The Role Of National Retail Data Monitor (NRDM) In Gastrointestinal Illness Outbreak Investigation, Washoe County, Nevada

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OBJECTIVE

The objective of this paper is to evaluate the role of National Retail Data Monitor (NRDM) in gastrointestinal (GI) illness outbreak investigation in Washoe County, Nevada. The evaluation will focus on usefulness of system, sensitivity, positive predictive value, representativeness, and timeliness followed by updated CDC guidelines [1].

BACKGROUND

NRDM is a public health surveillance tool that collects and analyzes daily sales data for over-the-counter (OTC) health-care products from >15,000 retail stores nationwide [2]. This is a system developed by Real-Time Outbreak and Disease Surveillance (RODS) Laboratory. NRDM has been in continuous operation since December 2002 [3]. The Washoe County District Health Department (WCDHD) implemented this system in November 2003. During initial phase of implementation, NRDM was used retrospectively on as-needed basis. Since September 2004, monitoring NRDM for volume of OTC sales for anti-diarrhea medications became a daily routine.

METHODS

Background Data – Data on retail pharmacy stores located in Washoe County were obtained through local phone book and internet. Geocode data on these stores were provided by Washoe County GIS Office. Number of participating stores was provided by RODS Laboratory. **GI Illness Outbreak Data** – Data on outbreak reported between September 1, 2004 and June 30, 2005 were retrieved from existing in-house outbreak reporting system and utilized for analysis. **NRDM Data** - Signals and zip code for unusual numbers of anti-diarrhea medication sales were documented by day on which signal is seen. Signals are defined as yellow (Y), orange (O), and red (R) spots seen in MapPlot. CDC guidelines [1] were followed for evaluation of system attributes such as sensitivity, positive predictive value (PPV), representativeness, timeliness, and usefulness.

RESULTS

As of June 30, 2005, a total of 107 retail pharmacy stores from 19 national chains locate in Washoe County and 10 stores from three national chains participate in NRDM (Figure). Coverage rate was 9.3% (10/107), which was not well represented and lower than national average at 40% [2]. Of 17 GI illness outbreaks or clusters reported, 10 were

Retail Pharmacy Stores in Washoe County, Nevada, June 2005

confirmed by laboratory test. Etiologies were norovirus or Enterotoxigenic *Escherichia coli* (ETEC). A total of 359 persons reported GI illness. Size of outbreak or cluster varied from two to 138 per outbreak/cluster (median: 14 per event). Of 298 days, 75 signals on 66 days were observed. Sensitivity of NRDM was 47% (R+O+Y), 35% (R+O), 24% (R), respectively. PPV was 11% (R+O+Y), 13% (R+O), 13 (R), respectively. Sensitivity and PPV were re-evaluated after signals observed in one zip code were excluded. Sensitivity of NRDM was 41% (R+O+Y), 29% (R+O), 18% (R), respectively. PPV was 16% (R+O+Y), 23% (R+O), 30% (R), respectively. In terms of timeliness, report received was one day earlier than signal observed.

CONCLUSIONS

Although coverage was low, NRDM demonstrated a unique supplementary role in GI illness outbreak detection. Recruitment of more stores and reduction in data submission latency may significantly improve system performance and prediction function. Continuation of monitoring NRDM is ongoing and further evaluation will be conducted when more data is available.

REFERENCES

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