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Telecommunications and Health Care: An HIV/AIDS Warmline for Communication and Consultation in Rakai, Uganda

Larry William Chang, MD, MPH, Joseph Kagaayi, MBChB, MPH, Gertrude Nakigozi, MBChB, MPH, Ronald Galiwango, MBChB, Jeremiah Mulamba, DMHN, James Ludigo, DCM, Andrew Ruwangula, DCM, Ronald H. Gray, MBBS, MSc, Thomas C. Quinn, MD, Robert C. Bollinger, MD, MPH, and Steven J. Reynolds, MD, MPH

From the Division of Infectious Diseases, Johns Hopkins Medical Institutions, Baltimore, Maryland (LWC, TCQ, RCB, SJR); National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland (TCQ, SJR); Rakai Health Sciences Program, Rakai, Uganda (JK, GN, RG, JM, JL, AR); and Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland (RHG)

Abstract

Hotlines and warmlines have been successfully used in the developed world to provide clinical advice; however, reports on their replicability in resource-limited settings are limited. A warmline was established in Rakai, Uganda, to support an antiretroviral therapy program. Over a 17-month period, a database was kept of who called, why they called, and the result of the call. A program evaluation was also administered to clinical staff. A total of 1303 calls (3.5 calls per weekday) were logged. The warmline was used mostly by field staff and peripherally based peer health workers. Calls addressed important clinical issues, including the need for urgent care, medication side effects, and follow-up needs. Most clinical staff felt that the warmline made their jobs easier and improved the health of patients. An HIV/AIDS warmline leveraged the skills of a limited workforce to provide increased access to HIV/AIDS care, advice, and education.

Keywords

HIV; antiretroviral therapy; Africa; telecommunications; hotline

Hotlines (staffed continuously) and warmlines (staffed during specific times) are telephone-based informational services that have been successfully used in the developed world to provide HIV/AIDS clinical advice and education to less experienced health care providers; however, reports on the replicability of this strategy in resource-limited settings (RLSs) are limited.^{1,2} With the rapid expansion of telecommunications via increased mobile phone ownership in RLSs, this paradigm may be relevant to antiretroviral therapy (ART) programs experiencing shortages in experienced HIV/AIDS providers, programs relying on less highly trained providers (eg, nurses or community health workers), or programs where access to clinics and hospitals is limited by distance and poor transport infrastructure.^{3–6}

The Rakai Health Sciences Program (RHSP) was founded in 1987 to study the HIV epidemic and is based in the rural Rakai district in southwest Uganda. Since June 2004, the US President's Plan for AIDS Relief has enabled RHSP to provide ART through a

Address correspondence to: Larry William Chang, MD, MPH, 1830 E Monument St, Rm 401, Baltimore, MD 21287; e-mail: larrywillchang@gmail.com.

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decentralized approach whereby communities throughout the Rakai district are each visited biweekly by a mobile clinic traveling from a central main clinic. Programmatically, the distance between patients and the central clinic staff made frequent patient–provider interactions difficult. In 2006, a warmline was established to improve communication between patients, providers, and community members. We report here our initial experience with this service.

Methods

In April 2006, a toll-free HIV/AIDS warmline was established at the central RHSP clinic. The Rakai district covers an area of almost 5000 square kilometers and has an estimated population of 495 000. In the Rakai district, landlines are rare, about two thirds of communities have reliable mobile network coverage, and most communities have public village phones. When the warmline was established, the RHSP program had approximately 450 patients receiving ART through the mobile clinic system. By August 2007, the end of the study period, this number had grown to almost 1200 patients.

The warmline was publicized primarily to RHSP patients, patient companions and family members, peer health workers (PHWs), and field staff. Patient companions are persons selected by each patient to individually assist them with adherence. In contrast, PHWs are community health workers who are living with HIV/AIDS, receiving ART through RHSP, and tasked to make home visits to multiple fellow patients to provide clinical and adherence monitoring. The ratio of PHWs to patients is approximately 15–20:1.

Warmline calls were answered by a clinical or medical officer trained in HIV care. Over a 17-month period, a database was kept of who called, why they called, and the immediate result of the call. A Likert-type scale evaluation was administered to clinical staff (1 = strongly agree; 5 = strongly disagree). Program costs were tracked and recorded. Descriptive analyses of usage, costs, and evaluation results were performed. Univariate analyses of who called and calls regarding urgent medical needs were performed as this aspect of the warmline was felt to be of particular operational importance.

This study was approved by the Institutional Review Boards at the Uganda Virus Research Institute, the Uganda National Council for Science and Technology, and Johns Hopkins University. This study was supported in part by the Division of Intramural Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health, and the Doris Duke Charitable Foundation.

Results

From April 2006 to August 2007 (17 months), a total of 1303 calls (3.5 calls per weekday) were logged; the median number of calls per month was 75 (interquartile range, 53–78; range, 35–182). A total of 726 calls (56%) were received by the warmline, and 577 (44%) calls were made by warmline staff, mostly in response to calls received or to address other acute care issues. Descriptive characteristics of the types of calls received are shown in Table 1.

The calls received were mostly regarding general illness concerns, but 93 (13%) were urgent care calls, of which 25 (27%) resulted in immediate triage to a clinic or hospital while the rest resulted in reassurance, medical appointment at the next scheduled visit, or referral to the nearest medical facility in the community. Calls concerning urgent care needs were more frequently made by PHWs, companions, relatives, and friends when compared with other groups (all χ^2 *P* values < 01).

Among clinical staff (n = 39; response rate = 100%), 38% (15/39) strongly agreed and 54% (21/39) agreed that the warmline had improved the overall health of patients; 41% (16/39) strongly agreed and 38% (15/39) agreed that it had made their own jobs easier. The initial start-up actual cost of the warmline, excluding staff compensation, was approximately US \$100. Monthly costs were approximately US\$277, giving a per patient monthly cost of approximately US\$0.28 and a per call cost of approximately US\$3.64.

Discussion

This study demonstrates that a warmline can be successfully established in a rural, RLS to support HIV/AIDS care providers and patients. The warmline was used by a diverse group of persons, but most frequently by field staff and peripherally based PHWs. The warmline addressed important clinical issues, including the need for urgent medical attention, medication side effects, and general follow-up needs. Most clinical staff felt that the warmline made their jobs easier and improved the health of patients.

Study limitations include its reliance on warmline staffers logging each call, which may have led to inconsistent logging of calls and variations in call categorization. We attempted to minimize this inconsistency by providing appropriate training to all staff logging calls. Additionally, our study describes what happened by the end of a call and does not capture downstream effects of consultations. Finally, calls were broadly categorized, which may not reflect the complexity of consultations; this complexity may be better addressed with alternative study designs or more detailed data collection.³

Our evaluation highlights several areas for improvement, investigation, and innovation. Though per patient costs were reasonable, one concerning finding was the significant per call cost. This cost mostly reflects that voice calls in Uganda, as in many RLSs, remain relatively expensive. Given the comparative inexpensive cost of text messaging, future strategies to decrease costs may consider innovative use of text messaging to limit call times. Additional operational challenges we encountered included addressing technical requirements, ensuring adequate training and availability of consultants, and appropriate publicizing of the warmline. Excellent programmatically oriented resources are available to help meet these and other challenges.⁷

Hotlines and warmlines have been used in a variety of situations to effectively provide information, counseling, and timely referrals. In the context of global HIV/AIDS, this service has primarily been directed toward lay persons. South Africa, for example, has a busy and successful AIDS hotline (0800 012 322, www.lifeline.org.za).⁷ In RLSs, telephone-based services specific for HIV care providers are uncommon. One exception is the AIDS Treatment Information Centre of the Infectious Disease Institute in Kampala, Uganda, which offers consultations to providers throughout Africa (312 307245/307228, www.idi.ac.ug). Our warmline was used primarily by health care workers though calls from all persons were accepted.

Scaling up training and education for health care workers in RLSs will require creative and pragmatic strategies. Telecommunications technology may be a useful tool for facilitating this scale-up. We described here how a warmline leveraged the skills of a limited workforce to provide increased access to HIV/AIDS care, advice, and education. The success of this and other telecommunication services will require continued efforts to evaluate program costs, quality, and impact.

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Table 1

Descriptive Characteristics of 726 Warmline Calls Received

	n	%
Calls received from		
Field staff	332	46
Peer health workers	169	23
Patients	86	12
Patient companions	36	5
Patient relatives	28	4
Patient friends	17	2
Other	58	8
Call was about		
General illness concerns	345	48
Care follow-up issues ^a	93	13
Urgent care needs	93	13
Medication specific concerns ^b	91	13
Need for medication refills	78	11
Lab results	53	7
Result of call		
Consultation only ^c	602	83
Immediate triage to clinic/hospital	25	3
Medication change	3	<1
Unknown	96	13

^aExcluding lab-related follow-up issues.

^bExcluding refills.

^cConsultation only includes giving advice/education, arranging follow-up, or providing reassurance.