# The Value of Patient Reports in Syndrome Assignment

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## OBJECTIVE

To determine whether patients and their families can directly provide medical information that enables syndrome classification.

## BACKGROUND

Of critical importance to the success of syndromic surveillance systems is the ability to collect data in a timely manner and thus ensure rapid detection of disease outbreaks. Most emergency department-based syndromic surveillance systems use information routinely collected in patient care including patient chief complaints (CC) and physician diagnostic coding [1,2]. These sources of data have been shown to have only limited sensitivities for the identification of certain syndromes [1,2]. Another potential source of information, which has not been previously studied, is the patient. Studies have shown that patients as well as parents can accurately report information about their own or their child's illness [3,4]. The value of of patient and parent self-reported information for disease surveillance systems has not been measured.

## METHODS

Patients and parents were recruited in the ED waiting room of an urban, tertiary care children's hospital. Children between the ages of 0 and 22 years were eligible to participate and the parents asked to use a syndrome-assignment tool with questions pertaining to the child's current illness. After the visit, the subject's medical record was abstracted and syndrome assignments made by two independent reviewers using a set of strict criteria. Differences in classification were resolved by consensus. Records were categorized into up to 3 syndromes (fever, respiratory, gastrointestinal, allergic, dermatological, neurological, injury, and other). This classification served as the gold standard metric. Responses to the questions were used to classify subjects into syndrome categories using recursive partitioning (CART 5.0, Salford Systems) and the sensitivity and specificity of the survey tool for each of the syndrome categories determined. These results were compared using McNemar's test to syndrome assignments derived from patient CCs [1] and physician diagnostic codes.

## RESULTS

A total of 936 subjects were recruited. The sensitivity and specificity of the self-report tool are shown in the following table along with the results for the CC-based categorization:

| Syndrome category | Self-report tool | | Chief complaint | | P value* |
|---|---|---|---|---|---|
| | Sens (%) | Spec (%) | Sens (%) | Spec (%) | |
| **Fever** | 91 | 88 | 48 | 98 | <0.001 |
| **Respiratory** | 88 | 82 | 42 | 97 | <0.001 |
| **GI** | 86 | 91 | 78 | 96 | <0.001 |
| **Neurological** | 74 | 88 | 60 | 99 | <0.001 |
| **Allergic** | 90 | 99 | 50 | 99 | 0.003 |
| **Dermatologic** | 82 | 87 | 37 | 99 | <0.001 |
| **Injury** | 98 | 94 | 84 | 98 | <0.001 |
| **Other** | 70 | 83 | 62 | 97 | 0.287 |

*McNemar's test used for comparison of sensitivities

Findings were similar for syndrome categorization based on physician diagnostic codes ($p<.001$ for all syndrome comparisons).

## CONCLUSIONS

Classifications based on patient reported data were much more sensitive in correctly identifying a syndrome than CC or diagnostic code data, which are the sources of data currently used by most syndromic surveillance systems. Involving patients in the syndrome assignment process may be a cost-efficient and effective method of improving the accuracy of syndromic surveillance systems.

## REFERENCES

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