CD Summary

June 14, 2005
Vol. 54, No. 12

Telephone 503/731-4024
Emergencies 503/731-4030
Fax 503/731-4798

cd.summary@state.or.us
www.oregon.gov/DHS/ph/cdsummary/

AN EPIDEMIOLOGY PUBLICATION OF THE OREGON DEPARTMENT OF HUMAN SERVICES

BORBORYGMI REVISITED: OUTBREAKS OF GASTROENTERITIS, 1998–2005

OUTBREAK investigations have been the primary catalyst for the flowering of epidemiological science and much of public health practice over the past few centuries. Who can forget the contributions of those giants of yesteryear: of Snow on cholera, Panum on measles, Semmelweis on puerpural sepsis, Baker on lead poisoning, Goldberger on pellagra, Fleming on Brazilian purpuric fever—to name only a few.

Elucidating the causes of outbreaks allows us to take public health action—e.g., removing a product from the market, mounting a vaccination campaign, or advising people about how to reduce their risk. But in addition, outbreaks are of disproportionate importance to our understanding of disease transmission, giving us insights into risk factors for infection or exposure, illustrating the spectrum of disease through "experiments of nature," stimulating research, and influencing policy development.

This issue of the *CD Summary* reviews the most common type of outbreaks—viz., gastrointestinal—reported in Oregon since 1998.

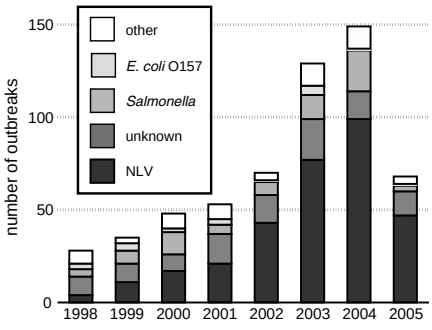
OVERVIEW

Since January 1998, we have logged 580 investigations of gastrointestinal disease clusters affecting Oregon residents. Vomiting and diarrhea characterize the vast majority of clusters investigated in Oregon and elsewhere in the United States. Although we hear, on average, of more than 3 new ones each week, most outbreaks are never recognized, reported, or investigated.

These outbreaks were investigated by a panoply of local, state, national, and sometimes even international partners. Some "investigations" consisted of a couple of phone calls and perhaps 30 minutes of person-time; others took weeks or months of work. At least 27 clusters involved multi-state exposures (e.g., nationally distributed food products); 28 were multi-county within Oregon, 9 involved exposures in other states, and 6 occurred outside the United States (e.g., a group of college students developing shigellosis while on tour).

The number of outbreaks logged each year has increased steadily (see figure). This reflects increased public health alacrity around communicable diseases—both at local and state levels in Oregon—made possible by federal funding designed to prepare us for outbreaks that might be wrought by bioterrorists. In preparing for those, we have been getting a little better at detecting and solving the ones that occur in the absence of malice. In a sense, the more outbreaks we identify, the better our system is functioning. Many clusters have been small: 103 (18%) involved <5 cases; 333 (57%) involved <20 victims. Most reports, however, count only those systematically interviewed—e.g., those whose restaurant credit-card receipts led us to them; but many times that many may have been stricken.

Gastrointestinal Outbreaks, Oregon, 1998–June 2005



While our observations are often couched in qualifiers, disclaimers, and caveats, of one thing we are certain (or at least pretty sure): the statistics for outbreaks of acute gastroenteritis are driven by Norwalk-like viruses (NLVs, increasingly referred to as "noroviruses"). At least 55% (319/580) of the reported GI outbreaks since 1998 were caused by NLVs—and probably more, as some of the 19% that are officially of "unknown" origin are no doubt Norwalk also.

For all practical purposes, NLV infections are only confirmed through outbreak investigations by public health agencies. Private labs rarely if ever test for NLV. Without laboratory reporting (the linchpin of surveillance for salmonellosis, shigellosis, and the like) NLV outbreaks are identified only when citizens or their physicians notify public health agencies directly about clusters of illness. NLVs are shed in stool and vomitus by infected humans, symptomatic or otherwise. The incubation period for most NLV infections is 24–48 hours; the *median* for groups of any size is almost always 30–38 hours. At least 40% (128/319) of the Norwalk outbreaks reported in this period were clearly foodborne; a similar proportion of clusters (37%) were predominantly spread directly from person to person. Most of the balance were probably split between these two modalities; data were insufficient to determine.

Salmonella was the second most commonly identified etiologic agent, accounting for 73 (13%) of all recognized clusters. The combination of mandatory reporting, mandatory submission of isolates to the public health lab, routine serotyping, and, more recently, molecular subtyping makes identification of these outbreaks *relatively* easy—if you can call all that work "easy." One wonders what would happen if a similar degree of attention were given to our many *Campylobacter* cases, which typically outnumber *Salmonella* cases by 2:1.

The **CD Summary** (ISSN 0744-7035) is published biweekly, free of charge, by the Oregon Dept. of Human Services, Office of Communicable Disease and Epidemiology, 800 NE Oregon St., Portland, OR 97232 Periodicals postage paid at Portland, Oregon.
Postmaster—send address changes to:
CD Summary, 800 NE Oregon St., Suite 730, Portland, OR 97232

CD SUMMARY

June 14, 2005
Vol. 54, No. 12

PERIODICALS
POSTAGE
PAID
Portland, Oregon

DHS

If you need this material in an alternate format, call us at 503/731-4024.

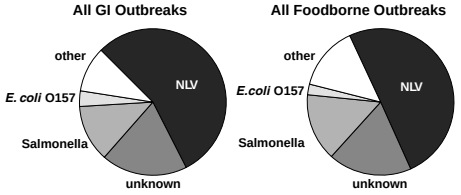
IF YOU WOULD PREFER to have your *CD Summary* delivered by e-mail, zap your request to *cd.summary@state.or.us*. Please include your full name and mailing address (not just your e-mail address), so that we can effectively purge you from our print mailing list, thus saving trees, taxpayer dollars, postal worker injuries, etc.

No pathogen was identified for 110 clusters (19%). Specimens were submitted for testing in but a minority of those outbreaks—which does make it harder.

Among all GI outbreaks investigated, at least 44% (255/580) were clearly foodborne. The true proportion is higher than that, as the principal routes were "indeterminate" or "unknown" for another 14% and 13%, respectively. Foodborne outbreaks may be more likely to be recognized and reported that other kinds of clusters. Person-to-person outbreaks are marked by the absence of a sharply defined peak of onsets. Depending on the agent, though, outbreaks identified as food- or waterborne can have either antecedent or subsequent transmission that is person-to-person, so these black-and-white categories mask a more nuanced reality.

The pathogen profile of the 255 "foodborne" outbreaks is very similar to that of all of the 580 GI outbreaks (see figures).* At least 128 (50%) were caused by NLVs; *Salmonella* of one kind or another accounted for 38 (15%). No specific pathogen was identified in 47 (18%) of foodborne clusters. A specific vehicle was identified in at least 79 (31%) of the foodborne outbreaks.

Outbreaks by Etiology, Oregon, 1998–2005



* A small number of outbreaks (9 to be exact, mostly scombroid) were foodborne but not marked by gastroenteritis; these are excluded from this analysis.

Well, we're finally out of space, so we will spare you additional details. We close with the customary supplication: please report outbreaks of any disease to your nearest local health department.

Impending Rule Changes

THE 1951 FILM *The Day the Earth Stood Still* opens with a spaceship orbiting Earth and landing on the Mall in Washington, D.C. An alien emerges from the craft, along with a giant robot. When the alien proffers a gift to his *ad hoc* military welcoming committee, he is shot by a nervous G.I. Thereafter unfold events that threaten the very existence of the human race.

Sounds familiar, right? Experience has taught us that microbial pathogens can and will continue to emerge from unexpected places to threaten life as we know it. SARS, avian flu, hantaviruses—none of these horrors were appreciated only a few years ago. And today's geopolitical climate holds the promise of Frankenbugs intentionally unleashed by enemies foreign and domestic.

Our first lines of defense, of course, are the Oregon Administrative Rules (OARs). Readers will be reassured to learn that we have again adjusted to new public health challenges. New rules should take effect by July 5.

The changes are relatively minor. Highlights include new language in 333-018-0010(4) requiring healthcare workers and institutions to provide public health officials with information relevant to investigations of reportable diseases or conditions, including outbreaks. This makes long-standing public health practice more explicit and demonstrates more clearly that HIPAA is not a barrier to sharing information with public health agencies.

We've added two items to the list of reportable diseases: SARS (Severe Acute Respiratory Syndrome) and transmissible spongiform encephalopathies, e.g., Creutzfeldt-Jakob disease (CJD), "new variant" CJD, and kuru.† SARS is already reportable, of course—an exemplar of the catch-all category "Uncommon Illness of Potential Public Health Significance"; but this eliminates any wiggle room. Making all cases of CJD reportable will position us better to detect variant cases that may indicate a problem with consumption of products derived from mad cows. With some trepidation, we are also adopting the position of the Council of State and Territorial Epidemiologists to require reporting of all positive hepatitis C serologies.

Finally, we've streamlined the number of reporting categories by moving several of the "exceptional" diseases to the "normal" category, where "normal" means "report by the next working day."

† Absent new evidence of its transmissibility, reporting of patients with Gerstmann-Sträussler-Scheinker syndrome will continue to be optional.