OUTBREAKS REVIEWED

Records are kept by the Division of Epidemiology of all reported outbreaks in the State. These records were recently reviewed for the period 1972 through 1981, and what follows is a summary of that review. Three hundred fifty-nine outbreaks were reported during the decade, and these outbreaks involved 14,773 persons. The greatest number of outbreaks were categorized as either nosocomial, foodborne or due to measles (Table 1). Measles outbreaks involved the greatest number of cases (6,458) and the highest mean number of cases per outbreak (104).

An outbreak was defined as an incident in which a) two or more persons experienced a similar illness and b) epidemiologic analysis suggested a common exposure or risk factor. The only exception was for botulism: one case constituted an outbreak.

<table>
<thead>
<tr>
<th>Table 1. Reported Outbreaks 1972 - 1981</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Nosocomial</td>
</tr>
<tr>
<td>Foodborne</td>
</tr>
<tr>
<td>Measles</td>
</tr>
<tr>
<td>Rubella</td>
</tr>
<tr>
<td>Shigella</td>
</tr>
<tr>
<td>Hepatitis (A, B)</td>
</tr>
<tr>
<td>Miscellaneous</td>
</tr>
<tr>
<td>Aseptic Meningitis</td>
</tr>
<tr>
<td>Occupational/Toxin</td>
</tr>
<tr>
<td>Waterborne</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Eighty-eight nosocomial outbreaks were reported during the decade. *Staphylococcus aureus* was the most common etiologic agent, the newborn nursery was the most common hospital service involved, and pyoderma was the most commonly reported expression of this illness (Table 2).

<table>
<thead>
<tr>
<th>Etiology</th>
<th>Number (%)</th>
<th>Service</th>
<th>Number (%)</th>
<th>Illness</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Staph aureus</em></td>
<td>41 (47)</td>
<td>Nursery</td>
<td>39 (44)</td>
<td>Pyoderma</td>
<td>28 (29)</td>
</tr>
<tr>
<td>Unknown</td>
<td>19 (22)</td>
<td>Unknown</td>
<td>17 (19)</td>
<td>Septicemia</td>
<td>15 (16)</td>
</tr>
<tr>
<td>Gram negative bacilli</td>
<td>13 (15)</td>
<td>Intensive care</td>
<td>10 (11)</td>
<td>Respiratory</td>
<td>11 (11)</td>
</tr>
<tr>
<td>Viral</td>
<td>7 (8)</td>
<td>Chronic care</td>
<td>8 (9)</td>
<td>Unknown</td>
<td>11 (11)</td>
</tr>
<tr>
<td>Other</td>
<td>8 (9)</td>
<td>Other</td>
<td>14 (16)</td>
<td>Gastrointestinal</td>
<td>10 (10)</td>
</tr>
<tr>
<td>Total</td>
<td>88 (100)</td>
<td>Total</td>
<td>88 (100)</td>
<td>Total</td>
<td>97* (100)</td>
</tr>
</tbody>
</table>

*More than one illness type seen for several outbreaks.*

Seventy-three foodborne outbreaks were reported during the same period. Again, *Staphylococcus aureus* was the most common etiologic agent (Table 3). Beef was the most commonly implicated food item, and commercial eating establishments were the most common sites at which foods were mishandled.

<table>
<thead>
<tr>
<th>Agent</th>
<th>Number (%)</th>
<th>Vehicle</th>
<th>Number (%)</th>
<th>Location</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Staph aureus</em></td>
<td>24 (33)</td>
<td>Beef</td>
<td>17 (21)</td>
<td>Restaurant</td>
<td>27 (37)</td>
</tr>
<tr>
<td>Salmonella sp.</td>
<td>16 (22)</td>
<td>Unknown</td>
<td>14 (18)</td>
<td>Home</td>
<td>12 (16)</td>
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<tr>
<td>Clostridium perfringens</td>
<td>10 (14)</td>
<td>Pork</td>
<td>12 (15)</td>
<td>School/Univ.</td>
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<tr>
<td>Unknown</td>
<td>9 (12)</td>
<td>Fowl</td>
<td>12 (15)</td>
<td>Store</td>
<td>5 (7)</td>
</tr>
<tr>
<td>Bacillus cereus</td>
<td>3 (4)</td>
<td>Dairy/Egg</td>
<td>10 (13)</td>
<td>Club</td>
<td>5 (7)</td>
</tr>
<tr>
<td>Shigella sp.</td>
<td>3 (4)</td>
<td>Seafood</td>
<td>5 (6)</td>
<td>Military</td>
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<tr>
<td>Other</td>
<td>8 (11)</td>
<td>Other</td>
<td>10 (13)</td>
<td>Other</td>
<td>12 (16)</td>
</tr>
<tr>
<td>Total</td>
<td>73 (100)</td>
<td>Total</td>
<td>80* (100)</td>
<td>Total</td>
<td>73 (100)</td>
</tr>
</tbody>
</table>

*Two food items were implicated in seven outbreaks.*
Of 31 reported rubella outbreaks during the decade, 17 (55%) occurred on college or university campuses, 9 (29%) were associated with schools, usually high schools or junior high schools, and two (7%) occurred on military bases.

There were only four reported waterborne outbreaks during the decade. Two were associated with contaminated drinking water; one was caused by arsenic in a private well, and the other by chlordane which had been introduced into a community water supply by back siphonage. The other two outbreaks were associated with recreational water use; ill persons in both outbreaks had an acute gastrointestinal illness of unknown etiology after swimming. One involved a swimming pool, and the other, a creek.

(Reported by Joanne E. Butler, R.N., Nurse Epidemiologist, Division of Epidemiology).

Editor's Comment:

National surveillance of nosocomial infections has demonstrated the overall etiologic importance of gram negative organisms. This is due, in large part, to the relatively high proportion of all nosocomial infections which involve the urinary tract (1). When considering outbreaks, however, S. aureus was clearly the etiologic agent most frequently reported in Virginia. This was due to the relatively high number of reported outbreaks of pyoderma in newborn nurseries.

The foodborne outbreaks reported in Virginia illustrate the importance of salmonella and S. aureus as etiologic agents, meat and poultry as vehicles of transmission, and restaurants as a source of food mishandling. National surveillance of foodborne outbreaks has provided very similar findings (2).

The fact that 55 percent of rubella outbreaks occurred on college and university campuses illustrates the shift that has occurred in the age group at risk, and is worrisome in view of the potential for infection of pregnant students. It is estimated that 10%-20% of persons > 18 years of age remain susceptible to rubella, and colleges and universities have been urged to require proof of immunity (documented rubella vaccination or demonstrated protective antibody level) for admission (3).

Both of the Virginia outbreaks associated with recreational water use were manifested by an acute gastrointestinal illness of unknown etiology (AGI). National surveillance reveals that AGI has been the waterborne (water intended for drinking) outbreak category most frequently reported (4). Many outbreaks in other states have had to be classified as AGI, since frequently no etiologic agent was found in spite of careful search for bacterial, parasitic and known viral agents (5).

REFERENCES

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<th>THIS MONTH</th>
<th>LAST MONTH</th>
<th>TOTAL TO DATE 1983</th>
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<th>MEAN 5 YEAR TO DATE</th>
<th>REGIONS THIS MONTH</th>
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<td>107</td>
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</tr>
</tbody>
</table>

COUNTIES REPORTING ANIMAL RABIES: Arlington 2 raccoons; Fairfax 2 skunks, 48 raccoons, 1 rodent; Faquier 2 raccoons; Frederick 1 skunk, 2 raccoons; Greene 1 raccoon; Loudoun 1 skunk, 3 raccoons; Orange 2 raccoons; Prince Wm. 1 skunk, 10 raccoons; Rockingham 1 skunk, 1 raccoon, Stafford 3 raccoons; Westmoreland 1 raccoon. Occupational pneumoconioses 11; Occupational dermatitis; Occupational hearing loss 4; Asbestosis 1; Mesothelioma 1.

* 3 years.

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