COMMENTARY

Use of Lay Health Workers in a Community-Based Chronic Disease Control Program

Surapon Winangnon[1], Supannee Sriamporn[2], Wiporn Senarak[3], Kesinee Saranrittichai[4], Patravoot Vatanasapt[5], Malcolm A Moore[6]

Abstract

The increasing burden of non-communicable diseases in the developing world, and in particular diabetes, cancer and circulatory diseases, is an unfortunate fact of life. At the same time infection-related diseases, including sexually transmitted HIV-AIDS and HPV-dependent cervical cancer, remain important. One approach to alleviating the resultant stress on national health provision is to expand the knowledge base at the community level with contributions by lay health workers (LHWs). Here we take a brief look at the available literature and propose a model for intervention incorporating two way dialogue with the general populace to find effective means to package expertise in the medical/research community for lay consumption. Our argument is that particular attention should be paid to socioeconomic and behavioural aspects and to disease surveillance at the local level in order to be able to accurately assess the impact of interventions. For this purpose, we need to marshal volunteers from within communities taking account of their problems and motivations. Included are provision of assistance in setting up physical exercise programs, quit tobacco campaigns, alcohol awareness programs, running disease screening exercises and general help by providing advice as to risk and protective factors and clinical treatments, with an especial focus on palliative care.

Keywords: LHWs - community-based interventions - chronic disease control

Asian Pacific J Cancer Prev, **8**, 457-461

Introduction

In 2005 a Cochrane Database System Review was conducted of 43 studies, with considerable diversity in the targeted health issue and the aims, content and outcomes of interventions (Lewin et al., 2005). Most had been performed in high income countries, but half focused on low income minorities. Promising benefits were found in promoting immunisation uptake and improving outcomes for acute respiratory infections and malaria, when compared to usual care. However, for other health issues, the evidence was considered insufficient to justify recommendations for policy and practice. Furthermore, the authors indicated that the available data were not sufficient to reliably assess which LHW training or intervention strategies are likely to be most effective. Their overall conclusion was therefore that further research is needed (Lewin et al., 2005). The aim of the present commentary is to describe a research proposal which was drawn up to look at the potential for involvement of local volunteers in disease control measures, focusing particularly on the relevant LHW literature. For this purpose a Medline search was conducted with 'lay health workers' as the key words.

Lay Health Workers

The use of LHWs or community health workers (CHWs) has become increasingly popular as an effective means of secondary prevention in hard-to-reach, underserved populations. In the US, trained Vietnamese lay health workers significantly increased Vietnamese women's recognition, receipt, and maintenance of breast and cervical cancer screening tests (Bird et al., 1998). Similarly, combined LHW outreach and media education motivated more Vietnamese American women in California to obtain their first Pap tests and to become up-to-date than did media education alone (Mock et al., 2007). In Mexican Americans culturally specific intervention consisting of participative group education, telephone contact, and follow-up using inspirational faith-based health behavior change postcards, significantly increased diabetes knowledge (Lujan et al., 2007).

However, published evaluations of CHW/LHW training programs are rare (Han et al., 2007). Since 1994, Brazil has developed a primary care system based on multidisciplinary teams which include not only a physician and a nurse, but also 4-6 lay community health workers - but only now is a population-based cross-sectional study

*[1]Cancer Unit, Faculty of Medicine, Khon Kaen University, Bangkok Thailand 40002, [2]College of Medicine and Public Health, Ubon Rajathanee University, [3]Faculty of Nursing, Khon Kaen University, [4]Boromrajchonanee College of Nursing, [5]International Union Against Cancer (UICC) Asia Regional Office for Cancer Control *For Correspondence: surapon@kku.ac.th*

of primary care in the municipality being conducted (Harzheim et al., 2006) In one training program for hypertension and diabetes management for Korean-American seniors expectations were met (average 9.3 on a 10-point scale) and success was achieved in empowering the participants to assume roles as 'health initiator', 'health advertising agents' or 'health role models' (Han et al., 2007).

Once trained, respondents appear to become engaged in a wide range of activities, well beyond simple health care. In South Africa, by engaging community stakeholders, it was possible to develop a research framework that incorporated the community's concerns and priorities, and stressed the intersecting roles of poverty, violence, and other cultural forces in shaping community members' health and wellbeing (Mosavel et al., 2005). A cardiovascular disease prevention program for women was similarly designed to build on the strengths of the Alaska Native culture as a way to support and encourage positive lifestyle behaviors with the focus on healthy eating, active living, stress management, and tobacco cessation (Stefanich et al 2005). In Taiwan community health development (CHD), has been initiated, a new approach to national community health care with a shifting from 'traditional' research to 'participatory' research (Huang and Wang, 2005).

The Thai Context

The history of participatory research in Asia is relatively short but one recent study in Thailand showed that participation with farmers could create a real sustainable model to promote their health and prevent occupational health hazards (Buranatrevedh and Sweatsriskul, 2005). The Thai Ministry of Public Health has developed and implemented a public health policy with the introduction of health promotion programs nationwide. Although particular health promotion programs, such as family planning or immunization services, have been successful, others such as for traffic accident prevention, smoking cessation or campaigns against liver cancer not been proved effective or sustainable (Lyttleton, 1996). In general, health promotion programs are only effective when health practitioners have to follow policy decisions or when it is financed by both government and non-government organizations (Wibulpolprasert, 2000). Some programs are also short term in practice because responsible health personnel have to turn their attention to new policies (Tassaniyom et al, 2004). In terms of health promotion for middle-aged women, the focus has been on reproductive health, such as menopausal clinic and cervical screening programs, which have been established both in the government and private health sectors (Boonmongkol, 1999). This, however, is not totally consistent with the local women's way of life and/or their perception of health (Chirawatkul, 2002, Senarak et al., 2006).

Women in Thailand are particularly important both as LHWs and target populations. Those aged between 50 and 59 are 3, 2.8, 2.5, and 2 times more likely than men to have cardiovascular diseases, diabetes, arthritis, and hypertension, respectively (Chuprapawon, 1997). Almost all of these non-communicable diseases are being increasingly recognized as major causes of morbidity and mortality globally, including developing countries in Southeast Asia (WHO, 2002).

The Female LHW Context

In the majority of cases LHWs are women. Becoming LHWs may open up their worlds, creating opportunities they would otherwise not have had. But while doing so, it presumably also adds extra responsibilities and stresses, which may not be easy to manage. In one study in the US, respondents from a farming community reported sustaining themselves through support from each other, the intervention team, their employers and contact with the public health system. The question raised is given the obvious need for LHWs, how can they be motivated to participate in primary health care in such a way that maximises their access to resources while minimising their experience of the role as burdensome (Daniels et al., 2005). One example of an innovative approach in the female world context is use of trained licensed cosmetologists as effective for promoting health messages to their customers (Linnan et al., 2005).

Qualitative evaluation showed in small rural blue-collar worksites that health and skill-building education over an 18-month period for women that : 1) two patterns of natural helping, i.e. participation due to a specific health concern with either themselves or others in their personal networks, and participation due to a larger sense of the importance of health and prevention; (2) over time natural helpers expanded the diffusion of health promotion information from close network members to co-workers and were more likely to be approached by their co-workers for information; (3) group activities at the worksite, particularly around physical activity, increased over time; and (4) because of time constraints, written materials were a major way of spreading information to co-workers. Thus women could be recruited and trained to diffuse health promotion information and provide support to co-workers for health behavior change (Tessaro et al., 2000).

Worldwide, women are taught to take care of their families, in addition to their mothering role and giving birth. In accepting this role, women place family needs before themselves (Kar et al, 1999; Choudhry, 2002). This is also applicable to women living in "Isan", the Northeastern part of Thailand. Middle-aged Isan women are expected to limit their space to the household, generating and managing the family's financial affairs and taking care of their family members (Jongudomkarn and West, 2004). They are responsible for the well-being of both younger and older family members, as well as their husbands (Rungreangkulkij et al, 2002). This double role consumes almost all of their time. Applying participatory action research with middle-aged Isan women could empower them to create changes both individually and collectively towards maintaining their health (Li et al., 2001; Ismael, 2002) and the ability of their communities to cope with the expected increase in non-cummunicable diseases over the next decades.

A Specific Research Proposal

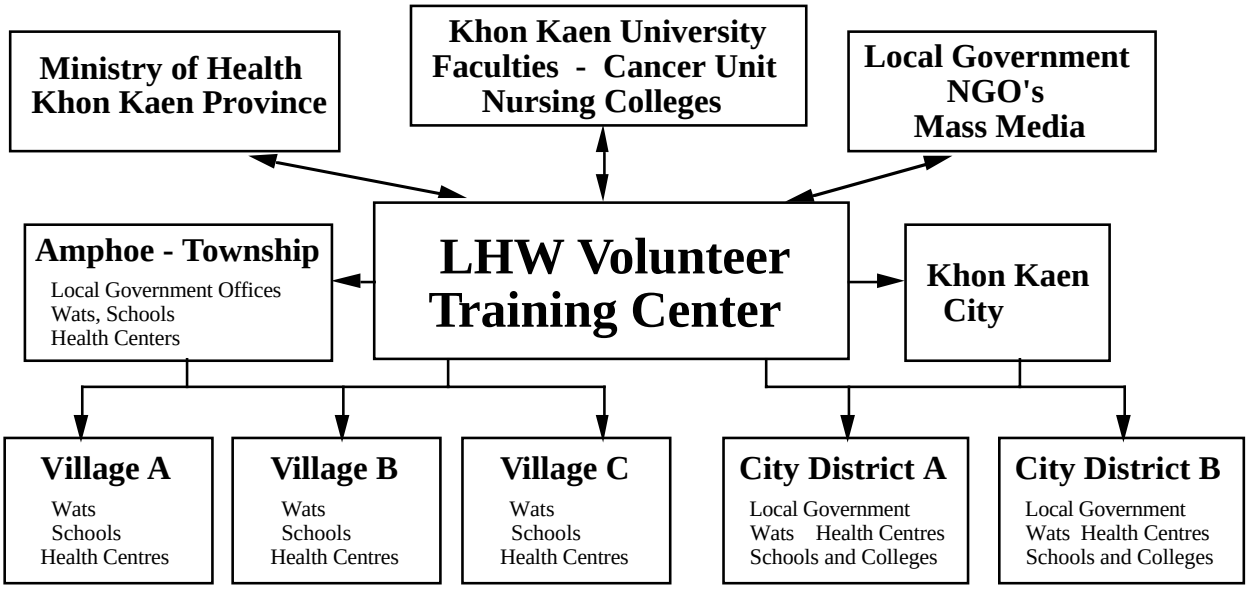
The purpose of the project is to establish a training program for community volunteers from towns and villages in Khon Kaen province of Thailand who can then act as conduits for transfer of information on chronic ailments (diabetes, cancer, circulatory diseases) and sexually transmitted diseases (STDs) to the local populace (see Text-Figure). The aim is to provide means whereby expertise in the medical/research community can be best packaged for effective interventions in two way dialogue with the general populace. This is in line with the Special Populations Networks (SPN) Program created to address both community needs for cancer information and the desire of the National Cancer Institute in the US to obtain community-based answers to research questions and promote training opportunities for racial/ethnic minority and underserved researchers in populations with an unequal burden of cancer. The SPN program includes 3 components: 1) infrastructure and capacity building combined with cancer awareness, 2) community-based research, and 3) community-centered training (Jackson et al 2006). Training of LHWs is linked to formalized Memoranda of Understanding (MOU) with local communities. In addition to cancer, obvious targets are methods and effectiveness of diabetes education (Whitler et al., 2005) and avoidance .

Rather than wait for patients to arrive at hospital for expensive clinical treatment of late stage disease, the goal is to provide access to readily assimilable information at the community level, as well as leadership and training of local volunteers to ensure that awareness is increased and preventive measures can be effectively implemented. Stress needs to be be placed on sustainable programs recognizing local people's own wisdom and valuing their participation. Particular attention should be paid to socioeconomic and behavioural aspects and to disease registration at the local level in order to be able to accurately assess the impact of interventions. With regard to course content, although the main areas to be covered are clear (see Table 1) it is important to remain flexible. The Community Environmental Health Program/ Community Outreach and Education Program (CEHP/ COEP) New Mexico Center for Environmental Health Sciences has learned that listening and responding to opportunities that arise in local communities can be a more effective means of reaching health care providers, lay health workers, and community members than structured plans of action (Downs et al., 2006).

Table 1. LHW Training Course Content

Area	Particular Focus	
Knowledge	Disease characteristics	
	Disease aetiology	
	Disease prevention	
	Disease treatment	
	Palliative care	
Intervention	Screening	a) Cervical cancer
		b) Breast cancer
		c) Other cancers
		d) Metabolic syndrome
		e) Diabetes
		f) Circulatory disease
	Dietary advice and supplements	
	Exercise regimens, aerobics, yoga and dance	
	Smoking avoidance and cessation	
	Avoidance of sexually transmitted disease	

Included are provision of assistance in setting up physical exercise programs, quit tobacco campaigns, alcohol awareness programs, running screening exercises and general help by providing advice as to risk factors and clinical treatments, with an especial focus on palliative care. The sites of local intervention will be all towns and villages in Khon Kaen Province, North-East Thailand, with interactions in Wats (temples), Health Centers and Schools. Training of volunteers and development of methods of information transfer will be conducted within Khon Kaen city. Emphasis will be placed on good liaison



Text-Figure: Envisaged Interactions for the Community-based Volunteer-training Program

Table 2. Parameters for Cross-sectional Studies

Awareness/Understanding: Series of questions on the nature of diabetes, cancer, circulatory and infectious diseases, symptoms, risk factors, preventive measures and treatment modalities.
Screening: Series of questions on efficacy of screening and own actual personal history
Disease Prevalence: Complete physical check-up, including Pap smear, waist-hip circumference, blood sampling (lipid profile and any other parameters which are technically and financially feasible)
Adverse Lifestyle Factors: Information on smoking and alcohol drinking habits, willingness to cut down or quit, what assistance might be offered

with the Ministry of Health, Khon Kaen tertiary educational establishments, local non-government organizations, and other interested parties, including the media and politicians.

The idea is to build on the experience of the applicants in disease registration (Sriplung et al., 2006), establishing a cohort in the region (Sriamporn et al., 2005), screening efforts (Mairiang et al., 2006; Sriamporn et al., 2005b), conducting a community-based intervention at the village level (Senarak et al., 2006) assessment of attitudes and sexual behaviour of adolescents in the Khon Kaen area (Kanato and Saranrittichai, 2006; Saranrittichai et al., 2006). Although school sex education and public health programs have incorporated information aimed at delaying the initiation of intercourse, and promoting contraceptive use and other responsible behavior among adolescents who are sexually active, however, research indicated that current programs often do not match the needs and actual sexual behavior of young people (Hughes and McCauley, 1998). In Thailand, research has shown that, knowledge of safe sex practices is increasing among adolescents, but this knowledge does not often translate into behavior change (Pataravanich, 1998). Last but not least, a major focus should be clinical practice at Khon Kaen University and other hospitals, providing details in a way that members of local communities can readily understand their options within the prevailing scenario.

After discussion with local leaders and signing MOU, identification and screening for volunteers, the training curriculum will be set up with their feed-back before commencing the practical program. This will entail an initial visit to assess disease prevalence and knowledge in the general populace, actual training and ongoing assistance to volunteers and a final re-assessment of disease prevalence and knowledge after the period of the study.

A cross-sectional questionnaire approach will be employed to determine base-line understanding in the community, levels of risk factors and disease/surrogate marker prevalence (see Table 2). The same questionnaire will again be used for determination of efficacy of the intervention at the end of the study. During the study itself, various psychosocial investigations will be conducted to assess the relative impact of different means of information transfer (festival-based interactions, provision of brochures, posters, CDs). Research methods for monitoring efficacy will be investigated, comparing surrogate markers with actual disease rates wherever possible.

The main ethical risks concern confidentiality/privacy protection and non-abuse of personal information by community volunteers. In the project reported by Senarak et al (2006) this was not a problem but every effort will nevertheless be made to ensure that the representation from each community is well balanced with no favour to any particular faction. A totally non-political stance is an essential prerequisite of the planned intervention.

Care will also be taken to present both pros and cons regarding particular screening practices and clinical treatments, for example, with the emphasis on providing a broad knowledge base so that the individual is in a better position to himself or herself make educated decisions. This project will depend on a two way flow of information transfer from and to the investigators and stress will be placed on their appreciation of the opinions and priorities of the populations for which the intervention is planned.

Perspectives

It is hoped that the research proposed within this commentary will a direct influence on general preventive measures and amelioration of the load on the medical system. Gains are envisaged not only in the ability of the general populace to assess their own risk but also in assistance in their own practical efforts for real improvement. The benefits which accrue from early diagnosis and treatment are obvious. It is envisaged that all newly registered cancer cases would be asked for exposure to the present project so that downstaging of tumors could be assessed. Any reduction of smoking exposure and alcohol consumption, especially in relation to drinking and driving, would similarly bring clear benefit. Targeting youth and adolescents should provide both short-term gain regarding STDs and long-term gain in inculcating a healthy lifestyle. Dissemination of study findings is also of paramount importance - in addition to publication of results in peer-reviewed journals the results will naturally be made available to the communities involved. Education aids which are developed should be shared with the general cancer control community in Asia, with the focus on comprehensive practical prevention programs available for all (Tajima and Moore, 2002; Moore and Tajima, 2006).

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