

HPB Online: an electronic health education portal in Singapore

Vijaya K, Chan S P, Ho H P C, Lim Y Y L, Lim R

ABSTRACT

In 2001, the Health Promotion Board (HPB) developed HPB Online, an internet-based health education portal to disseminate health messages. The objective of this article is to describe the structure of HPB Online, review its reach as a tool to deliver health information in Singapore, and discuss the advantages of using the internet to complement traditional media such as the television, newspapers and radio. Since its inception in 2001, the numbers of page-views, monthly visits and repeat visitors have increased markedly. The most popular webpages have consistently been Food Info Search. The average length of visit also showed a gradual increase during the study period, from about 11.0 minutes in January 2002 to 18.5 minutes in December 2004. The key advantage of using the HPB Online is that it allows quick delivery of information to the public and this is ideal for time-sensitive issues. It helps Singaporeans to make better informed decisions to maintain and to improve their health. With its high utilisation, the HPB will continue to use the internet as part of its multichannel marketing strategy to disseminate health information.

Keywords: health education portal, Health Promotion Board, HPB Online, internet, webpage

Singapore Med J 2006; 47(1):8-13

INTRODUCTION

The Health Promotion Board (HPB), Singapore, uses a multichannel marketing approach to promote its health messages. In 2001, the HPB developed HPB Online, an internet-based health education portal to disseminate health messages. With the advent of the "internet age" in Singapore, the decision to use the internet as an electronic health education tool by the HPB is a timely one. Computer ownership

in Singapore grew from 63.9% in 2001 to 68.4% in 2002⁽¹⁾. About 60% of Singapore residents aged 15 to 69 years are infocomm literate and the volume of computer users in Singapore has increased by 30.9% from 1.9 million in 2001 to 2.5 million in 2002⁽¹⁾. With a home internet penetration of 59.4% in 2002⁽¹⁾, the internet is a readily-accessible platform to use to disseminate health messages. This paper will describe briefly the structure of HPB Online, review its reach as a tool to deliver health information in Singapore, and discuss the advantages of using the internet to complement traditional media such as the TV, newspapers and radio.

STRUCTURE AND CONTENTS OF HPB ONLINE

HPB Online (www.hpb.gov.sg) provides both corporate and health information through a variety of static and interactive platforms. Without having to leave their homes, the health education portal provides the public easy access to information on HPB and health. The health information is verified by healthcare professionals. The portal is maintained by the Internet Section, Resource Development Department, Marketing and Communication Division, HPB. The start-up cost was S\$400,000 and the annual maintenance is estimated to be about S\$50,000.

HPB monitors the number of visitors, number of page-views, repeated visits and length of visits of the health education portal on a regular basis. However, visitors are not required to provide their particulars when accessing HPB Online. As such, user profiles were not analysed in this article. Some highlights of HPB Online are listed below.

Health information and interactive platforms (eServices)

(i) Food Info Search

Food Info Search consists mainly of three components: energy and nutrient composition of food, recipe analysis, and food intake assessment (Annex 1). It is an interactive online programme that provides the public a

Marketing and
Communication
Division
Health Promotion
Board
3 Second Hospital
Avenue
Singapore 168937

Vijaya K, MBBS,
MSc, FAMS
Director

Resource Development
Department

Ho H P C, BEng
Health Promotion
Executive

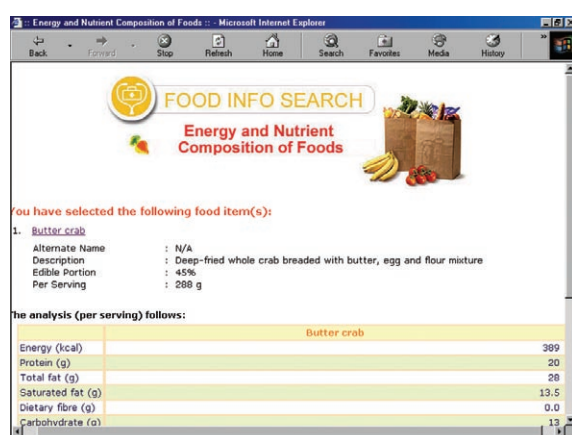
Lim Y Y L, BA
Health Promotion
Executive

Lim R, BSc,
Dip Ed, MPH
Head

National Disease
Registries Office
Research and
Information
Management
Division

Chan S P, BSocSci,
MSc
Senior Statistical
Executive

Correspondence to:
Mr Chan Siew Pang
Tel: (65) 6435 3082
Fax: (65) 6536 6072
Email: chan_siew_pang@hpb.gov.sg

Annex 1. Food Information Search on the energy and nutrient composition of foods.**Food Information Search on recipe analysis.**

convenient channel to obtain the energy and nutrient composition of more than 6,000 food items, analyse recipes and assess their daily diet of up to seven days to ensure their nutritional needs are met. Besides individuals, Food Info Search is a useful tool for students to refer for their school projects, teachers as a teaching tool, nutritionists or dieticians to aid in dietary counselling and food service providers to help them formulate healthier recipes.

(ii) Health A-Z

Health A-Z comprises 3 sections; viz: A-Z diseases, day-to-day health, and healthy lifestyles (Annex 2). Health A-Z consists of health articles on diseases/ailments ranging from acne to myopia to stroke. This section also offers tips for day-to-day health issues like choosing safe toys for children, first aid and kitchen safety. The section, healthy lifestyle, contains tips and information on how to lead a healthy lifestyle.

(iii) Life stages

Life stages section walks through the different stages of our life, that is, from birth to old age and provides information on topics, such as nutrition, mental health and oral health.

(iv) View/download health education materials

Health education materials, such as brochures, booklets and posters, are available for viewing and download (Annex 3).

(v) Book HealthZone tickets

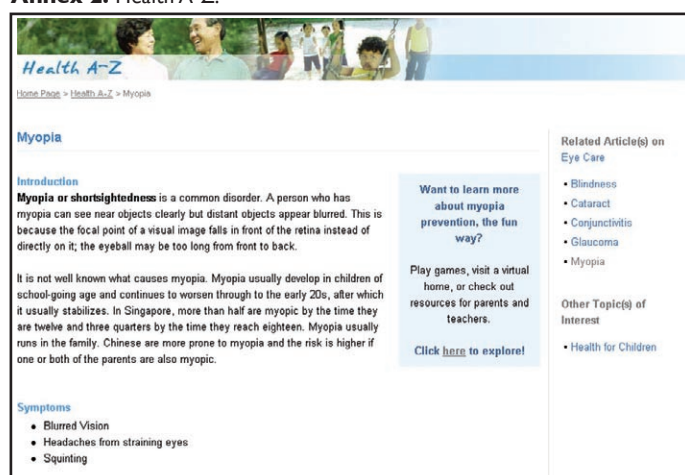
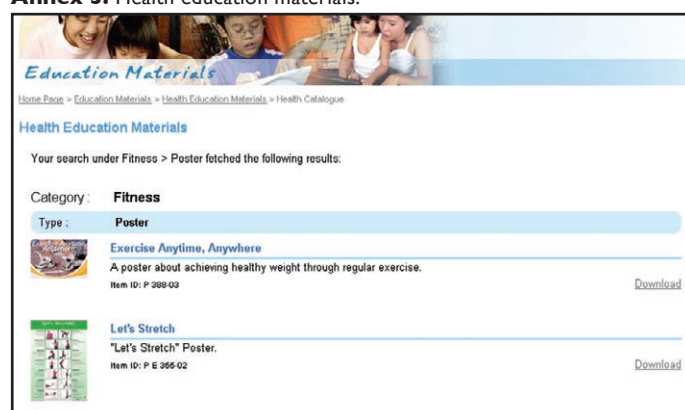
The public may book tickets to HealthZone-HPB's permanent exhibition on healthy living online via a simple booking form (Annex 4).

(vi) Online games

A fun and interesting way to learn about health is through play. HPB Online offers a number of interactive "healthy" games to teach visitors that learning about health can be fun.

(vii) Electronic greeting cards

To help spread the message of the importance of healthy living, HPB Online has an electronic greeting card section, where visitors wanting to send healthy e-cards may design them by selecting a picture from a wide array of health-themed pictures or words/quotes, and sending these unique cards online.

Annex 2. Health A-Z.**Annex 3. Health education materials.****Annex 4. HealthZone.****(viii) Downloadable health software**

Screensavers and fitness calculators are examples of some health software that users may download, install and make use of from their own computers.

(ix) "Ask An Expert"

"Ask An Expert" allows visitors to submit their queries to a panel of experts. All questions will be answered by an expert in the subject area, and questions and answers are posted on the website.

(x) Health Calendar

HPB Online's Health Calendar provides a listing of exciting and informative health events organised by HPB and other organisations.

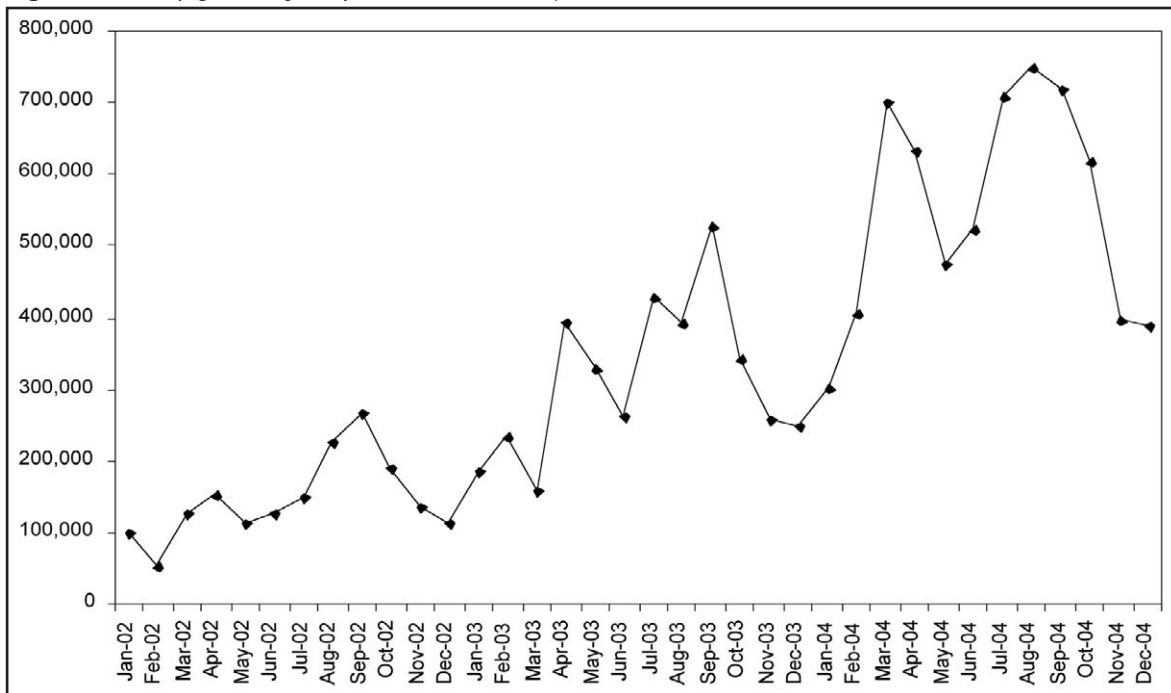
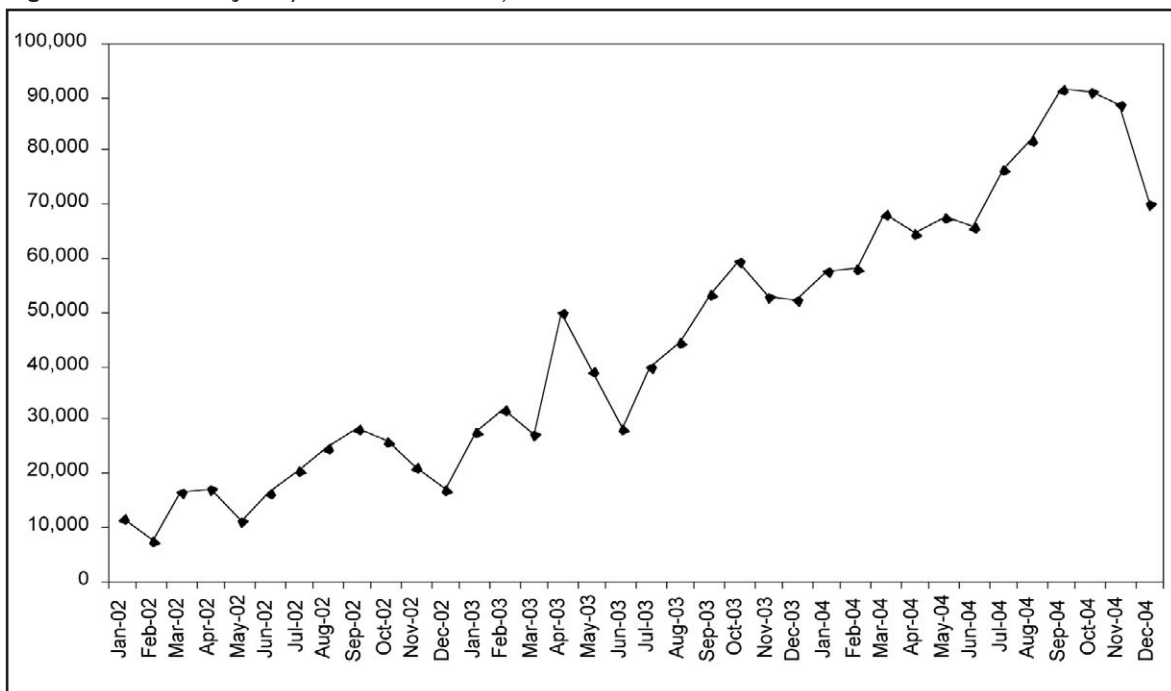
In addition to local organisations, HPB Online has established links with various international bodies, like the World Health Organisation, Communicable Disease Centre, Mayo Clinic, and the US Food and Drug Administration. These links provide easy one-stop access to comprehensive health information.

SUCCESS OF HPB ONLINE

The monthly number of page-views, that is webpages viewed by visitors, increased from 100,591 in January 2002 to 390,092 in December 2004 (Fig. 1). The most popular webpages have consistently been Food Info Search. Regression analysis⁽²⁾ showed that the trend was significant ($p < 0.01$). The model provided a reasonable fit to the data, with an explanatory power of 69.3% (measured by the coefficient of determination, R^2). The number of page-views is usually lower during the local school holidays in May, June, November and December (Fig. 1).

The number of monthly visits also increased markedly from 11,650 in January 2002 to 70,341 in December 2004 (Fig. 2). Regression analysis showed that there was a significant upward trend ($p < 0.01$) for the number of monthly visits during the study period. The model provided a satisfactory fit to the data, with an explanatory power of 92.4%. A similar trend was observed for the number of repeat visitors during the study period. The number of repeat visitors increased from 549 in January 2002 to 4,206 in December 2004 (Fig. 2). The upward trend was statistically significant ($p < 0.01$, $R^2 = 0.91$).

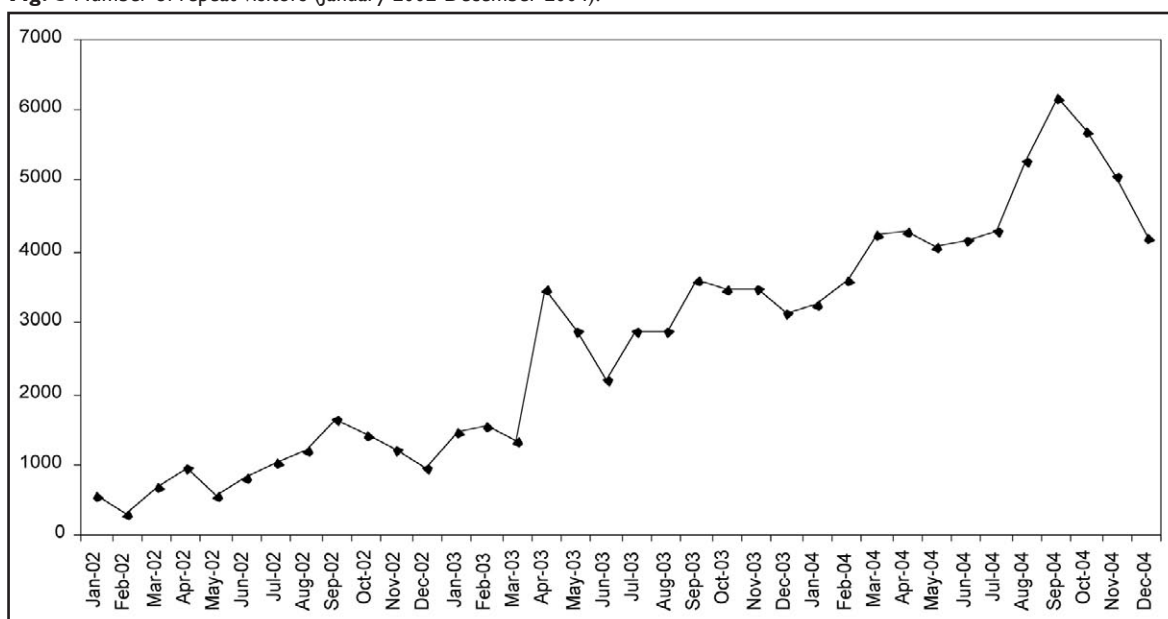
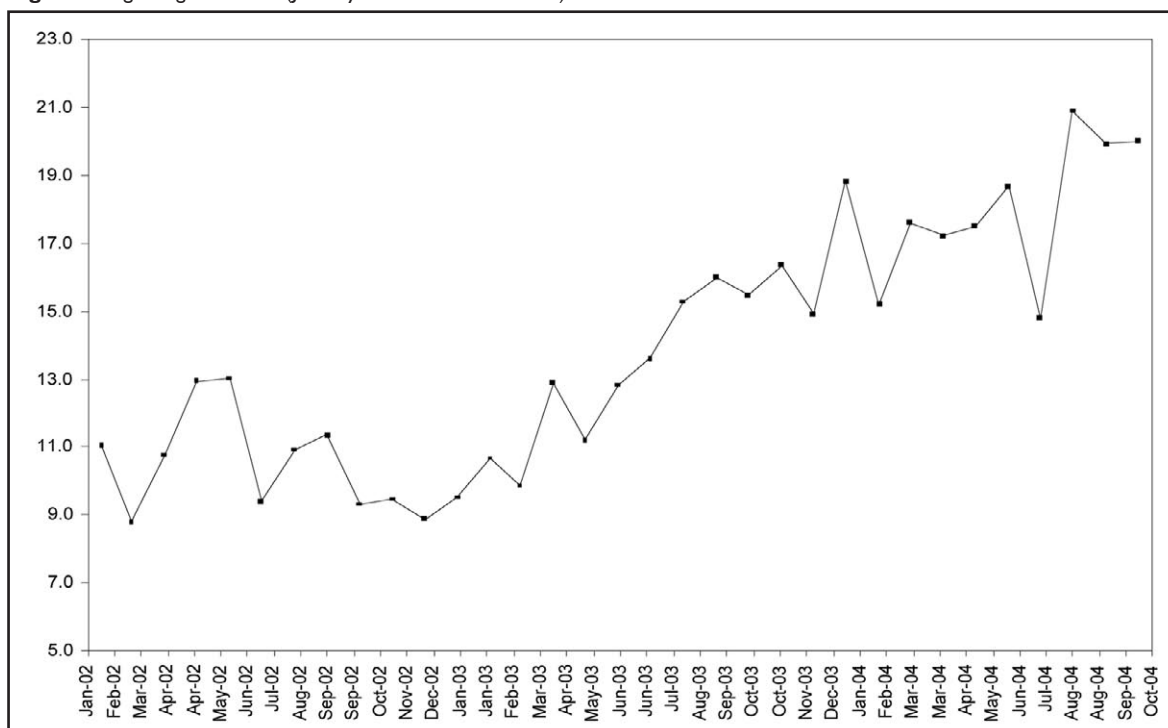
During the severe acute respiratory syndrome (SARS) outbreak in April 2003⁽³⁾, the number of visits and repeat visits reached 50,093 and 3,472,

Fig. 1 Number of page-views (January 2002-December 2004).**Fig. 2** Number of visits (January 2002-December 2004).

respectively. The top five countries where visitors came from, were Singapore, United States of America, Australia, The United Kingdom and Canada. The average length of visit also showed a gradual increase during the study period, from about 11.0 minutes in January 2002 to 18.5 minutes in December 2004 (Fig. 4). This suggests that the visitors of HPB Online were spending a longer time

viewing the webpages. As in the case of the number of page-views, visits and repeated visits, the upward trend of average length of visits was statistically significant ($p < 0.01$; $R^2 = 0.74$).

The Durbin-Watson test⁽⁴⁾ suggests that the residuals of the above-mentioned models were serially correlated. However, when the Newey-West method⁽⁵⁾ was applied for correcting the

Fig. 3 Number of repeat visitors (January 2002-December 2004).**Fig. 4** Average length of visits (January 2002-December 2004).

underestimated standard errors, all trend coefficients turned out to be highly significant. As such, the above results without appropriate correction on the standard errors were still valid.

USEFULNESS OF HPB ONLINE AS A HEALTH EDUCATION TOOL

Beyond the initial investment, HPB Online is an inexpensive medium to provide information. With

a high home internet penetration rate of 59.4%⁽¹⁾, HPB Online is readily accessible to Singaporeans at any time of the day. One main advantage of using the HPB Online is that it allows quick delivery of information to the public and this is ideal for time-sensitive issues. For example, during the SARS outbreak in Singapore in 2003, the internet was one of the key channels used to disseminate information to the public⁽⁶⁾.

Secondly, HPB Online is also able to provide information to various segments of the population. It allows the users to select information they are interested in at their own leisure and enables them to interact with the website and pose a query if any. Thirdly, HPB Online is an ideal system for customer feedback. Customers' feedback submitted via HPB Online can be read immediately and a response is sent to the customer within three days. This increases customer satisfaction.

Another major advantage of HPB Online is that it is able to incorporate multimedia into the published information. For example, HPB Online uses text, pictures, sounds and video clips to make health information more interesting and easier to understand. HPB Online provides a channel for public to submit queries on health, which are answered responded by health professionals.

LIMITATIONS OF HPB ONLINE

While HPB Online may enthuse the infocomm literate segment of the population in Singapore, it may not reach the elderly and less educated who are less infocomm literate. For these segments, other health education channels such as television and radio may be more useful.

CONCLUSION

HPB Online provides a quick delivery of information to the public and allows users to select information they are interested in. It is also an ideal system for visitors to pose questions and submit feedback. The high utilisation of HPB Online has been encouraging. The HPB will continue to use the internet as part of its multichannel marketing strategy to disseminate health information. With a high volume of computer users in Singapore, HPB Online provides an easy access to a wealth of health information, thereby helping Singaporeans to make better informed decisions to maintain and improve their health. In addition, a large-scale study would be launched in the future to profile the users of HPB Online and understand their health information requirements. This will help HPB to cater to their needs effectively.

REFERENCES

1. Annual survey on infocomm usage in households and by individuals for 2002. Infocomm Development Authority of Singapore, 2-7.
2. Studenmund AH. Using Econometrics. New York: Addison Wesley, 1997: 34-168.
3. Chee YC. Heroes and heroines of the war on SARS. Singapore Med J 2003; 44:221-8.
4. Durbin J, Watson GS. Testing for serial correlation in least squares regression. I. Biometrika 1950; 37:409-28.
5. Gujarati DN. Basic econometrics. Boston: McGraw-Hill 2003, 484-5.
6. Vijaya K, Chan SP, Low YY, Foo LL, Lee M, Deurenberg-Yap M. Public knowledge, attitude, behaviour and response to the SARS outbreak in Singapore. Intl J Health Prom Educ 2004; 42:78-82.