Before licensure of a measles vaccine in 1963, approximately 500,000 measles cases were reported in the United States, with 450–500 deaths occurring each year. Since introduction of the measles vaccine, the incidence of measles has declined significantly, and many U.S. healthcare providers have never seen a patient with measles. In 2000, endemic measles was declared eliminated in the United States. However, measles outbreaks continue to occur. The majority of U.S. measles cases are imported from other countries, due primarily to unvaccinated U.S. residents bringing the virus back after traveling to other countries where measles continues to be endemic (Figure 1).

During December 2014–February 2015, Utah experienced a measles outbreak associated

- The Utah outbreak resulted in three confirmed measles cases of the same household.
- Public health identified more than 375 contacts in 160 households who were exposed to measles.
- Public health’s direct costs for the measles outbreak response totaled approximately $115,000.
- Vaccination is an important line of defense for two reasons. First, vaccination directly protects the person being vaccinated. Second, having a high percentage of the population vaccinated protects those who cannot be vaccinated.
- While the overall measles vaccination coverage at school entry is high in Utah, other factors contribute to disease risk and transmission in a community, including immunization exemptions and waning immunity.
- This outbreak serves as a reminder of the importance of maintaining high vaccination rates, even for diseases that are rarely seen in the U.S., as long as those diseases continue to circulate in other parts of the world.
with two unvaccinated Utah residents who had traveled to Disneyland in California, where a large measles outbreak is ongoing (Figure 2).

The Utah outbreak resulted in three confirmed measles cases, all in individuals who were less than 18 years of age, unvaccinated, and part of the same household. However, the two index cases* attended 16 events during their infectious period, potentially exposing others. Public health identified more than 375 contacts in 160 households who were exposed to measles. Although many of these contacts had documentation of measles immunity** and were not at risk, 117 persons required quarantine and daily monitoring for symptoms of the disease for 21 days. Many contacts without evidence of immunity were given measles-mumps-rubella (MMR) vaccine or immunoglobulin, a protein the body uses to fight infection.

Public health’s direct costs for the measles outbreak response in Utah totaled approximately $115,000. Costs include such items as public health staff hours, vaccine, immunoglobulin, laboratory testing, and quarantine. The cost estimate does not include other indirect costs such as public education and provider consultation conducted by local health departments, or any private healthcare-associated costs (Table 1). These costs are difficult to determine, but would certainly increase the overall burden of the outbreak response.

Measles is a highly contagious, acute viral illness that spreads quickly in unvaccinated populations. Vaccination is an important line of defense for two reasons. First, vaccination directly protects the person being vaccinated. Second, having a high percentage of the population vaccinated protects others, including those who cannot be vaccinated because they have certain medical conditions, severe allergies to vaccine ingredients, or are too young to begin vaccination.

Utah school law requires that students entering a public, private, charter, or parochial school be fully vaccinated or claim a medical, religious, or personal exemption. Approximately 92–94% of persons in a population need to be fully vaccinated (two doses of MMR vaccine) against measles to provide “herd immunity” (protection provided by an immunized population for those who aren’t vaccinated). During the Utah 2013–2014 school year, 95.8% of Utah students in kindergarten through grade 12 were fully vaccinated against measles.

While the overall measles vaccination coverage at school entry is high, other factors contribute to disease risk and transmission in a community, including immunization exemptions and waning immunity. Utah is one of 20 states that allow exemptions to immunization for non-medical reasons, e.g., religious or personal beliefs. The percentage of Utah exemptions for school entry has increased from 1.2% in 1997 to 4.5% in 2013. While this percentage may seem small, over several years, the number of unimmunized children accumulates and, at some point, the overall vaccine coverage required for herd immunity will no longer be present. Additionally, Utah has the youngest median age, larger family sizes, and the highest birth rate in the nation. These factors, combined with an increasing exemption rate, create a critical risk in the community for outbreaks of vaccine-preventable diseases.

This outbreak serves as a reminder of the importance of maintaining high vaccination rates, even for diseases that are rarely seen in the United States, as long as those diseases continue to circulate in other parts of the world.

Public Health Costs of Measles Outbreak

Table 1. Estimated public health costs associated with measles outbreak, Utah, 2015

<table>
<thead>
<tr>
<th>Outbreak Response</th>
<th>Number</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public health staff hours (UDOH/LHDs)*</td>
<td>3,000</td>
<td>$109,240</td>
</tr>
<tr>
<td>MMR vaccine doses</td>
<td>300</td>
<td>$5,400</td>
</tr>
<tr>
<td>Laboratory tests</td>
<td>29</td>
<td>$308</td>
</tr>
<tr>
<td><strong>Total Estimated Public Health Costs</strong></td>
<td></td>
<td><strong>$114,948</strong></td>
</tr>
</tbody>
</table>

*The first case or instance of a patient coming to the attention of health authorities.

**Evidence of measles immunity is defined as documented receipt of two doses of live measles virus-containing vaccine, laboratory evidence of measles immunity, documentation of physician-diagnosed measles, or birth before 1957.

April 2015 Utah Health Status Update

For additional information about this topic, contact Jeffrey Eason, MPH, Vaccine Preventable Diseases and PCV13 Epidemiologist, Utah Department of Health, (801) 538-9141, email: jeason@utah.gov; or the Office of Public Health Assessment, Utah Department of Health, (801) 538-9191, email: chdata@utah.gov.
Breaking News, April 2015

Oral Health and Aging
Advances in treatment, research, technology, and education have improved the oral health of many Americans. However, according to a 2010 Surgeon General’s report, in the underserved population of adults aged 65 and older, one quarter have lost all of their teeth due to untreated oral disease. Surgeon General Dr. Regina M. Benjamin states that, “…tooth loss is often the result of disease or injury, rather than an inevitable consequence of aging.”

“Poor oral health puts seniors at a significant risk of experiencing severe health events,” said Barbara J. Smith, MPH, PhD, manager, Geriatric & Special Needs Populations with the American Dental Association.

The Utah Department of Health Oral Health Program has been working to raise awareness of the issue and has provided oral health education to both seniors and their caregivers at long term care facilities, assisted living centers, and senior centers across Utah. During 2014–2015, the Program made more than 50 presentations to more than 5,000 people on oral health and aging. Topics ranged from dental decay, periodontal disease, diabetes and dry mouth, and other chronic illnesses associated with oral health.

Recently, the Utah Legislature passed SB0177, a bill allowing dental hygienists to work in a public health setting in collaboration with a dentist, which moves the Oral Health Program’s goal of connecting the aging population with dental access closer to a reality. This opens a door to helping this underserved population have access to more prevention and treatment services.


Community Health Indicators Spotlight, April 2015

2014 Consumer Satisfaction Survey Shows Large Differences Among Plan Types
The 2014 Consumer Satisfaction Report of Utah Health Plans report, recently released by the Office of Health Care Statistics, describes how satisfied health plan members are with their care provided to their children. These data come from an annual survey entitled the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey. The purpose of the report is to give consumers and purchasers information they can use to make informed decisions when selecting a health plan.

The CAHPS survey measures members’ thoughts about the health care and services they received from their health plan in the past year. Issues covered by the survey include whether the member had a problem getting care when needed, and if their customer service needs were met. The survey also includes overall ratings about the members’ health plan, health care, doctor, and specialist.

In 2012 and 2014, the CAHPS survey was sent to parents of children enrolled in Commercial Health Maintenance Organizations (HMOs), Commercial Preferred Provider Organizations (PPOs), Medicaid, and CHIP (Children’s Health Insurance Program) plans. The adjacent graph shows the percentage of parents who rated their child’s health plan an 8, 9 or 10 on a 10-point scale, where 1 is the worst health plan and 10 is the best health plan. Separate state averages were computed for the four types of plans.

Medicaid plans had the highest ratings while Commercial PPOs had the lowest. These differences are consistent with national trends. From 2012 to 2014, there was a slight increase in the ratings of Utah plans. There was a similar increase in the national averages, but those increases were larger.

To see the full reports, go to https://health.utah.gov/myhealthcare/.
### Monthly Report of Notifiable Diseases, February 2015

<table>
<thead>
<tr>
<th>Disease</th>
<th>Current Month</th>
<th>Current Quarter</th>
<th>5-Year Average</th>
<th># of Cases</th>
<th>YTD</th>
<th>Standard Morbidity Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campylobacteriosis (Campylobacter)</td>
<td>14</td>
<td>22</td>
<td>28</td>
<td>48</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>Shiga toxin-producing Escherichia coli (E. coli)</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>Hepatitis A (infectious hepatitis)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B, acute infections (serum hepatitis)</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0.0</td>
<td></td>
</tr>
</tbody>
</table>


### Quarterly Report of Notifiable Diseases, 4th Qtr 2014

<table>
<thead>
<tr>
<th>Disease</th>
<th>Current Quarter</th>
<th>Current Quarter</th>
<th>5-Year Average</th>
<th># of Cases</th>
<th>YTD</th>
<th>Standard Morbidity Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV/AIDS</td>
<td>30</td>
<td>27</td>
<td>105</td>
<td>108</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Chlamydia</td>
<td>2,135</td>
<td>1,752</td>
<td>8,255</td>
<td>7,018</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>402</td>
<td>143</td>
<td>1,439</td>
<td>472</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>Syphilis</td>
<td>10</td>
<td>10</td>
<td>40</td>
<td>46</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>9</td>
<td>7</td>
<td>31</td>
<td>32</td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

### Medicaid Expenditures (in Millions) for the Month of February 2015

<table>
<thead>
<tr>
<th>Category</th>
<th>Current Month</th>
<th>Expected/ Budgeted for Month</th>
<th>Fiscal YTD</th>
<th>Budgeted Fiscal YTD</th>
<th>Variance - Fiscal YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captitated Mental Health</td>
<td>$18.6</td>
<td>$17.5</td>
<td>$117.4</td>
<td>$112.6</td>
<td>$4.8</td>
</tr>
<tr>
<td>Inpatient Hospital</td>
<td>$15.8</td>
<td>$15.5</td>
<td>$93.2</td>
<td>$96.9</td>
<td>($3.6)</td>
</tr>
<tr>
<td>Outpatient Hospital</td>
<td>$4.8</td>
<td>$5.0</td>
<td>$39.2</td>
<td>$41.0</td>
<td>($1.8)</td>
</tr>
<tr>
<td>Long Term Care</td>
<td>$13.4</td>
<td>$12.0</td>
<td>$115.5</td>
<td>$111.8</td>
<td>$3.7</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>$11.3</td>
<td>$11.1</td>
<td>$87.3</td>
<td>$80.0</td>
<td>$7.3</td>
</tr>
<tr>
<td>Physician/Osteo Services</td>
<td>$6.3</td>
<td>$5.1</td>
<td>$41.2</td>
<td>$42.1</td>
<td>($0.8)</td>
</tr>
</tbody>
</table>

**TOTAL MEDICAID** $200.3 $200.5 $1,577.2 $1,578.2 ($1.0)

---

### Program Enrollment for the Month of February 2015

<table>
<thead>
<tr>
<th>Program</th>
<th>Current Month</th>
<th>Previous Month</th>
<th>% Change from Previous Month</th>
<th>% Change from Previous Year</th>
<th>Total Changes in 1 Year</th>
<th>% Change from 1 Year Ago</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicaid</td>
<td>281,802</td>
<td>279,572</td>
<td>+0.8%</td>
<td>263,479</td>
<td>+7.0%</td>
<td></td>
</tr>
<tr>
<td>PCN (Primary Care Network)</td>
<td>18,208</td>
<td>19,342</td>
<td>-5.9%</td>
<td>13,082</td>
<td>+39.2%</td>
<td></td>
</tr>
<tr>
<td>CHIP (Children's Health Ins. Plan)§</td>
<td>15,629</td>
<td>15,150</td>
<td>+3.2%</td>
<td>27,152</td>
<td>-42.4%</td>
<td></td>
</tr>
</tbody>
</table>

### Health Care System Measures

#### Overall Hospitalizations (2013)
- Current Month: 279,393
- Rate per 100 Population: 9.0%
- % Change from Previous Year: -2.8%

#### Annual Visits
- Current Year: 6,513.8
- % Change from Previous Year: +5.9%

#### Health Care System Measures

**Annual Community Health Measures**

- **Obesity (Adults 18+)**: 438,800 (2013)
- **Percent Affected**: 24.1%
- **% Change from Previous Year**: -0.5%

- **Cigarette Smoking (Adults 18+)**: 207,000 (2013)
- **% Change from Previous Year**: +2.9%

- **Health Insurance Coverage (Uninsured)**: 336,500 (2013)
- **% Change from Previous Year**: +1.1%

- **Motor Vehicle Traffic Crash Injury Deaths**: 192 (2013)
- **% Change from Previous Year**: -7.8%

- **Poisoning Deaths**: 630 (2013)
- **% Change from Previous Year**: +6.2%

- **Suicide Deaths**: 570 (2013)
- **% Change from Previous Year**: +2.9%

- **Diabetes Prevalence (Adults 18+)**: 142,500 (2013)
- **% Change from Previous Year**: +7.1%

- **Poor Mental Health (Adults 18+)**: 328,700 (2013)
- **% Change from Previous Year**: +4.6%

- **Coronary Heart Disease Deaths**: 1,515 (2013)
- **% Change from Previous Year**: +1.0%

- **All Cancer Deaths**: 2,961 (2013)
- **% Change from Previous Year**: +1.9%

- **Stroke Deaths**: 831 (2013)
- **% Change from Previous Year**: +3.1%

- **Births to Adolescents (Ages 15-17)**: 573 (2013)
- **% Change from Previous Year**: -16.3%

- **Early Prenatal Care**: 38,905 (2013)
- **% Change from Previous Year**: -0.7%

- **Infant Mortality**: 262 (2013)
- **% Change from Previous Year**: +6.7%

- **Childhood Immunization (4:3:1:3:3:1)**: 40,600 (2013)
- **% Change from Previous Year**: +7.5%

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* Influenza activity is low to moderate in Utah. Influenza-like illness activity is above baseline statewide. As of March 7, 2015, 1,223 influenza-associated hospitalizations have been reported to the UDOH since the start of the influenza season on September 28, 2014. More information can be found at [http://health.utah.gov/epi/diseases/influenza/index.html](http://health.utah.gov/epi/diseases/influenza/index.html).

† Diagnosed HIV infections, regardless of AIDS diagnosis.

‡ State rank based on age-adjusted rates where applicable.

§ A large percentage of CHIP kids to qualify and transfer to the Medicaid program for expanded medical services.

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