Ensuring Safe Medicines: Drug Compounding
Women in Government Healthcare Summit
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The Pew Charitable Trusts
About The Pew Charitable Trusts

Pew is an independent, nonpartisan nonprofit organization dedicated to advancing research and policy in the interest of the public.

For years, we have worked in the areas of drug quality, safety, and access.
Drug Compounding: The creation of medications for patients whose clinical needs cannot be met by approved products.
Why is this important?

Compounded drugs present unique risks

States have primary oversight over the vast majority of compounding facilities
Risks from Substandard Compounding
CDC: Multistate outbreak of fungal meningitis and other infections among patients who received contaminated preservative-free MPA steroid injections from the New England Compounding Center in Framingham, Massachusetts.
# Tracking Adverse Events

<table>
<thead>
<tr>
<th>Year</th>
<th>Reported cases</th>
<th>Reported deaths</th>
<th>Adverse events</th>
<th>Compounding error</th>
<th>Product</th>
<th>State where compounding occurred</th>
<th>State where adverse event(s) occurred</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>2</td>
<td></td>
<td>Tissue erosion at injection site</td>
<td>High pH; no glutamine detected in samples²</td>
<td>Compounded injectable of glutamine, arginine, and carnitine (GAC)</td>
<td>FL</td>
<td>Not reported</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>1&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td>Hemorhagic occlusive retinal vasculitis (HORV)</td>
<td>Not reported</td>
<td>Intracocular injectable of triamcinolone, mexitolactin, and vancomycin (TMV)</td>
<td>NJ</td>
<td>Not reported</td>
<td>Investigation revealed inappropriate use and handling of pharmacy bulk packaged products.</td>
</tr>
<tr>
<td>2017</td>
<td>41</td>
<td></td>
<td>Septic arthritis</td>
<td>Bacterial contamination⁷</td>
<td>Unknown injectable</td>
<td>NJ</td>
<td>NJ</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>1</td>
<td></td>
<td>Paralysis (partial: face)</td>
<td>Not reported&lt;sup&gt;8&lt;/sup&gt;</td>
<td>Compounded injectable</td>
<td>TX</td>
<td>TX</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>2</td>
<td>1</td>
<td>One case of cardiac arrest; both experienced immediate hypersensitivity reactions</td>
<td>Product contained ungraded PEG 40 castor oil³</td>
<td>Injectable curcumin emulsion infusion</td>
<td>CA</td>
<td>Not reported</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>At least 43&lt;sup&gt;⁵&lt;/sup&gt;</td>
<td></td>
<td>Vision impairment, poor night vision, loss of color perception, phophophobia, ocular discomfort, nausea, loss of balance, and other symptoms</td>
<td>Unknown&lt;sup&gt;⁹&lt;/sup&gt;</td>
<td>Injectable steroid antibiotic for administration in the eye</td>
<td>TX</td>
<td>TX</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>6&lt;sup&gt;⁴&lt;/sup&gt;</td>
<td>1</td>
<td>Septic arthritis</td>
<td>Contamination</td>
<td>Viscosupplementation knee injectable</td>
<td>Not reported</td>
<td>SC</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>1</td>
<td></td>
<td>Abscesses and osteomyelitis</td>
<td>Contamination&lt;sup&gt;⁸&lt;/sup&gt;</td>
<td>Unknown injectable</td>
<td>NM</td>
<td></td>
<td>Investigation revealed unsafe injection and compounding practices.</td>
</tr>
</tbody>
</table>
Sterile Compounding Presents Particular Risk

At Least 68 People Are Nearly Blind After A Botched Drug Was Injected Into Their Eyeballs

Their tragedies expose a shadowy US industry that sells drugs with little government oversight.

Stephanie M. Lee
BuzzFeed News Reporter

Posted on September 21, 2018, at 9:28 a.m. ET
Compounding Quality Act

STATES

Traditional Compounding

Outsourcing Facility

U.S. FOOD & DRUG ADMINISTRATION
Best Practices for State Oversight of Drug Compounding
(March 2016)
National Assessment of State Oversight of Sterile Drug Compounding
(March 2016)

*   *   *   *

State Oversight of Drug Compounding
(February 2018)
Many States Don’t Track Compounding

From our 2014 report:

• Many states don’t know who is making compounded drugs: **56%** track sterile compounding pharmacies

• Most states don’t track nonresident compounders: **44%** tracked compounders shipping into the state

• Some (**37%** did not track compounding at all


From our 2014 report:

- Only **23%** of states required pharmacies performing sterile compounding to report drug recalls

- Only **30%** of states required sterile compounding pharmacies to report serious adverse events
States are Requiring Appropriate Quality Standards

- Require full compliance with USP <797>
- Require compliance with strong requirements on sterile compounding practice, including the 10 states reporting standards “equivalent to or stricter than” USP Chapter <797>, even if some elements were less specific.
- Require other quality standards
- Does not require quality standards

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States are Aligning Prescription Requirements with Federal Law

Prohibit sterile office stock compounding for humans through their laws or regulations, state guidance, or by advising compounders to follow the more restrictive federal law.

Allow sterile office stock compounding for humans with limitations.

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Many States Are Not Conducting Timely Inspections

- In 2015 **26 states and the District** conducted routine inspections at least annually for in-state pharmacies that perform sterile compounding

- In our 2018 report, just **22 states and the District** do

- Interviews with state officials underscore the need for more **financial resources** and **inspection capacity**
Insanitary Condition Example

Visible microbial contamination on a ceiling tile in a clean room
Insanitary Condition Example

Filth under the hood including multiple pieces of medical supply waste and dust build up in the pre-filter for the ISO 5 hood
Insanitary Condition Example

Gowned employee working in the cleanroom, exposing legs
Insanitary Condition Example

Toaster oven used to dry heat sterilize and depyrogenate glassware; oven was not capable of reaching high enough temperature to be effective.
Insanitary Condition Example

Kitchen dishwasher (supplied with tap water) and home detergent used to clean equipment and utensils that comes in contact with product intended to be sterile – no subsequent cleaning step
Insanitary Condition Example

Insects (vermin) dead or alive
What Can States Do?
Adopting USP quality standards and aligning with federal law on compounding without prescriptions are key opportunities for jurisdictions that have not yet adopted these best practices.

The prescription requirement is the lynchpin of the oversight regime.
Know what’s happening in your State!
Support Inspections!
Thank You. Questions?

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