

# Survey of Pre-Clinical Behavior – What Do People Do When They Get Sick?

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## OBJECTIVE

This study describes the results of a survey given to patients to determine if any changes occurred in their behavior secondary to the illness that could potentially be tracked and used to detect a disease outbreak.

## BACKGROUND

The impetus for the development of many first syndromic surveillance systems was the hope of detecting infectious disease outbreaks earlier than with traditional surveillance. Various data sources have been suggested as potential disease indicators (1,2). Researchers have analyzed many of these, including those resulting from behaviors that change due to illness, such as purchasing medications, missing school or work, and using health care call centers or the internet to obtain health information. To define the prodromal behavior of patients presenting for care of acute illnesses, we initiated a pilot survey in the emergency room and acute care clinics at Walter Reed Army Medical Center.

## METHODS

We placed adult and pediatric questionnaires in the waiting areas of the Walter Reed Army Medical Center's adult and pediatric acute care clinics, and emergency room from 4/19/04 - 11/16/2005. A poster described the purpose of the study and asked patients to participate. In addition, a researcher went to the waiting rooms during busy periods to request participation. Anyone with the following symptoms that had been present for less than 3 weeks were invited to complete a questionnaire: cough, pharyngitis, fever, chills, rhinorrhea, nausea, vomiting, diarrhea, headache, dyspnea, joint aches, fatigue or any other symptom consistent with an infectious disease process. The questionnaire solicited information in the following areas: demographics, symptoms, use and purchases of medicines or medical equipment, absence from work or school, use of private and public transportation, visits to healthcare providers, use of medical advice lines and the internet, and overall state of health and usual interactions with the healthcare system. We did not obtain any identifying information. We had to end the study prematurely due to loss of funding.

## RESULTS

We obtained 181 adult and 14 pediatric questionnaires, with 55% reporting a first visit for the current problem. The most frequent complaint was fatigue, followed by headache, cough or sore throat, joint aches and rhinorrhea. Only 4% reported the day of visit as the first day they had symptoms. 53% reported that they missed work or school because of the illness, with 34% absent before the day of the healthcare visit. A minority of patients accessed advice via phone (26%) or the internet (29%). 55% reported taking over-the-counter medications and 46% took them before the day of medical visit, with 71% of these patients purchasing medications for this illness and 34% using medications at home or from a friend or relative. Only 13% reported taking an herbal supplement. More patients reported missing work or school for gastrointestinal than respiratory illnesses (73% vs. 39%), but more reported taking OTC medications for respiratory illness (76% vs. 7%). Only 20% of patients reported a decrease in public transportation usage, with 10% reporting an increase in usage.

## CONCLUSIONS

Patients change their behavior secondary to illnesses in ways that can be measured. The most significant are missing work or school and purchasing medications. These behaviors can start over 2 weeks prior to a healthcare provider visit, suggesting that tracking these absences or purchases may provide an advance in detecting an outbreak of illness in a population. Other behaviors, such as a change in mass transit usage or internet queries are less likely to be related to a change in health status. Our results are limited by our inability to continue the study to survey more patients.

## REFERENCES

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