

Timeliness of over-the-counter drug sales as an early indicator of community disease outbreaks in Hong Kong

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OBJECTIVE

This study evaluates whether over-the-counter (OTC) drug sales can serve as an earlier indicator for detecting community disease outbreaks in Hong Kong.

BACKGROUND

Overseas studies showed that increases in OTC drug sales might serve as an indicator of community disease outbreaks before they are detected by conventional surveillance systems. Using data collected retrospectively from commercial drug retailers, the Department of Health of Hong Kong conducted an exploratory study to examine the potential of monitoring OTC drug sales for early detection of community disease outbreaks.

METHODS

Weekly historical sales data on selected common cold medications were obtained through a market research firm from multiple retail channels in Hong Kong during two previous influenza seasons, October 2002-April 2003 and October 2003-April 2004, respectively. The data covered selected brands of common cold medications that were used as a relief for chest or bronchial colds, nasal congestion, and sinusitis pain, with an active sales over the two time periods. There are about 2,900 OTC drug vendors in Hong Kong. Our sales data were collected from about 1,700 retail outlets of 8 key chains on a weekly basis.

Each set of OTC drug sales data was compared against weekly ILI consultation rates recorded at our sentinel private practitioners and public out-patient clinics by CHP for the two respective influenza seasons. Lagged correlations were computed to examine the degree of correlation between the datasets and the lead time of OTC drug sales relative to sentinel influenza activities.

RESULTS

Sales of common cold medications started to accelerate in mid-October for both influenza seasons, with the first sales peak observed during November (Figure 1). Subsequent sales increases occurred earlier in late December in the 2003/04 season, as compared to the peak in January during the 2002/03 season. A dramatic sales increase was observed in early March in 2002/03 period following the SARS outbreak. The OTC drug sales were further compared against ILI activities detected by the sentinel surveillance systems. As reflected by our

sentinel surveillance systems, influenza activities peaked during annual influenza epidemic from January to March in 2002/03 season, slightly overlapped with the SARS outbreak in early March. Sales of common cold medications increased substantially from late October 2002 to early February 2003 before a sharp rise in ILI consultation rates in early January. The peak of the 2003/04 influenza epidemic occurred in February 2004, slightly later than the previous winter influenza season. Spikes in common cold medications sales were observed since early September 2003 and continued to rise till late February, preceded increases in influenza activities as detected by the sentinel surveillance systems.

Lead time of OTC drug sales was constructed by measuring the cross correlations between ILI consultations at both sentinel surveillance systems and common cold medications sales. During 2002/03 flu season, spikes in common cold medications sales preceded increases in ILI consultations at sentinel private practitioners by 1 week with a maximum correlation of 0.63, yet no positive lead time was shown when compared with ILI surveillance at sentinel public out-patient clinics (0.61 at week 2). Likewise, a longer lead time of common cold medications sales relative to sentinel ILI surveillance was observed during 2003/04 season, with OTC drug sales preceded ILI surveillance at private practitioners by 10 weeks (correlation value = 0.68) and at public outpatient clinics by 8 weeks (correlation value = 0.72) respectively.

CONCLUSIONS

The study demonstrated a lead time of OTC drug sales from 1 to 10 weeks for both seasons. However, the observed lead time might be attributed to other factors such as annual sales promotion, and stockpiling of drugs before annual flu season, especially during and after the SARS outbreak. Due to the dominance of OTC drug market by some key chains in this study, other factors such as advertising, pricing and sales promotion may affect the overall sales of common cold medications. However, there remains an inconsistency in the reliability of OTC drug sales and further research into its potential for early detection of disease outbreaks in Hong Kong will be needed.

Further Information:

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