National Plan for Laboratory Systems

California “MGI Ts in the Mail” Model

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History

1993: New Cooperative Agreement
funding available from CDC

Recommendation from CDC and others
that laboratories use selective broth
cultures

California has about 35 local public health
laboratories, about a dozen of which have
erpactise and facilities for TB testing, but
low volume of TB lab work
MGI Ts by Mail history, cont’d

- BACTEC radiometric system was available from BD: 12B medium and 460TB instrument

- For low volume laboratories, use of 12B & 460TB was not cost-effective because of the cost of the instrument
  - Instrument costs built into 12B medium cost
Recovery of mycobacteria, BACTEC vs. solid media

<table>
<thead>
<tr>
<th>Study</th>
<th>% recovered in BACTEC</th>
<th>% recovered in Solid medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anargyros</td>
<td>91%</td>
<td>52% (2 LJs)</td>
</tr>
<tr>
<td>Isenberg</td>
<td>87%</td>
<td>71% (1 agar plate)</td>
</tr>
<tr>
<td>Kirihara</td>
<td>88%</td>
<td>77% (1 LJ)</td>
</tr>
<tr>
<td>Morgan</td>
<td>72%</td>
<td>62% (1 LJ)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>56% (1 agar plate)</td>
</tr>
<tr>
<td>Park</td>
<td>93%</td>
<td>42% (1 LJ, 1 LJ Gruft)</td>
</tr>
</tbody>
</table>
BACTECs by Mail

- Local public health laboratory decontaminates and concentrates specimens, and inoculates solid media, just as they have done in the past.

- MDL purchases and distributes 12B medium and selective antibiotic supplement to local laboratories.
  - MDL does QC testing on 12B & supplement.
  - Local laboratories do not diminish their workload or support from local government.
BACTECs by Mail, cont’d

- 12 local public health labs agree to participate
- BD Tech representatives do training at participating local public health labs
- Local labs decontaminate and concentrate specimens, prepare, stain and read smears, inoculate culture media
- BACTEC 12B bottles are mailed unincubated to California MDL
BACTECs by Mail, cont’d

Important features

- Participants had expertise, experience, and facilities for mycobacteriology
- Acid-fast smears were done locally and reported promptly
- At MDL, BACTEC 12Bs were incubated & worked up using up to date methods:
  - Identification by probes and HPLC
  - Drug susceptibility testing by rapid broth method
BACTECs by Mail, cont’d

- Approximately 4500 cultures per year initially
- No problems with leaking of BACTEC vials in mail
- Most positive cultures were detected first in BACTEC, rather than solid media inoculated in local PHL
- Cultures from most TB patients in these jurisdictions were available for prompt drug sus testing and genotyping
Transition to MGITs by Mail

- MGIT tubes were sent to participating labs, who were asked to loosen caps, re-tighten, and mail back—none leaked
- BD sent Tech Rep to participating labs to provide protocol and tips for working with MGIT (to minimize culture contamination)
- MDL distributed MGIT media and supplements (at about double the cost), and switched over to non-radioactive MGIT
- State MDL has two 960 reader/incubators
Thank you