text messaging may perhaps be one of the more financially accessible portals of ICT. Dependent on funds and infrastructure, a possible means of telemedicine may involve enquiries of patients’ welfare via text messaging followed by text-messaged arrangements of future communication (in person or otherwise). Indeed, schemes that furnish patients’ families with mobile phones at the point of discharge to facilitate post-operative speech therapy have been associated with increased adherence to treatment and improved outcomes(9).

## Conclusions

The results of this present study into ICT access represent an insight into one aspect of the ‘connectivity’ issue for telemedicine. Specifically it highlighted that frequency of Internet access may be too low in a sizeable proportion of respondents (19%) surveyed to be relied upon as a means of regular

communication and that regardless of ICT access proficiency in the English language may present a barrier to communication, albeit surmountable. Additionally, Facebook is the most commonly accessed social media platform and text messaging was considered the most affordable portal of ICT and that, too, by the majority. These results are based upon a small sample size and we would recommend further studies of to substantiate or refute our findings such that they may be incorporated into the design of future telemedicine endeavours specific to the pathology and demographic in question.

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