Public Health Laboratorians and Cannabis: Challenges Encountered in Uncharted Waters

Laura Gillim-Ross PhD, HCLD(ABB)
Laboratory Director
Colorado Department of Public Health and Environment
Role of CDPHE

• Medical Marijuana Registry
• Medical Marijuana Research
• Retail Marijuana Education
• Marijuana Surveillance
• Laboratory Certification (retail and medical)
  • Testing requirements for medical MJ
  • MJ laboratory testing reference library
    – Proficiency testing, methods, potency variances...
Recreational Marijuana Steering Committee (internal)*
*Co-chaired by CDPHE’s Deputy CMO and Chief of Toxicology, Environmental/Occupational Epidemiology; With representatives from all divisions on this chart

Internal committee coordinates all of CDPHE’s diverse responsibilities related to recreational marijuana

- Collecting and analyzing data on prevalence of marijuana use
- Clean Indoor Air Act issues; if designated, may do prevention education or campaigns
- Surveillance for health effects & outbreaks; compile medical lit & safety info
- Consultative role on developing lab regs; lab certification
- Consultative role on issues related to the safety of edibles
- Consultative role on issues related to marijuana disposal

Center for Health and Environmental Information and Statistics (CHEIS)
Preventive Services Division (PSD)
Disease Control and Environmental Epidemiology Division (DCEED)
Laboratory Services Division (LSD)
Division of Environmental Health & Sustainability (DEHS)
Hazardous Waste and Waste Management Division (HWWMD)
Retail Marijuana Testing Facility Inspection Program

Legislative Intent: Promoting public health and safety and ensuring compliance with constitutional and statutory guidelines.

HB 13-1317
Certification of Retail Marijuana Testing Facilities (RMTF):
Retail marijuana testing facility inspection program:

• Coordinates inspection of retail marijuana testing facilities;

• Ensures that testing facilities meet the rules promulgated by the Department of Revenue (DOR) and are competent to carry out specific scientific tests;

• Provides recommendations to DOR about suitability of the testing facilities for certification; and

• Provides scientific consultation and recommendations to the DOR in regards to laboratory testing as it pertains to public health and safety.
Contaminant Testing
Recommendations:

Microbials (Bacteria, Molds, Mildew, Fungus, Filth)

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Acceptable Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escherichia coli</td>
<td>Negative-None detected</td>
</tr>
<tr>
<td>Salmonella species</td>
<td>Negative-None detected</td>
</tr>
<tr>
<td>Bile tolerant gram negative bacteria</td>
<td>Max Limit: 10,000 CFU</td>
</tr>
<tr>
<td>Aspergillus sp.</td>
<td>Negative-None detected</td>
</tr>
<tr>
<td>Mucor sp.</td>
<td>Negative-None detected</td>
</tr>
<tr>
<td>Penicillium sp.</td>
<td>Negative-None detected</td>
</tr>
<tr>
<td>Thermophilic actinomycetes sp.</td>
<td>Negative-None detected</td>
</tr>
<tr>
<td>Aflatoxin</td>
<td>Max limit: 20 ppb</td>
</tr>
</tbody>
</table>

Filth Analysis
Contaminant Testing Recommendations:

• Is the contaminant a public health concern for the general population? *E. coli* and molds ubiquitous

• Are the testing requirements reasonable? *Edibles* carry different risks.

• Can labs provide isolates of pathogens to CDPHE for outbreak investigation purposes?
Contaminant Testing

Recommendations:

Microbials (Bacteria, Fungus)

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Acceptable Limit</th>
<th>Product to be tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shiga toxin producing Escherichia coli (STEC)</td>
<td>&lt;1 CFU/g</td>
<td>Flower; retail marijuana products; water and food-based concentrates</td>
</tr>
<tr>
<td>Salmonella species</td>
<td>&lt;1 CFU/g</td>
<td></td>
</tr>
<tr>
<td>Aspergillus fumigatus, Aspergillus flavus, Aspergillus niger</td>
<td>&lt;1 CFU/g</td>
<td></td>
</tr>
</tbody>
</table>
Challenges:

• Legislatively driven timelines
• Lack of national recommendations/guidance
• Absence of federal agencies (e.g., DEA license)
• Lack of proficiency testing program
• Lack of a reference laboratory
• Lack of regulated laboratory experience in new businesses
• Alignment of retail and medical MJ testing requirements
• Learning as we go
Successes:

- Investigated arsenic poisoning potentially linked to MJ
- Developed revised laboratory inspection checklists and guidance
- Developed collaborative relationships with DOR, certified MJ labs

<table>
<thead>
<tr>
<th>Testing Category</th>
<th>Potency</th>
<th>Microbials (Bacteria, Fungus)</th>
<th>Residual Solvents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Labs Currently Certified</td>
<td>10</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>
Up Next:

• Revise laboratory certification rules
• Revisit testing requirements (align medical MJ)
• Develop reference library (methods and sampling)
• Develop PT program