Sporadic viral gastroenteritis
Epidemic viral gastroenteritis
The Public Health Risks of Inadequate Wastewater Treatment

Danna Revis, MALT, MAOSE, MAOSSO
September 2, 1992

GMP #2

MEMORANDUM

TO: District Directors
   Environmental Health Project Managers
   Environmental Health Managers
   Environmental Health Supervisors

FROM: Robert B. Stroube, M.D., M.P.H.
      State Health Commissioner

SUBJECT: Health and Environmental Considerations in Evaluating Applications for Onsite Sewage Disposal Systems

For millions of Americans, an onsite sewage disposal system (or "septic tank system") serves as a satisfactory sewage disposal device. Properly installed on a suitable lot, an onsite system presents few hygienic problems. However, the use of onsite systems on lots with limited soil permeability and/or a high level of water saturation, or other limiting conditions, presents a wide array of health and environmental concerns.

It is of the utmost importance that these concerns be taken into consideration when analyzing an application for the operation of such a system. Primary problems stemming from the defective
GMP 1992-01 (GMP 2)

- Salmonellosis
- Shigellosis
- Sporadic viral gastroenteritis
- Epidemic viral gastroenteritis
- Amebiasis
- Cholera
- Viral hepatitis A
Salmonellosis
Salmonella typhi

“TYPHOID MARY”

The Extraordinary Predicament of Mary Mallon, a Prisoner on New York’s Quarantine Hospital

By Dr. Wm. H. Parks, New York Board of Health.
Shigellosis
Shigella
dysenteriae
Amebiasis

Cryptosporidium parvum

Giardia lamblia
Cholera

Vibrio cholerae
Hospital Beds

Product Code: BSI 9006
Product Name: Cholera Bed
Viral hepatitis A
TABLE 2. Risk exposures of hepatitis A outbreak–associated patients, by state — four states, 2017

<table>
<thead>
<tr>
<th>Reported risk exposure</th>
<th>No. (%)</th>
<th>California</th>
<th>Kentucky</th>
<th>Michigan</th>
<th>Utah</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homelessness and drug use</td>
<td>395 (26)</td>
<td>247 (36)</td>
<td>27 (46)</td>
<td>64 (10)</td>
<td>75 (51)</td>
<td></td>
</tr>
<tr>
<td>Homelessness only</td>
<td>78 (5)</td>
<td>65 (10)</td>
<td>3 (5)</td>
<td>7 (1)</td>
<td>5 (3)</td>
<td></td>
</tr>
<tr>
<td>Homelessness, drug use unknown</td>
<td>51 (3)</td>
<td>43 (6)</td>
<td>2 (3)</td>
<td>2 (0.3)</td>
<td>5 (3)</td>
<td></td>
</tr>
<tr>
<td>Drug use only</td>
<td>265 (17)</td>
<td>67 (10)</td>
<td>11 (19)</td>
<td>165 (26)</td>
<td>28 (19)</td>
<td></td>
</tr>
<tr>
<td>Drug use, homelessness unknown</td>
<td>77 (5)</td>
<td>11 (2)</td>
<td>1 (2)</td>
<td>58 (9)</td>
<td>7 (5)</td>
<td></td>
</tr>
<tr>
<td>Neither homelessness nor drug use</td>
<td>504 (33)</td>
<td>190 (28)</td>
<td>13 (22)</td>
<td>286 (45)</td>
<td>15 (10)</td>
<td></td>
</tr>
<tr>
<td>Men who have sex with men</td>
<td>81 (5)</td>
<td>18 (3)</td>
<td>4 (7)</td>
<td>61 (10)</td>
<td>1 (0.7)</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>114 (8)</td>
<td>59 (9)</td>
<td>2 (3)</td>
<td>27 (4)</td>
<td>13 (9)</td>
<td></td>
</tr>
</tbody>
</table>
Other diseases
Hookworm, a disease of extreme poverty, is thriving in the US south. Why?
Case studies
California real estate is so expensive that families, retirees, and even tech workers are living in cars and vans

Hillary Hoffower 10 hrs ago
The U.S. Cities With The Most Homeless People

CoCs with the largest numbers of people experiencing homelessness in 2017*

<table>
<thead>
<tr>
<th>City</th>
<th>State</th>
<th>Number of Homeless Americans</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York City</td>
<td>NY</td>
<td>76,501</td>
</tr>
<tr>
<td>Los Angeles City &amp; County</td>
<td>CA</td>
<td>55,188</td>
</tr>
<tr>
<td>Seattle/King Country</td>
<td>WA</td>
<td>11,643</td>
</tr>
<tr>
<td>San Diego City and County</td>
<td>CA</td>
<td>9,160</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>D.C.</td>
<td>7,473</td>
</tr>
<tr>
<td>San Jose/Santa Clara City &amp; County</td>
<td>CA</td>
<td>7,394</td>
</tr>
<tr>
<td>San Francisco</td>
<td>CA</td>
<td>6,858</td>
</tr>
<tr>
<td>Las Vegas/Clark County</td>
<td>NV</td>
<td>6,490</td>
</tr>
<tr>
<td>Boston</td>
<td>MA</td>
<td>6,135</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>PA</td>
<td>5,693</td>
</tr>
</tbody>
</table>

Total Number Of Homeless Americans In January 2017: 553,742
Total People Experiencing Homelessness on a Given Night in 2017

[Map showing the number of people experiencing homelessness in each state, with high numbers in California, Texas, and New York.]
Deadliest outbreak of hepatitis A in decades kills 14 in San Diego

Some 264 people have been hospitalized, roughly 70% of them homeless, in an outbreak that began last November

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Comparison of Cholera Case Maps - 1854 London and 2011 Haiti

1, 2 and 5 mile buffers provide a proxy for the range of distances an individual is expected to travel for treatment. Gaps between the buffers can indicate where additional treatment centers are needed depending on the locations of population and cases.
Measles cases, United States, 2001-2016*

*Source: Morbidity and Mortality Weekly Report (MMWR), Notifiable Diseases and Mortality Tables
How We Can Help the Sanitation Crisis in Rural America

WATER In many rural communities across the United States, quality sanitation is severely deficient. Yet with today's technology and outreach, there's hope for improvement.
America’s Septic System Failures Can Be Fixed

December 21, 2015 / in Water Management / by Brett Walton

Solutions require new thinking about wastewater treatment
WASTEWATER
How Many U.S. Deaths are Caused by Poverty, Lack of Education, and Other Social Factors?

A NEW STUDY FINDS THAT THE NUMBERS ARE IN THE SAME RANGE AS DEATHS FROM HEART ATTACKS AND STROKE
Income Is Linked With Health Across Racial or Ethnic Groups

Figure 16: Differences in health status by income do not simply reflect differences by race or ethnicity; differences in health by income can be seen within each racial or ethnic group. Both income and racial or ethnic group matter for health.

![Bar chart showing the percentage of people with poor health by income level and race/ethnicity. The chart includes data for Black, Non-Hispanic, Hispanic, and White, Non-Hispanic populations.](chart.png)

Family Income
(Percent of Federal Poverty Level)
- ≤100%
- 100–199%
- 200–399%
- 400–599%
- ≥600%
“It is in the families of the poor that cholera is often observed to pass from one individual to another, while in cleanly dwellings, where the hand-basin and towel are in constant use, and where the rooms for cooking, eating and sleeping are distinct from each other, the communication of cholera from person to person is rarely observed.”
Thematic Map of Estimate; SELECTED CHARACTERISTICS - Occupied housing units - Lacking complete plumbing facilities
Geography: by County