



The Economics of Health Promotion - how much can we save with HP?

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Disease Prevention

- Fundamental aim of prevention - to prevent death, disease, or disability
- Death is inevitable, and thus the more precise objective is to prevent premature death
- “longer life spans mean more years of health care adding to overall cost” (Mongan et al., 2008)
- Economic benefits of living longer - greater work productivity and additional tax revenue, and the social benefits such as happy live and less widows and orphans

3 Types of Disease Prevention

Primary prevention can be accomplished by modifying unhealthy behaviors (e.g., smoking, physical inactivity), which cause many diseases and account for many deaths, administering immunizations to prevent infectious diseases, and reducing exposure to harmful environmental factors.

Secondary prevention can reduce the severity of diseases, such as cancer and heart disease, through screening programs that detect the diseases or their risk factors at early stages, before they become symptomatic or disabling.

Tertiary prevention—the effort to avoid or defer the complications of diseases after they have developed

Is Prevention better?

- The *health* benefits of prevention are intuitive so it is wiser to prevent a disease than to face its consequences at a more advanced stage
- In recent decades the policymakers, politicians, and professionals have also advanced the *economic* argument that **prevention saves money**
- Prevention advocates have emphasized that it will save money and argued that prevention is not only good for health but also a means to control spending

Health Promotion

- Health promotion is the science aiming at reaching optimal (perfect) health.
- Include all activities aiming at increasing well-being, prevention of disease and health hazards, or control of disease.

A process of activating communities, policy makers, professionals and the policy makers, and the public in favor of health supportive policies, systems and ways of living.

Conducted through acts of advocacy, empowerment of people and building social support systems that enable people to make healthy choices and live healthy lives.

Promoting Health for future savings

- There are various evidences from controlled trials and well-designed observational studies on the effectiveness of a wide range of health promotion and disease prevention interventions that address risk factors to health.
- These include measures to **reduce the risk of smoking** and **alcohol consumption**, **increase physical activity** and promote more **healthy diets**, protect psychological and emotional well-being, reduce environmental harms and make road environments safer

Tobacco Smoking

- Smoking brings enormous physical harm to its users. There is a huge body of knowledge documenting its manifold risks, its high public costs and the effective means to control its use.
- It is the cause of 1 250 000 Europeans' deaths each year, causing 21% of all deaths, including 330 000 in the Russian Federation and around 100 000 in each of the United Kingdom, Germany, Ukraine and Italy.
- The WHO European Region's smoking rates are among the highest in the world with 40% of men smoking, 18% of women and 24% of young people aged 15 years (WHO, 2011).
- Evidence-based tobacco control policies are shown to be highly cost-effective and many are cost-saving.

Interventions for Cessation of Smoking

1. Raising cigarette tax and prices
2. Advertising ban
3. Health education
4. Smoking restrictions in public areas
5. Warning labels on cigarette packs

- ❖ Economic studies indicate that combining many of these interventions leads to greater health benefits while still being cost-effective (Chisholm et al., 2006; Lai et al., 2007; Ortegón et al., 2012).
- ❖ Adequate implementation and monitoring, government policies formulated without influence from the tobacco industry, and action against corruption are needed to support policies.

Health education - counselling

- Various approaches in order of cost-effectiveness:

A. Brief opportunistic advice from a general practitioner (GP) with telephone or self-help material.

B. Opportunistic advice alone from a GP or hospital nurse

C. Opportunistic advice plus nicotine replacement therapy (NRT)

- (C) was still cost-effective but at four times the cost of B and eight times the cost of A (Parrott, Godfrey & Kind, 2006).

- C-E is more on targeted group:
- A United Kingdom study (cessation among pregnant women) estimated that spending \$24–\$64 per pregnant smoker on low-cost smoking cessation interventions would be cost-saving (Public Health Research Consortium, 2010).
- Evidence from a number of studies in high-, middle- and low-income countries indicates that these are cost-effective (Hurley & Matthews, 2008; Ratcliffe, Cairns & Platt, 1997; Secker-Walker et al., 1997; Ha & Chisholm, 2011; Chisholm et al., 2006).

Health education – mass media

- Population-based approaches to smoking cessation using mass media campaigns are important because they **raise awareness and change attitudes about the risks of using tobacco and the benefits of quitting**; however, these tend to be neglected so important tobacco control opportunities have been missed (Lawrence, Mitrou & Zubrick, 2011; Flay, 1987; WHO, 2003).

Physical Inactivity

- Physical activity is a leading factor in good health. However, more than one in three people living in the WHO European Region are not active enough (WHO, 2011a).
- This makes physical inactivity **a leading risk factor both in terms of mortality and morbidity**, imposing a financial burden that ranges between \$150 and \$300 per individual per year (Cavill, Kahlmeier & Racioppi, 2006).
- There is a strong economic case for investing in efforts to tackle physical inactivity (Cecchini & Bull)
- Policies and programs towards this end are varied, generally aimed at reducing the risk of chronic conditions and with a strong focus on counteracting obesity.

Interventions to promote Physical Activity

- Mass media campaigns have been shown to have a positive, moderate effect on the increase of physical activity in targeted populations (Leavy et al., 2011; Cavill & Bauman, 2004; Kahn et al., 2002).
- Moreover, when used to increase physical activity, **mass media campaigns are among the best buys to tackle non-communicable diseases** with a good cost–effectiveness ratio and could even be cost-saving in a few cases (WHO, 2011c; Lewis et al., 2010; Sassi et al., 2009; Cobiac et al., 2009; Vos et al., 2010; Cecchini et al., 2010).

Interventions to promote Physical Activity

- **School-based interventions** aim at increasing the amount of physical activity of children attending school, mainly by providing additional information on the benefits of increased physical fitness and by **providing increased opportunities and time to undertake physical activity**.
- A growing literature is focused on encouraging walking and cycling to school (Lee, Orenstein & Richardson, 2008; NICE, 2008c), though cycling interventions do not appear to be as effective as walking interventions in increasing students' physical activity levels.

Interventions to promote Physical Activity

- School based interventions exclusively aimed at increasing physical activity have a lower cost–effectiveness ratio compared to mass media campaigns and primary-care Policy interventions (WHO, 2011c).
- Some school-based interventions may be cost-effective (Lewis et al., 2010; Sassi et al., 2009; Wang et al., 2003); in particular, interventions that combine actions on physical activity and diet seem to be more efficient than interventions on a single domain

Interventions to promote Physical Activity

- **Primary-care interventions** show positive and moderate effectiveness on reported levels of physical activity (Breckon, Johnston & Hutchison, 2008; Fleming & Godwin, 2008; Williams et al., 2007).
- In some cases, this is **correlated to an improvement of physiological parameters, such as blood pressure or lipid profile**. Compared to other approaches, primary-care interventions have a good cost–effectiveness ratio, despite the higher costs of some approaches (Garrett et al., 2011; Lewis et al., 2010; Sassi et al., 2009; WHO, 2011c) .
- In an assessment of four interventions, two of which were in primary care (exercise referral and brief interventions), the National Institute of Health and Care Excellence (NICE) concluded that only the “brief intervention” approach should be recommended (NICE, 2008c).

Interventions to promote Physical Activity

- Typical worksite programs employ a range of strategies rather than a single action, and are usually offered to all employees.
- Examples of approaches include supporting active travel (e.g. walking and cycling to/from work) through provision of adequate facilities (e.g. bike storage, showers), incentives and discounts for fitness clubs, health education programs and individual employee health checks (Bull, Adams & Hooper, 2008).

Interventions to promote Physical Activity

- Community-based interventions encompass a diverse range of interventions accessible to the whole community.
- **Pedometer-based programs** have become popular in recent years due to the low cost of the devices and the advantage of an objective measure of activity levels, and have been shown to be effective in children and adults in the short term (Lubans, Morgan & Tudor-Locke, 2009; Bravata et al., 2007).
- Providing **step-based goals** (e.g. 10 000 steps per day) rather than time-based goals (e.g. walk for 30 minutes) has been shown to be more effective, and effectiveness is increased when efforts are combined with behavior change support and goal setting (Williams et al., 2008a; Ogilvie et al., 2007).
- NUS, Singapore – provide incentive on weight reduction

Unhealthy Diet

- Obesity alone is estimated to account for approximately 1% to 3% of total health expenditure in most countries (Tsai, Williamson & Glick, 2011).
- An obese person incurs health care expenditures at least 25% higher than those of a normal weight person (Withrow & Alter, 2011).
- Combined, the leading behavioral and metabolic risk factors associated with nutrition (high blood pressure, high blood glucose, overweight and obesity, high cholesterol, low fruit and vegetable intake) plus physical inactivity are estimated to be responsible for almost 80 DALYs per 1000 population over age 30 in the WHO European Region, which is more than any other world region (WHO, 2009).

Interventions to promote Healthy Diet

- Information campaigns can be cost-effective but this is based on the low cost of these actions, with actual effectiveness being limited largely to impacts on knowledge and specific populations.
- For example, the effects of a mass media campaign aimed at increasing fruit and vegetable intake, as well as physical activity, were assessed in a multi-country study based on a microsimulation approach (Sassi, 2010; Sassi et al., 2009).

Interventions to promote Healthy Diet

- Worksite information campaigns often accompanied by changes in catering are not effective (Cobiac, Vos & Veerman, 2010b; Engbers et al., 2006).
- In developing country settings, model based studies found that mass media campaigns for salt, saturated fat and cholesterol reduction had a more favorable cost-effectiveness profile (Ha & Chisholm, 2011; Willett et al., 2006).

Interventions to promote Healthy Diet

- Nutrient lists and labels on food packages and menus as well as rules on nutrient and health claims fall under the category of labelling.
- In Europe, nutrient labelling had become mandatory in December 2016. The existing studies show there is convincing evidence that consumers use nutrient lists, but lower socioeconomic status (SES) groups lag behind in label use.
- Food labelling schemes were found to perform better than information campaigns in terms of cost–effectiveness, especially when implemented on a mandatory basis, but the studies available to support this claim are few and vary in the types of schemes assessed and methods applied.

Interventions to promote Healthy Diet

- Restrictions in the commercial promotion of food, was shown to be cost-effective in a small number of model-based economic studies focusing on restricting food advertising to children.
- One of these studies compared the cost–effectiveness of restricting commercial promotion through mandatory and self-regulatory approaches in five countries (Sassi, 2010; Sassi et al., 2009; Cecchini et al., 2010).
- **Restrictions were highly cost-effective in the 20 years after implementation**, especially in low- and middle-income countries, where they may even be cost-saving in some instances. Self-regulation (assuming half the effectiveness, compared with statutory regulation, at the individual level) had significantly lower costs but also limited effectiveness.

Interventions to promote Healthy Diet

- The economic evidence available on [policies aimed at affecting the marketing environment for food choices](#) appears more solid and broadly based.
- Policies aimed at making fruit and vegetables more available in schools were found to have positive, albeit modest, effects on dietary intake.
- Evidence from the Netherlands found these initiatives to be cost-effective, although the finding was sensitive to assumptions regarding the sustainability of dietary changes in the long term (Velde et al., 2011).

Interventions to promote Healthy Diet

- Policies aimed at **altering the prices of less healthy foods** through the use of taxes were more thoroughly investigated by means of economic models.
- Existing studies show that **taxes on foods high in salt, sugar and fat, and on “junk food” are consistently cost-saving**, that is, they cost less to implement than they save in terms of reduced health care expenditures, and they have a favorable health impact at the population level (Smith-Spangler et al., 2010; Sacks et al., 2011).

Interventions to promote Healthy Diet

- Product reformulation policies aimed at reducing the salt content of processed foods were found to be cost-saving or to have a favorable cost–effectiveness ratio in several economic evaluations (Wang & Labarthe, 2011; Barton et al., 2011; Eatwell, 2012).
- **Reductions in salt** from both voluntary and legislative measures were found to be **cost-effective**, but legislation more so (Murray et al., 2003).

Interventions to promote Healthy Diet

- In Norway, the effect of industry reformulation combined with an information campaign was modelled; these actions was cost-saving (Selmer et al., 2000).
- For the United Kingdom, the estimate was made (using actual data) for both voluntary salt reduction by industry and an information campaign. On the basis that the [salt reduction initiative saved 44 000 QALYs, it was found to be cost-effective](#) and when savings to the National Health Service are included (\$116 million), it was found to be dominant (Eatwell, 2012)

Conclusion

- Health economics has important role to play in health promotion; economic evaluation, role of economics in explaining and predicting individual behavior, and health promotion policy.
- Problems facing in promoting health are related to financial status – poverty (poor nutrition, poor housing, environment degradation), low education, political instability.
- There are strong economic, as well as health reasons for investing in health promotion and disease prevention.

Ref: Promoting health, preventing disease: is there an economic case?

Sherry Merkur, Franco Sassi, David McDaid.
WHO 2013

Economic evaluation of prevention

- In economic terms, *value* is the ratio between the cost of a service and its benefits
- The metric that is used widely in health care is the cost-effectiveness (CE), or cost-utility ratio
- Even if the intervention is not cost saving, ethically and morally it need to be performed
- CE is performed on several approaches (prevention versus treatment), or treatment options for best practice (most cost-effective option)

Economic Evaluation

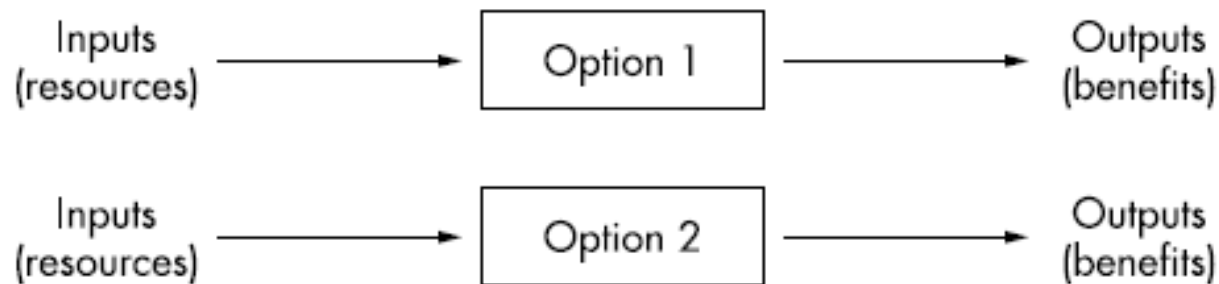
Economic evaluation is performed

- ✓ To know the cost implications
- ✓ To decide on which intervention among several interventions with the same objective is most cost-effective and provide the highest return
- ✓ To determine whether the program is worth invested in
- ✓ To ensure that the program could be sustained

Cost-effectiveness studies

- CE is a comparison tool to help evaluate choices. It will not always indicate a clear choice, but it will evaluate options quantitatively based on a defined model
- The metric that is used widely in health care is the cost-effectiveness (CE), or cost-utility ratio

Economic evaluation- relating the **costs** and **benefits** of alternative ways of delivering health care



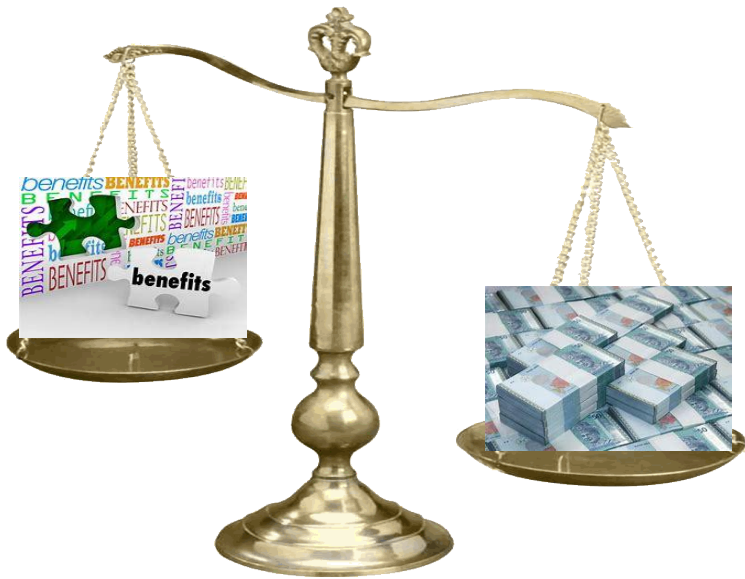
Economic analysis relates inputs (resources) to outputs (benefits and the values attached to them) of alternative interventions to facilitate decision making when resources are scarce.

Kernick D P. (2003) Introduction to health economics for the medical practitioner. Postgrad. Med J: 79 147-150

Cost-effectiveness analysis

➤ EE is not about comparing the cost and benefit of a program

➤ But to determine which intervention among several interventions with the same goal is more **cost-effective**



Cost versus Benefits



Looking for the more cost-effective intervention

CEA

Some examples on health interventions for
primary prevention and screening

HARM REDUCTION

Policy Decision to continue HRP

- HRP for HIV/AIDs in Malaysia had the financial support from World Bank for about 3 decades.
- In 2016 MOH has been asked to continue with the program without the support.
- Economic evaluation was needed to provide evidences to assist the decision whether to continue with the program.
- Findings: its worthwhile to continue the program although a longer time is needed to see the return of investment.
- Cost-effective from the perspective of the government by causing savings in direct health care cost from infections that were averted.

Return on investment and cost-effectiveness of harm reduction program in Malaysia (... Page 1 of 4

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Return on investment and cost-effectiveness of harm reduction program in Malaysia (English)

ABSTRACT

Cases of human immunodeficiency virus (HIV) infections were first detected in Malaysia in 1986. Since then, the number of new HIV cases has been increasing steadily to a peak of 6,978 new cases detected in 2002 then declining to 3,438 new cases in 2012. [See More](#)

DETAILS

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Policy Decision on Rotavirus Vaccination

Alkoshi et al. BMC Public Health (2015) 15:26



Libyan Journal of Medicine

COACTION

ORIGINAL ARTICLE

Cost-effectiveness analysis of rotavirus vaccination among Libyan children using a simple economic model

Salem Alkoshi^{1*}, Namaitijiang Maimaiti² and Maznah Dahlui¹

¹Julius Centre, Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia; ²International Institute for Global Health, United Nations University, Kuala Lumpur, Malaysia

➤ The burden of infection causing diarrhoea among children in Libya.

➤ EE was warranted in getting aids since a big investment in vaccine is needed.

Background
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➤ ICER showed : highly cost-effective to vaccinate children with Rotavirus vaccine.

➤ Reduction in cases and savings from less hospitalization.

➤ A PhD thesis by Salem Alkoshi

Introduction
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and developed countries. Meanwhile, the mortality rate is much higher in the developing than in the developed world, as more than 80% of all the rotavirus deaths occur

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5, can pre-
vent diarrheal events in young children by more than 80% (13–18). These two vaccines against rotavirus infection have also been licensed in Libya. One is a two-dose vaccine (Rotarix®) and the other is a single-dose vaccine (RotaShield®).

Evaluating the cost effectiveness of cervical screening

- Pilot project for organized cervical cancer screening (2012)
- all women aged 20 years old and above were invited for PAP smear and received recall to repeat the test.
- A CEA was conducted to determine which recall method would be most cost-effective.

COMMENTARY

Adapting the Australian System: Is an Organised Screening Program Feasible in Malaysia? – An Overview of the Cervical Cancer Screening in Both Countries

Rima Marhayu Abdul Rashid^{1,2*}, Maznah Dahlui¹, Majdah Mohamed², Dorota Gertig³

Abstract

Cervical cancer is the third most common form of cancer that strikes Malaysian women. The National Cancer Registry in 2006 and 2007 reported that the age standardized incidence (ASR) of cervical cancer was 12.2 and 7.8 per 100,000 women, respectively. The cumulative risk of developing cervical cancer for a Malaysian woman is 0.9 for 74 years. Among all ethnic groups, the Chinese experienced the highest incidence rate in 2006, followed by Indians and Malays. The percentage cervical cancer detected at stage I and II was 55% (stage I: 21.0%, stage II: 34.0%, stage III: 26.0% and stage IV: 19.0%). Data from Ministry of Health Malaysia (2006) showed a 58.9% coverage of pap smear screening conducted among those aged 30-49 years. Only a small percentage of 50-59 and 50-65 years old were screened, 14% and 13.8% coverage, respectively. Incidence of cervical cancer was highest (71.6%) among those in the 60-65 age group (MOH, 2003). Currently, there is no population-based screening program available for the whole of Malaysia. A pilot project was initiated to move from opportunistic cervical screening of women who attend antenatal and postnatal visits to a mass-based approach to be able to monitor the women through the screening pathway and encourage high risk to be screened. The project was modelled on the screening program in Australia with some modifications to suit the Malaysian setting. Substantial challenges have been identified, particularly in relation to systems for call and recall of women, as well as laboratory reporting and quality assurance. A locally-specific approach to organized screening, that will provide the infrastructure for increasing participation in the cervical cancer screening program, is urgently required.

Cervical cancer - screening - prevention - Malaysia - Australian model

Cancer Prev, 14 (3), 2141-2146

Cervical cancer accounted about 9.1% of all female cancer worldwide (Omar et al., 2006) and is the second most common form of cancer among Malaysian women (sagué et al., 2007). Approximately 70.1% of cervical cancers in the world attributed to HPV infection. More than 85% of the global burden of cervical cancer is in developing countries, where it accounts for 13% of all cancer (Ferlay et al., 2008). Lowest rates are found in Northern America and Australia/New Zealand with ASRs less than 6 per 100,000. Incidence rates are higher in the less developed regions and in the more developed regions (Ferlay et al., 2008). For example, in England where the organised screening program started in 1988, the incidence has almost halved. Standardised Incidence Rate (ASIR) was 12.2 per 100,000 population in 1988 and has reduced to 8.3 per 100,000 population in 2008 according to the National Cancer Institute (NCIN, 2010). Similarly, in

New Zealand, the incidence of cervical cancer has reduced from 12 per 100,000 population in 1991 to below 7 per 100,000 population after the initiation of National Cervical Screening Program (NCSP) (Lewis et al., 2005).

Many efforts had been implemented to improve the cervical screening program in Malaysia. Unfortunately, campaigns and health education on the need for cervical screening among women even after the reproductive years has not shown great improvement in increasing the uptake. The situation is still worrying whereby a vast majority of those in the high risk age group, which is between 50-65 years old, are not screened. The aim of this paper was to examine the current cervical cancer screening program in Malaysia and compare it with the system in Australia by focusing on gaps and needs, as well as to provide an overview of other cervical cancer screening activities.

Cervical Cancer in Malaysia

Cervical cancer remains as one of the leading cause of

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RESEARCH ARTICLE

Cost Effective Analysis of Recall Methods for Cervical Screening in Selangor - Results from a Prospective Randomised Controlled Trial

Rima Marhayu Abdul Rashid^{1,2*}, Sophia Ramli^{1,2}, Jennifer John Dahlui¹

Abstract

Cervical cancer screening in Malaysia is by opportunistic Pap smear which contributes to low rate. To overcome this, a pilot project called the SIPPS program (translated as information system program) had been introduced whereby women aged 20-65 years old are invited for Pap smear to repeat the test. This study aimed at determining which recall method is most cost-effective in to repeat Pap smear. A randomised control trial was conducted where one thousand women were repeat smear either by registered letter, phone messages, phone call or the usual postal letter applied for cost-effectiveness analysis includes the cost of sending letter for first invitation, cost of method and cost of two Pap smears. Cost-effective analysis (CEA) of Pap smear uptake by each method was then performed. The uptake of Pap smear by postal letter, registered letters, SMS and phone call were 18.8%, 20.0%, 21.6% and 34.4%, respectively ($p < 0.05$). The CER for the recall method was low

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Keyword

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Introdu

Cervical cancer is the second most common cancer among women and the fourth most common cause of death for women in Malaysia. The Age Standardized Rate (ASR) was 15.7 per 100,000 in 2002 which was similar to Indonesia (Ferlay et al., 2004). In the South East Asian (SEA) region, Penang, Malaysia has 17.9 per 100,000 population compared to Thailand at 28.9, 22.4 and 17.8 per 100,000 population for Chiang Mai, Lampang and Songkla respectively, and Manila, Philippines at 19.8 per 100,000 population (Curado et al., 2007). The National Cancer Registry Report in 2007, showed that the Indian ethnic group had the highest incidence at 10.3 per 100,000, followed by the Chinese and Malays at 9.5 and 5.3 per 100,000, respectively (Omar ZA and Tamin NSI, 2011). It was estimated that the prevalence of cervical cancer was 4,696 annually, out of which 1,372 of the cases were precancerous lesions. The disease burden was associated with a direct cost of RM 39.2 million and a further RM

Cervical cancer is highly preventable through screening programs that facilitate the treatment of precancerous lesions. Lack of effective screening programmes in countries, including Malaysia which reduction of cervical cancer for the past few decades (Lim, Halimah, 2004; WHO, 2005; San et al., 2001; Baskaran, 2013). In contrast, in other countries, it has been a huge reduction in cancer mortality rate following a large scale testing (Cancerresearchuk, 2012; Can that can generally be attributed to fast national cervical cancer screening programme improvements in the treatment.

The opportunistic cervical cancer screening in Malaysia has been carried out throughout the country since 1969 by Ministry of Health Malaysia. However, the uptake of screening is low, especially among those in the reproductive y

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RESEARCH ARTICLE

Is the Phone Call the Most Effective Method for Recall in Cervical Cancer Screening? - Results from a Randomised Control Trial

Rima Marhayu Abdul Rashid^{1,2*}, Majdah Mohamed², Zaleha Abdul Hamid², Maznah Dahlui¹

Abstract

Objective: To compare the effectiveness of different methods of recall for repeat Pap smear among women who had normal smears in the previous screening. **Design:** Prospective randomized controlled study. **Setting:** All community clinics in Klang under the Ministry of Health Malaysia. **Participants:** Women of Klang who attended cervical screening and had a normal Pap smear in the previous year, and were due for a repeat smear were recruited and randomly assigned to four different methods of recall for repeat smear. **Intervention:** The recall methods given to the women to remind them for a repeat smear were either by postal letter, registered letter, short message by phone (SMS) or phone call. **Main Outcome Measures:** Number and percentage of women who responded to the recall within 8 weeks after they had received the recall, irrespective whether they had Pap test conducted. Also the numbers of women in each recall method that came for repeat Pap smear. **Results:** The

recall by letter, registered letter, phone call and SMS were 18.8%, 20.0%, 21.6% and 34.4%, respectively ($p < 0.05$). Furthermore, more women responded to the recall by phone call compared to those who received recall by postal letter, registered letters and SMS. The response rates for sending letters and registered letters were highest via phone call, indicating the

Malaysia

nkaranarayanan et al., 2001; WHO, 2005).

The importance of cervical screening could not be emphasized more; studies had proven that reduction in incidence and mortality of cervical cancer are possible with large scale cervical screening by cytology testing (Canfell et al., 2006; Cancerresearchuk.org, 2012), which allows detection of pre cancerous lesions, diagnosis of early stage of cervical cancer and thus early treatment.

Realizing the urgency to increase the uptake of Pap smear, besides enhancing the promotion of Pap smear screening for women above 35 years old, the call-recall system for Pap smear screening had been piloted in one of the suburban district which aimed to improve regular participation of women for cervical and breast cancer screening. Women aged 20 years and above had been identified through the database of the department of statistics and had been invited by letter to come for Pap smear and CBE (clinical breast examination) at any clinics near their residence area. In 2008, a total of

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Breast Cancer Screening Program

- Several studies had been conducted locally on the KAP of screening for breast cancer among women in Malaysia.
- KAP on breast cancer and its screening uptake differ across populations.

RESEARCH ARTICLE

Breast Cancer Awareness of Rural Women in Malaysia: is it the Same as in the Cities?

Abdul Aziz Norlaili*, Mohd Amin Fatihah, Nik Farid Nik Daliana, Dahlui Maznah

Abstract

Breast cancer is the most common cancer among women globally. This study was conducted to compare the awareness of breast cancer and the practice of breast self-examination (BSE), clinical breast examination (CBE) and mammography screening among rural females in Pahang and Perak. A cross-sectional study was carried out in five selected rural districts of Pahang and Perak. Two hundred and fifty households were randomly selected and interviewed face to face using a semi-structured questionnaire. The majority of residents from both states were Malay, aged between 50 and 60 years and had a secondary level of education. Malay women aged 40–49 years and women with a higher level of education were significantly more aware of breast cancer ($p < 0.05$). About half of these women practiced BSE (60.7%) and CBE (56.1%), and 7% had undergone mammography screening. The results of this study suggest that women in Pahang and Perak have good awareness of breast cancer and that more than half practice BSE and CBE. The women's level of education appears to contribute to their level of knowledge and health behaviour. However, more effort is needed to encourage all women in rural areas to acquire further knowledge on breast cancer.

Keywords: Breast cancer - awareness - breast self-examination - clinical breast examination - rural Malaysia

Asian Pacific J Cancer Prev, 14 (12), 7161-7164

Introduction

Breast cancer is the leading form of cancer among women both in the developed and the developing world (WHO, n.d; Ali et al., 2011) and causes the most cancer deaths each year (WHO, 2013). Western Europe, North America, Australia and New Zealand have the highest incidence, and Asia, Africa and South America have the lowest (Bray et al., 2012). It was estimated that 1.38 million new breast cancer cases were diagnosed in 2008, with 458,000 deaths from breast cancer worldwide (GLOBOCAN, 2008). In the U.S. in 2013, more than 200,000 new cases of invasive breast cancer, along with 64,640 new cases of in-situ breast cancer, were expected to be diagnosed in women (American Cancer Society, 2013). Breast cancer is increasingly common in Malaysia (Yip et al., 2012). According to Omar et al., 2011, a total of 3,242 new cases of breast cancer were reported in Malaysia in 2007, giving an age-standardized incidence rate of 29.1 per 100,000 women (Omar et al., 2011).

Most cancer cases and deaths are potentially preventable, including breast cancer (Stein and Colditz, 2004). Having adequate knowledge of breast cancer empowers women and encourages them to participate in prevention and screening programs related to the disease.

However, in certain rural areas, mammography and regular examinations by physicians are not feasible due to logistical problems, such as poor access roads (Noor Ghani and Yadav, 2008). Breast cancer awareness interventions targeting women living in rural areas of Malaysia are essential because Malaysian women present with later stages of breast cancer compared to their counterparts in developing countries (Yip et al., 2006).

In a University Malaya Medical Centre study, they reported that about 30–40% presented with late-stage breast cancer. Patients who presented with advanced disease were also found to be from rural areas (Leong et al., 2007) and to have deficits in knowledge of symptoms and risk factors of breast cancer (Abdul Hadi et al., 2010; Nik Rosmawati, 2010). These findings are further supported by other studies, with two qualitative studies that explored Malaysian cancer patients' perceptions of cancer screening noting inadequate knowledge as a barrier to breast cancer screening (Farooqui, 2013; Bachok et al., 2012). In addition, an international study carried out among Kenyan women revealed a huge gap between urban and rural women with respect to knowledge of breast cancer and early detection measures (Muthoni et al., 2010).

It is commonly accepted that to appreciate the



Breast Cancer Screening Program

- We need to know which population needs more intervention and
- Whether the current practice is still relevant or need to change.
- A cross sectional study was conducted to assess the situation.



Breast screening and health issues among rural females in Malaysia: How much do they know and practice?

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ABSTRACT

Objective. This study investigated rural women's knowledge of breast cancer and screening methods by ethnicity and examined the predictors of breast screening methods.

Methods. A cross-sectional survey was conducted in 2011 in five rural districts of Perak; 959 women were interviewed using a semi-structured questionnaire. ANOVA and regression analysis were used in data analysis.

Results. Women below 50 years old, of Malay ethnicity and who had secondary education scored better than those older, of Chinese ethnicity and had primary education ($p < 0.001$). The uptake of breast self-examination (BSE), clinical breast examination (CBE) and mammogram was 59%, 51% and 6.8%, respectively. Multivariate analysis revealed knowledge of breast cancer and CBE as top predictors of BSE, being married and knowledge of breast cancer as top predictors for CBE; and CBE as the top predictor of mammography uptake. Support from husbands and family members for breast cancer screening was a predictor for CBE and BSE.

Conclusion. Knowledge of breast cancer and its screening uptake varies by ethnicity, location and the type of support received. Efforts and approaches to improve the women's knowledge of breast cancer and its screening uptake therefore should be customized to address the different influencing factors.

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Introduction

Worldwide, breast cancer is the most common cancer among females with marked variations between countries of different income and degree of urbanization (Ferlay et al., 2010). In Malaysia, the overall age standardized incidence rate was 46.2 per 100,000 women with more than 40% of patients presented at advanced stages (National Cancer Registry, 2011). Incidence of breast cancer varies by ethnicity: the age-standardized ratio (ASR) per 100,000 population was 38.1, 33.7 and 25.4 among the Chinese, Indian and Malay women, respectively (Pathy et al., 2011; Rajan et al., 2011). The Ministry of Health promotes three breast screening methods: clinical breast examination (CBE), mammography for women over 40 years old, and breast self-examination (BSE). In 2006, that uptake of BSE, CBE and mammography was 57%, 52% and 7.6%, respectively (Institute of Health, 2008).

Although limited, knowledge of screening methods had been studied in the urban areas in Malaysia. Poor knowledge of breast cancer symptoms among school teachers (Parsa et al., 2008) and

ethnic Indians (Abdul Hadi et al., 2010) and good knowledge on BSE among university staff (Dahlui et al., 2011) were reported. Poor knowledge of screening methods, low education level, embarrassment and fear were the most common barriers to screening uptake (Dunn and Tan, 2011; Parsa et al., 2008). Perceived risks of breast cancer, perceived benefits of screening and regular visits to the physician were associated with CBE attendance (Parsa and Kandiah, 2010).

Most of the studies assessing the knowledge of breast cancer and their behavior on screening uptake had been conducted in groups of working women and among women in the urban and suburban areas. There is a gap for similar research on women in the rural areas. This paper presents the findings of a research among women living in the rural areas to determine their level of breast health knowledge, breast cancer screening practice and its influencing factors.

Methods

A cross-sectional survey was conducted in 2011, in five rural districts of Perak. A thousand households were selected randomly from 25 villages in which women aged between 20 and 60 years old were interviewed, guided by a structured questionnaire (Dahlui et al.). The questionnaire consists of questions on socio-demographic characteristics, knowledge regarding breast

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Breast Cancer Screening program

Is BSE Still Relevant? A Study on Performance among Female Staff of University of Malaya

RESEARCH COMMUNICATION

Is Breast Self Examination (BSE) Still Relevant? A Study on BSE Performance among Female Staff of University of Malaya

M Dahlui¹, CW Ng¹, N Al Sadat², S Ismail², AM Bulgiba¹

Abstract

Objectives: This study aimed to determine the rate of breast self examination (BSE) among the female staff of University of Malaya and to determine the role of BSE in detecting breast abnormalities. **Methods:** A total of 1598 questionnaires were posted to all female staff, aged 35 years and above. Their knowledge on breast cancer, practice of BSE and detection rate of breast abnormality as confirmed by CBE was determined. **Results:** The response rate for this study was 45 percent (714 respondents). The rate of respondents having awareness on breast cancer was 98.7 percent. Eighty four percent (598) of the respondents had performed BSE in their lifetime. However, in only 41% was it regular at the recommended time. Forty seven percent (334) had undergone CBE at least once in a lifetime but only 26% (185) had CBE at least once in the past 3 years, while 23% (165) had had a mammogram. There was a significant relationship between CBE and BSE whereby those who had CBE were twice more likely to do BSE. Nineteen percent (84 respondents) of those who did BSE claimed they had detected a breast lump. Of these, 87% (73) had gone for CBE and all were confirmed as such. **Conclusion:** BSE is still relevant as a screening tool of breast cancer since those who detect breast lump by BSE will most probably go for further check up. CBE should be done to all women, especially those at highest risk of breast cancer, to encourage and train for BSE.

Keywords: Breast cancer - breast cancer awareness - BSE - CBE - women academics in Malaysia

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➤ Breast Self Examination (BSE) as screening for breast cancer and Clinical Breast Examination (CBE) are still relevant in Malaysia, where resources are limited.

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Clinical Breast Examination As the Recommended Breast Cancer Screening Modality in a Rural Community in Malaysia; What Are the Factors That Could Enhance Its Uptake?

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Abstract

Breast cancer is the most common cause of deaths and the most frequently diagnosed cancer among women worldwide. This study aimed to determine the prevalence of breast cancer screening, specifically on clinical breast examination, and the predictors of its uptake among women in Malaysia. A cross-sectional study was carried out in five selected districts whereby women aged between 20 to 64 years old, from a total of 1000 households were interviewed. A total of 1192 women responded to the survey of which 53.3% reported had ever done clinical breast examination. Significant associations with clinical breast examination were noted for income and distance from the hospital. These factors should be considered in developing interventions aimed at promoting clinical breast examination. In particular, healthcare providers should be proactive in raising awareness about clinical breast examination among women in Malaysia.

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Data Availability: The authors confirm that, for approved reasons, some access restrictions apply to the data underlying the findings. The data used in this study is primary data and it belongs to the Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya. No other parties are involved. We can release the data if there is a request. For data access, kindly contact Dr. Nik Daliana Nik Farid, email: daliana@ummc.edu.my.

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➤ Question on whether we should follow the practice of mammogram as a national community screening for breast cancer as in developed countries.



Implications of study findings

CEA of Breast Cancer Screening

- Mammogram as a community breast cancer screening is not cost-effective...
- The current practice of CBE followed by mammography when abnormality is detected, and mammogram of women with risk factors are cost-effective according to the threshold set by MAHTA (1 GDP per capita)
- Recommendation: efforts should be focused on improving the participation rate for CBE and increasing the budget allocation for mammogram for the current BC screening program.



Thank you

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