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How to convey the new World Health Organization mental health *Intervention Guide* to workers in the field?

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In order to increase access to mental health services in low and middle income countries, the World Health Organization has developed the mental health Gap Action Plan Intervention Guide (mhGAP-IG). This practical guide aims to assist non-specialised health workers in making clinical decisions for people with mental, neurological and substance use disorders. It is now a major challenge to get this guide implemented in all corners of the world. Therefore, this article provides an overview of different ways to convey the content of the guide to potential users. The author argues that 'conventional' training approaches, such as distributing printed versions of the guide and organising face-to-face (classroom) trainings, need to be complemented with other distribution channels such as e-learning, smart phone apps, SMS (Short Message Service) or voice platforms. Within the global mental health field, such new, simple and low tech solutions are rarely used, but other health fields offer feasible and inspiring examples of such use.

Keywords: e-learning, global mental health, m-learning, scaling up, training

Introduction

Approximately every three out of four people, in low and middle income countries (LMIC), in need of mental, neurological or substance use disorder services, receive no care (World Health Organization (WHO), 2010). This lack of available services is called the mental health treatment gap. Countries like Eritrea, Liberia and Chad, for example, have only one psychiatrist for the entire population (Nightingale, 2008). The WHO (WHO, 2011a) calculated that the populations of LMIC, worldwide, need an extra 239,000 full time (or equivalent) staff (psychiatrists, nurses and psychosocial care providers) in order to close the treatment gap for just eight mental, neurological and substance abuse related problems. For example, this gap can clearly be seen in the estimations of what is required for Ethiopia to fulfil its populations' needs: 659 more psychiatrists (currently 18), 6113 more specialised nurses (currently 236) and 5275 more psychosocial care providers (currently 800).

Furthermore, expectations are that this kind of capacity building will not be achieved in most LMIC over the next few decades. The current focus is to integrate and strengthen mental health care, in the existing primary health care systems, within most low resource countries under the assumption that many mental, neurological and substance use disorders can be managed by non-specialist health care providers (WHO, 2010). This can be done through a decentralised, stepped care approach whereby tasks are shifted to non-specialists to treat the disorders, where it has been

previously shown to be effective (Eaton et al., 2011; Petersen, Lund, & Stein, 2011).

The WHO launched its mental health Gap Action Programme (mhGAP) in 2008 in order to address this lack of mental health care in LMIC (WHO, 2008). The programme provides comprehensive, technical assistance to address the treatment gap. The mhGAP provides information and support to national Ministries of Health, existing health institutes, NGOs and private sector stakeholders addressing this gap through assisting in needs analyses, development of policies and legislative frameworks, and in capacity building. National policy implementation for the mhGAP is currently taking place in Ethiopia, Jordan, Nigeria and Panama (WHO, 2011b), with other countries to follow.

However, it remains a major challenge for the mhGAP to organise sufficient training and supervision for general health workers. A key resource to answer this need is the mental health Gap Action Plan *Intervention Guide* (mhGAP-IG) (WHO, 2010). This brief document (83 pages) has been developed using a transparent, evidence informed process (Dua et al., 2011). It consists of *'decision trees'* for mental health conditions. In these decision trees, the health worker is led, step-by-step, through a decision making process by answering relevant questions with *'yes'* or *'no'*, starting with a general characteristic (e.g. psychosis) and following the given course of questions. This will give the health worker a direction in the structure, ending with the best option for this particular patient (e.g. start with 1.5–3 mg Haloperidol).

The mental health conditions included in this guide are: depression, psychosis, bipolar disorders, epilepsy, developmental and behavioural disorders in children and adolescents, dementia, alcohol use disorders, drug use disorders, self-harm/suicide and *'other significant emotional or medically unexplained complaints'*. The guide starts with *'general principles of care'*, and ends with *'advanced psychosocial interventions'*. The mhGAP-IG was published in 2010, and is now available in English, French and Spanish for $24 (reduced rates apply for developing countries), with Arabic, Chinese, Russian and other languages to be available soon.

This article explores how the mhGAP-IG can be promoted and made accessible to large groups of primary health workers. Four different distributions channels are discussed: via printed materials, via computers and laptops, via smart phones and smart phone apps, and via mobile phones without internet access.

Printed materials

Printed materials include books, paper hand outs and paper copies.

For reading: The purchase cost of a printed book, as well as the additional shipping and transport costs, can be a hurdle to distribution in LMIC (Nartker et al., 2009). Although printing locally or nationally could reduce costs. Alternatively, the guide could be downloaded (free) from the WHO website. However, downloading an 83 page book is not ideal and incurs the high costs of (desktop, colour) printing and subsequent photocopies.

For training: In February 2011, the first training workshop on the mhGAP-IG was held in Jordan (WHO, 2011b). This five-day training consisted of 24 nurses and doctors, and used the print version of the guide, as wall as explanatory flowcharts, quiz games, self-assessment tests and role play. Generally, it primarily depends on the creativity of the trainer as to what extent the book or a printed version of the guide is workable as a training tool. Face-to-face training appears

to be the ideal option for the implementation of any guidelines, but in most LMIC there is a shortage of health tutors and education facilities (WHO, 2005). Additionally, face-to-face training necessitates removing the health worker from the field for the duration of travel and training, which not only disrupts the delivery of services, but also incurs extra expense due to travel and accommodation fees.

Material downloaded on computers and laptops

Documents, such as this guide, are often conveyed via the internet in PDF (Portable Document Formats). People can download the document via the internet and read online (during internet access) on their laptop or desktop computer screen. A PDF document that is published on a CD ROM (a CD with a read only memory that disallows any changes to be made to the material stored) or DVD, or copied to a computer storage stick (USB stick) or simply onto the hard drive of a computer, can then be accessed off line (without an internet connection), repeatedly.

However, there are also online and off line programmes that provide further options than simply reading. For example, in addition to the reading function, software additions can provide decision trees with *'go-to tabs'* (when you click on a term or item, another page or file will automatically open), note storage, information charts (that will pop up when relevant), a find utility (a search function for terms or sections), quizzes and/or question-answer sections.

For reading: Distribution of the mhGAP-IG in a PDF online, or copied for off line use, is cheaper than printing. Also, providing the guide online, or off line, with additional applications (as mentioned above) makes the reading and use more attractive, as well as provides a richer learning experience.

Adding electronic libraries of resources on a particular health topic, a so-called eToolkit, can enhance learning. A good online example is the *K4Health eToolkit* programme (K4Health, 2011). The *K4Health eToolkit* currently includes almost 50 different kits on health topics, including family planning, communicative diseases, leadership and management. The mhGAP-IG could work very well within such a series.

A good off line example is the *IASC Guidelines on Mental Health and Psychosocial Support in Emergency Settings* (IASC, 2007). This guide, as well as the related resource materials, is distributed worldwide via CD ROMs.

The main disadvantage of online distribution of the guide is the need to access a computer, as well as coping with regular power shortages and slow, expensive internet access (International Telecommunication Union, 2011). Off line distribution, such as CD ROMs or USB sticks, can offer a better option. However, easy computer access is still uncommon is most LMIC. Also, as a result, health workers may have little computer or internet experience, and therefore also limited skills, and a reluctance to use them. In these cases, additional training and support in computer and internet skills may also be required.

For training: Learning via the internet or on a computer is called *'e-learning'*. As well as the benefits of not having to travel, and therefore no interruption to daily work, e-learning also gives health workers the opportunity to study at their own pace, and preferred time of the day or week. Additionally, working with internet programmes allows insertions of a variety of extra interfaces, such as videos, tests, chat services between students and tutors, etc. There are also free, open source (available to anyone online) systems to aid learning, such as the *Learning Management System* (LMS) or *Virtual*

Learning Environment (VLE) packages. One example of this sort of package is Moodle (Moodle, 2011). Moodle is a widely adopted system (more than 5 million courses with more than 57 million users) with features like assignment submission, discussion forums, file downloads, grading of work, instant messages, online calendar, online news and announcements, online quizzes, and wiki's.[1]

An example of a comprehensive e-learning programme is the ICATT, (IMCI Computerized Adaptation and Training Tool), a software application to support the implementation of the WHO/UNICEF strategy on the Integrated Management of Childhood Illness (IMCI). It was built by the nongovernmental organisation (NGO), Novartis Foundation for Sustainable Development, in cooperation with WHO (ICATT, 2012). The ICATT may be used either online or off line, and has an attractive, colourful design. It offers several learning modules, all with *Read*, *See*, *Practice* and *Test* components. The health worker is therefore able not only to choose the sequence of the modules, but also to track the obtained results and progress on screen.

Smart phones and smart phone apps

A '*smart phone*', like an Apple iPhone or a Blackberry, is a modern handheld device with a telephone function and a connection with a wireless internet platform. The first smart phones were devices that mainly combined the functions of a *personal digital assistant* (PDA) and a mobile phone and/or camera. The newer, high tech smart phones can also include high resolution touch screens, and high speed data access via *WiFi* (wireless internet from an access point or hotspot) and mobile broadband (like 3G, GPRS; wide-area wireless internet networks). Smart phone prices are dropping, and especially those using the Android operating system are growing in popularity, also in LMIC (Ford, 2011). However, the newest mobile devices conquering the market, are tablet computers. A tablet computer looks like a smart phone, but it is larger then the smart phone or PDA. It's a flat computer primarily operated by touching the screen, rather than using a physical keyboard.

'*Apps*' are software applications, usually designed to run on smart phones and tablet computers. They are available (to download) through application distribution platforms that are operated by the owner of the mobile operating system, such as the Apple App Store, Android Market, and BlackBerry App World. Some apps are free, while others have a fee for use, or a one time cost. There are many apps available, such as for email, calendar, personal contact or chat, news, games, banking, location based services, commercial goals, information access, social media, etc. Any organisation or person can build an app and offer it to the public via the app stores.

Apps for mobile phones can have a high added value for people not previously connected to the internet. Users in a lot of LMIC are skipping the personal computer/land line experience altogether and accessing parts of the internet, for the first time, through their mobile device (ITU, 2011). There are entire app stores dedicated to servicing the needs of developing country users, such as the Reliance app store (2012) in India and the Safaricom app store (2012) in Africa/Kenya, with a lot of new apps being developed in LMIC.

For reading: One huge benefit of such downloaded apps is the ability to read the entire mhGAP-IG on a smart phone. The app builder could make the reading both richer and easier by adding go-to tabs and

a find/search utility. Decision tree software can also be inserted.

For training: Education via a smart phone app, or other mobile device, is often called mobile learning or *'m-learning'*. It also offers the same benefits as the e-learning software, such as attractive tools and designs. The extra advantages include the pocket format and the integration of the device into the existing private situation, i.e. most owners already use their mobile device on a daily basis.

An example of m-learning via smart phones is the *Training System for Health Care Workers in Peru* (De Waard, 2011). This programme works with the iPhone and Nokia N95 smart phones, and used mobile Moodle software as a learning platform. It also incorporates the use of Skype mobile (talking to another person live online, with simultaneous voice and video), Facebook mobile (social media enabling peer-to-peer contact) and the development of a *'Community of Best Practice'*.

Mobile phones without wireless internet:

Although smart phone use is growing rapidly worldwide (ITU, 2011), for the foreseeable future however, a low tech mobile phone without internet access (called GSM, cell or cellular phone) will probably remain the core means of connectivity in a lot of LMIC. As the current penetration of cell phones is up to 70% in developing countries (ITU, 2011), it is a highly effective means of communication. Additionally, as products and services in those countries still rely heavily on text messaging (SMS) and voice, highly creative solutions were developed. Some of these include mobile banking systems, SMS patient adherence services (ensuring appointments are met and medications taken), SMS awareness and activism campaigns, and SMS alert services.

For reading: One serious drawback to this method of distribution is that it is not feasible to read the entire mhGAP-IG through an SMS application. However, cell phones do offer other possibilities. There are, for instance, free open source platforms like FrontlineSMS (2011), which enables two way SMS based communication, on a large scale, between a computer and mobile telephone users. There are also services, which can offer short audio clips, where users can listen to material via their mobile phone. With these kinds of tools, parts of the guide can be conveyed piece-by-piece to the health worker, or certain parts of the texts could be sent on request from an automated responder.

For training: Conducting training on the mhGAP-IG solely by mobile phones is possible, but some combination of face-to-face sessions, with cell phones or other channels, is more effective. It is also important to note that the cell phone network may be the only feasible option for regular contact with health workers in remote, rural settings. In order to address these obstacles, FrontlineSMS is building a special module for education and training: FrontlineSMS-Learn. FrontlineSMSLearn offers learning opportunities, available *'anytime and anywhere'*, with SMS or text messaging. In Kenya, for example, the AMREF's *Virtual Nursing School* trained hundreds of nurses using a mobile support network as an important component (Nguku, 2009). Using the FrontlineSMS platform, tutors sent messages to all students covering topics like exams, or relevant medical documents. In return, nurses were able to send questions to be answered by their tutors via SMS.

Moodle developed a *'mobile learning engine'*, the MLE-Moodle. Using the MLE-Moodle allows access to the Moodle installation via a mobile phone, and complete standard

activities, such as quizzes, surveys, lessons, assignments, use directories, etc.

The nongovernmental organisation (NGO) D-tree International has developed an electronic version of the aforementioned *Integrated Management of Childhood Illness programme* (IMCI), the e-IMCI, for use on cell phones and other mobile devices. This programme guides health workers step-by-step through the IMCI assessment, classification and treatment plan. This has been piloted in rural Tanzania, and initial results indicate that clinicians adhere more closely to the IMCI protocol when using e-IMCI than without it, and were enthusiastic about its use with patients (D-Tree International, 2011).

Conclusions and recommendations

Not one of the four distribution channels mentioned above appears to be far superior to the others in conveying the mhGAP-IG, and all have drawbacks as well as benefits. As a result, it is the author's suggestion to create reading and training materials in all four distribution channels, and to unify these efforts internationally. It is also important to consider local/national circumstances and options, and implement what is most suitable within each context, preferably through a national mhGAP policy project.

It is also important to stress that SMS and voice based services should not be underestimated. Although focusing on these services may appear to be a step backwards for those in high income countries, for a vast majority of those in rural and/or underserved communities, for the foreseeable future, this is the primary way to connect to information and education.

A lot of apps and mobile platforms are currently being developed in LMIC, and connecting and cooperating with these innovators will prevent reinventing the wheel, or missing the most suitable, simple and low tech solutions that are needed in low resource settings.

The distribution of the mhGAP-IG, and the additional necessary trainings, can exceed the already very low, national mental health budgets in LMIC, easily. North/South alliances and involvement of NGOs, and/or other funding resources, may be essential for covering the costs of the start-up of programmes, but also for the ongoing print, telephone and internet costs for the users. An early involvement with the telecom providers, or other sponsors, can decrease these costs as well (i.e. toll free numbers and/or donations of free network time).

The mental health field is, and was, not considered a priority in many countries (WHO, 2010) and in international campaigns. As a result, the advantage now is that we can learn, lend and copy from other health fields, which are far ahead in the use of modern information and communication technology in learning, and other innovations. The examples shared above show that '*the road ahead has already been paved*'.

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[1] Wiki's allow '*open editing*' which means that all users can create and edit the content of an online text.

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