Symposium

Chronic disease epidemiology, cancer and mobile global approaches to disease prevention

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S U M M A R Y

The focus of this symposium was worldwide prevention of chronic disease through the use of inexpensive Internet pathways, as demonstrated with the Supercourse project, and other initiatives, including promoting mobile phone technology (m-health). This symposium highlighted the need to use the Supercourse to prevent cancer and other chronic diseases. It also highlighted several components of the Supercourse library, including the former Soviet Union network, the Latin American network, and some other initiatives.

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Introduction

The Supercourse (www.pitt.edu/~super1) is a library of PowerPoint lectures on epidemiology, global health and prevention, presented as slide sets and tutorial notes for individual, small-group and arena-based learning. In extreme conditions, such as after a disaster or early in the H1N1 pandemic, leaders in the field summarize the epidemiology and provide evidence to guide public health action. This facilitates rapid learning by non-specialist staff, and enables experts to focus on the provision of scientific advice and responsive research rather than the production of briefing materials.

In recent years, the Supercourse team at the University of Pittsburgh, PA, USA has been developing the concept of mobile global health (m-health). This is the application of mobile technologies to solving health challenges around the world. As of August 2011, over 80% of the world’s population had access to mobile phones. That number is expected to reach 100% by 2013. In cities such as Washington, DC, USA, nearly 50% of homeless people have access to mobile phones. The mobile community could play an important role in improving health around the world by sharing and promoting public health messages.

Chronic conditions are the major causes of death worldwide, with over 80% occurring in low- and middle-income countries. Cardiovascular disease, cancer, respiratory
disease and diabetes account for a large proportion of the associated burden of premature death, disease and disability. Tackling the inequalities in the distribution of these harms and differential opportunities to access prevention, support and treatment requires that the existing evidence is disseminated and implemented effectively while new evidence is created. The Supercourse provides the opportunity to combine evidence-based content with innovative delivery methods.

**The Supercourse model**

The Supercourse follows a simple model: improving and extending public health education by providing better access to high-quality course materials that are adaptable to different contexts. Without good, up-to-date materials, it is impossible to be a good teacher.1–4 The focus of the Supercourse is global health and disease prevention. At its core is a global network of 56,000 faculty members from 174 countries that share high-quality PowerPoint lectures on global health and prevention.5,6 As of November 2011, the Supercourse library has over 4900 lectures, including those from Nobel Prize winners, the Former Head of the National Institutes of Health and Centers for Disease Control and Prevention, the Head of Fogarty International Center (an NIH centre that supports global partnerships for health research), the Head of non-communicable diseases at the World Health Organization (WHO), and over 48,000 faculty members across the world (over 1200 of them contributing lectures).

The Supercourse library provides lectures to the educators of the world for teaching and for distribution to their fellow faculty members and students. Multiple measures of quality control are built in, including the five-star system where lectures can be rated on a scale of one to five stars (1 = worst, 5 = best), which is similar to that used by Amazon.com.5,6 A sister effort is being developed with the Library of Alexandria, Egypt. Ultimately, the aim is to develop a comprehensive collection of the best that science has to offer (http://www.bibalex.org/supercourse/).

One of the major difficulties associated with teaching about chronic disease epidemiology is the resources required to create and update high-quality lectures and courses. Most professors spend 15 h preparing a 1-h lecture. For a course that has 45 lectures, this would represent 675 h, or about 84 days. In a world of constrained resources and competing priorities, it is rarely possible to devote 16 weeks to creating a course. For this reason, public health is rarely taught outside of schools of public health, despite the interest of students and the requirement for all health professionals and managers to have a basic grasp of the principles that underpin population health, prevention and equity in health and health care. This information gap can be closed with improved access to high-quality teaching materials. Use of mobile technologies for the exchange of these data would amplify the effectiveness with which public health knowledge and expertise is communicated and shared.

**Why should we develop more lectures in the field of cancer prevention?**

WHO estimates that, globally, 60% of deaths are due to chronic disease, of which up to 80% of the related premature death and disability is preventable using existing knowledge and evidence from epidemiology and public health.7,8 This includes a significant proportion of common solid tumours which share systemic, socio-economic, environmental and proximal risk factors.9,10 The theme of cancer and obesity, which is one of the key risk factors for the development of various malignancies, is one of the topics that the Supercourse aims to cover.

Not all of the impact of the continuing increase in the global prevalence of overweight and obesity is appreciated outside expert circles, despite many years of scholarship. Obesity is the major risk factor for the development of several malignancies, such as endometrial, ovarian, breast and prostate cancer. Endometrial carcinoma is the most common gynaecological cancer in the USA,11 a country in which 35% of women participating in the most recently reported National Health and Nutrition Examination Survey were obese.12 In comparison with women who maintain a healthy weight, endometrial cancer is twice as common in overweight women, and more than three times as common in obese women.13 Pre- and postmenopausal women with endometrial cancer are more likely to be overweight than other women.14 Current adiposity and adult weight gain are associated with substantial increases in the risk of endometrial cancer.15 Endometrial cancer is currently a disease of the affluent, developed world, where >40% of its incidence can be attributed to excess body weight.16 Obesity increases the risk of endometrial cancer independent of other factors, but is not associated with stage or grade of disease.17

Previous research18–20 and the Supercourse lectures have highlighted the need for greater attention to the prevention of endometrial cancer. This should include the development of additional educational modules about this malignancy, and its relationship with diet and inactivity.

**Spanish language Supercourse**

Geographical inequalities in the accessibility of timely and reliable information are, in part, a consequence of the dominance of medical literature published in the English language. This may explain why, to date, the majority of visits to the Supercourse sites originate from the USA and India. To reach out to faculty members, the Supercourse has developed a site for Spanish-speaking countries, and a site tailored to the needs of colleagues from the countries of the former Soviet Union (FSU) and newly independent states.

The Latin American Supercourse was launched 3 years ago with parent Supercourse lectures and their Spanish translations. Since then, more than 500 lectures have been translated into Spanish and there have been 40,000 visits to the main webpage. The Latin American Supercourse has over
1000 active members that receive newsletters and updates on a monthly basis.

Google analytics were used to evaluate the number of hits for the parent Supercourse vs the Latin American Supercourse. Basic statistics were used to compare the scores between the parent Supercourse and the Latin American Supercourse. From 10 June 2009 to 10 June 2010, the parent Supercourse received 257,403 unique visits to the home website. The lectures in English were the most popular, followed by Spanish lectures. The translated lectures were evaluated highly with a mean score of >4 (out of 5), which is even higher than that for the parent Supercourse project.

The success of the Latin American Supercourse is very encouraging. It demonstrates that Spanish language lectures are needed and widely used. Further development and evaluation of the Latin American Supercourse project will be the next step of this important endeavour.

Russian language Supercourse for the countries of the former Soviet Union

The Supercourse also aims to collect lectures about public health in the countries of the FSU. As of today, 15 FSU countries have different socio-economic profiles, but still have very similar systems of public health, clinical medicine and information technologies. Although progress varies, FSU countries have not demonstrated the same increase in life expectancy as Western countries over the past 30 years. As Internet and mobile technologies provide an inexpensive way to disseminate knowledge, expertise and interventions, the decision was made to use the Supercourse model to improve prevention in FSU countries. The authors believe that mobile global health will improve global health in high- and low-to-middle-income countries, including those of the FSU. Mobile devices including simple mobile phones, smart phones, iPads, etc. provide public health professionals with technologies that could reduce inequalities in access to existing knowledge and expertise, and the opportunity to participate actively in its future development. Within the next 5 years, it should be possible to reach practically all of the population in FSU countries and a significant proportion of those in low-income countries.

Conclusion

The overall theme of this symposium was emphasizing the importance of prevention of chronic disease, with a particular focus on cancer prevention. Using the Supercourse as an example, the importance of finding inexpensive ways to share prevention information in the area of chronic disease was discussed. The success of this approach can be demonstrated with various countries around the world taking on the Supercourse model. In the context of this symposium, this has been demonstrated by describing the Supercourse efforts in FSU countries and in Mexico. Of particular importance is taking this model beyond the context of global health and exploring other areas of science, as demonstrated through the development of the Science Supercourse in the Library of Alexandria, Egypt. In the future, it is anticipated that mobile technologies, coupled with existing information-sharing pathways, will be of key importance for spreading messages about disease prevention locally and globally.

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References


