

## SUMMARY OF CONFIRMED INFECTIONS

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The March 2009 issue presents the laboratory diagnosis of some of the infectious diseases and the reference microbiology work done in this laboratory during February 2009 and new cases of syphilis in Milwaukee during January 2009. Information on the laboratory diagnosed mycobacterial infections in Wisconsin during January 2009 is also included.

### Legionnaires Disease

| Patient |     | Test          |         |     |
|---------|-----|---------------|---------|-----|
| Age     | Sex | Urine Antigen | Culture | DFA |
| 61 yr   | M   | +             | -       | -   |

ND = Not done

### Syphilis

| Test          | Total | Test               | Total |
|---------------|-------|--------------------|-------|
| RPR Reactive  | 1     | TPPA Reactive      | 11    |
| VDRL Reactive | 17    | Darkfield Positive | 0     |

### New Cases of Syphilis:

| Stage              | Number of Cases |              |
|--------------------|-----------------|--------------|
|                    | January 2009    | January 2008 |
| Primary syphilis   | 2               | 0            |
| Secondary syphilis | 2               | 5            |
| Early latent       | 8               | 8            |
| Late latent        | 0               | 2            |
| Total              | 12              | 15           |

Median age: 22 yr; Age range: 18-63 yr
   
 Source: Wisconsin Division of Health

### Gonorrhea Antimicrobial Susceptibility Testing

| Number Tested | Decreased Susceptible (DS) / Resistant (R) Antibiotics |             |               |              |
|---------------|--------------------------------------------------------|-------------|---------------|--------------|
|               | Ciprofloxacin                                          | Ceftriaxone | Spectinomycin | Azithromycin |
| 37            | 1 (R)                                                  | 0           | 0             | 0            |

### Isolates Other Than *N. gonorrhoeae*

| Organism                      | Site    | Number Isolates | Organism                  | Site    | Number Isolates |
|-------------------------------|---------|-----------------|---------------------------|---------|-----------------|
| <i>Ureaplasma urealyticum</i> | Genital | 0               | <i>Mycoplasma hominis</i> | Genital | 2               |

### Enteric Parasites Identified

| Age | Sex | Parasite                                                |
|-----|-----|---------------------------------------------------------|
| 13  | M   | <i>Blastocystis hominis</i>                             |
| 15  | M   | <i>Blastocystis hominis</i>                             |
| 22  | M   | <i>Blastocystis hominis</i><br><i>Entamoeba coli</i>    |
| 19  | M   | <i>Blastocystis hominis</i><br><i>Entamoeba coli</i>    |
| 25  | F   | <i>Blastocystis hominis</i><br><i>Endolimax nana</i>    |
| 39  | F   | <i>Blastocystis hominis</i><br><i>Entamoeba</i> species |
| 23  | F   | <i>Iodamoeba buetschlii</i>                             |

### Mycobacterial Infections

| Age | Sex | Test Results |         |           | Identification          |
|-----|-----|--------------|---------|-----------|-------------------------|
|     |     | Sputum Smear | Culture | DNA Probe |                         |
| 30  | M   | -            | +       | +         | <i>M. avium</i> complex |
| 73  | M   | -            | +       | +         | <i>M. avium</i> complex |
| 54  | M   | -            | +       | +         | <i>M. avium</i> complex |
| 52  | M   | -            | ND      | +         | <i>M. kansasii</i>      |
| 35  | M   | -            | ND      | +         | <i>M. tuberculosis</i>  |
| 22  | M   | -            | +       | -         | <i>M. xenopi</i>        |
| 50  | M   | -            | +       | -         | <i>M. xenopi</i>        |

### Reference Cultures

| Age | Sex | Source  | Identification                                         |
|-----|-----|---------|--------------------------------------------------------|
| 73  | M   | Sputum  | <i>Bacillus</i> species, NOT <i>Bacillus anthracis</i> |
| 82  | F   | Blood   | <i>Capnocytophaga</i> species                          |
| 61  | F   | Sputum  | <i>Citrobacter youngae</i><br><i>Escherichia coli</i>  |
| 11  | F   | Blood   | <i>Gluconobacter</i> species                           |
| 25  | F   | Genital | <i>Neisseria gonorrhoeae</i>                           |
| 19  | F   | Genital | <i>Neisseria gonorrhoeae</i>                           |

|    |   |        |                                  |
|----|---|--------|----------------------------------|
| 19 | M | Throat | <i>Neisseria meningitidis</i>    |
| 47 | F | Stool  | <i>Salmonella</i> Enteritidis    |
| 45 | M | Stool  | <i>Salmonella</i> Enteritidis    |
| 24 | F | Stool  | <i>Salmonella</i> Hadar          |
| 12 | F | Stool  | <i>Salmonella</i> Schwarzengrund |
| 63 | F | Stool  | <i>Salmonella</i> Typhimurium    |
| 47 | F | Stool  | <i>Salmonella</i> Typhimurium    |
| 59 | F | Blood  | <i>Salmonella</i> Typhimurium    |
| 8  | F | Stool  | <i>Shigella sonnei</i>           |
| 3  | F | Stool  | <i>Shigella sonnei</i>           |
| 11 | M | Stool  | <i>Shigella sonnei</i>           |
| 4  | F | Stool  | <i>Shigella sonnei</i>           |
| 11 | F | Stool  | <i>Shigella sonnei</i>           |
| 3  | M | Stool  | <i>Shigella sonnei</i>           |
| 5  | F | Stool  | <i>Shigella sonnei</i>           |
| 11 | M | Stool  | <i>Shigella sonnei</i>           |
| 7  | F | Stool  | <i>Shigella sonnei</i>           |
| 10 | F | Stool  | <i>Shigella sonnei</i>           |

#### Clinical Enteric Pathogens

| Age | Sex | Pathogen               |
|-----|-----|------------------------|
| 6   | M   | <i>Shigella sonnei</i> |

#### PFGE Activity - January to March 2009

| Pathogen                               | Number of clinical isolates received | Number of clinical isolates subtyped by PFGE | Number of local clusters detected by PFGE | Number of isolates part of local cluster | Number of clinical isolates received |
|----------------------------------------|--------------------------------------|----------------------------------------------|-------------------------------------------|------------------------------------------|--------------------------------------|
| <i>E. coli</i> O157:H7                 | 0                                    | 0                                            | 0                                         | 0                                        | 0                                    |
| Non O157 STEC                          | 0                                    | 0                                            | 0                                         | 0                                        | 0                                    |
| <i>Salmonella</i> serotype Typhimurium | 5                                    | 5*                                           | 0                                         | 0                                        | 5                                    |
| <i>Salmonella</i> serotype Enteritidis | 4                                    | 4                                            | 0                                         | 0                                        | 4                                    |
| All other <i>Salmonella</i>            | 8                                    | 7                                            | 1                                         | 2                                        | 8                                    |
| <i>Shigella sonnei</i>                 | 33                                   | 22                                           | 3                                         | 21                                       | 33                                   |
| Other <i>Shigella</i>                  | 1                                    | 1                                            | 0                                         | 0                                        | 1                                    |
| Totals                                 | 51                                   | 39                                           | 4                                         | 23                                       | 51                                   |

\*One *Salmonella* serotype Typhimurium was part of national Peanut-butter outbreak.

# Laboratory Diagnosed Mycobacterial Infections in Wisconsin during the Month of January 2009

| Mycobacterium species         |       | Brown | Dane | Eau Claire | Fond du Lac | Kenosha | La Crosse | Manitowoc | Marathon | Milwaukee | Outagamie | Racine | Rock | Sheboygan | Washington | Waukesha | Winnebago | Wood | TOTALS |
|-------------------------------|-------|-------|------|------------|-------------|---------|-----------|-----------|----------|-----------|-----------|--------|------|-----------|------------|----------|-----------|------|--------|
| M. tuberculosis complex       | Pulm  | 1     | 3    |            |             |         |           |           |          |           |           |        |      |           |            |          |           |      | 4      |
|                               | Extra |       |      |            |             |         |           |           |          |           |           |        |      |           |            |          |           |      | 0      |
| Total M. tuberculosis complex |       | 1     | 3    | 0          | 0           | 0       | 0         | 0         | 0        | 0         | 0         | 0      | 0    | 0         | 0          | 0        | 0         | 0    | 4      |
| M. avium complex              | Pulm  |       | 5    | 2          | 3           | 3       | 1         | 1         | 2        | 61        |           | 1      |      | 1         | 1          | 3        | 2         | 1    | 87     |
|                               | Extra |       | 2    |            |             |         |           |           |          | 1         |           |        |      |           |            |          |           |      | 3      |
| M. gordonae                   | Pulm  |       | 4    | 1          |             |         |           |           | 3        | 5         |           | 1      | 2    | 1         |            | 1        | 1         |      | 19     |
|                               | Extra |       |      |            |             |         |           |           |          |           |           |        |      |           |            |          |           |      | 0      |
| M. chelonae-abscessus         | Pulm  |       | 1    |            |             | 1       |           |           |          | 2         |           |        |      |           |            | 2        |           | 1    | 7      |
|                               | Extra |       |      |            |             |         | 1         |           |          |           |           |        |      |           |            |          | 1         | 2    | 4      |
| M. fortuitum group            | Pulm  |       | 2    |            |             |         |           |           |          | 4         |           |        |      |           |            |          |           |      | 6      |
|                               | Extra |       |      |            |             |         |           |           |          | 2         |           |        |      |           |            |          |           |      | 2      |
| M. kansasii                   | Pulm  |       |      |            |             |         |           |           |          |           |           |        |      |           |            |          | 1         |      | 1      |
|                               | Extra |       |      |            |             |         |           |           |          |           |           |        |      |           |            |          |           |      | 0      |
| M. marinum                    | Pulm  |       |      |            |             |         |           |           |          |           |           |        |      |           |            |          |           |      | 0      |
|                               | Extra |       |      |            |             |         |           |           |          |           | 1         |        | 1    |           |            |          |           |      | 2      |
| M. mucogenicum                | Pulm  |       |      |            |             |         |           |           |          | 3         | 1         |        |      |           |            |          |           |      | 4      |
|                               | Extra |       |      |            |             |         |           |           |          | 1         |           |        |      |           |            |          |           |      | 1      |
| M. xenopi                     | Pulm  |       |      |            |             |         |           |           |          | 7         |           |        |      |           |            |          |           |      | 7      |
|                               | Extra |       |      |            |             |         |           |           |          | 1         |           |        |      |           |            |          |           |      | 1      |
| M. nebraskense                | Pulm  |       | 1    |            |             |         |           |           |          |           |           |        |      |           |            |          |           |      | 1      |
| M. scrofulaceum               | Pulm  |       |      |            |             |         |           |           |          | 1         |           |        |      |           |            |          |           |      | 1      |
| M. smegmatis                  | Pulm  |       |      |            |             |         |           |           |          | 1         |           |        |      |           |            |          |           |      | 1      |
| TOTALS                        |       | 0     | 15   | 3          | 3           | 4       | 2         | 1         | 5        | 89        | 2         | 2      | 3    | 2         | 1          | 6        | 5         | 4    | 147    |

## Extra-Pulmonary Sources of Isolation:

|                                   |                                                                                                                                                                                 |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| M. avium complex Extra-pulmonary: | 1 neck mass, 1 parotid, 1 stool                                                                                                                                                 |
| Other Mycobacterium species       | M. chelonae/abscessus: 1 toe wound, 1 foot, 1 leg, 1 parotid; M. fortuitum group: 1 toenail, 1 breast; M. marinum: 1 skin, 1 face; M. mucogenicum: 1 blood; M. xenopi: 1 tissue |

## M. tuberculosis complex First-Line Drug Susceptibility Testing\*:

| Drug Resistance                                     | Number of Isolates |
|-----------------------------------------------------|--------------------|
| Susceptible to all first-line drugs                 | 3                  |
| Resistant to PZA, PZA indeterminate, or PZA pending | 1#                 |
| TOTAL                                               | 4                  |

(\*) Drugs tested: isoniazid=INH (0.2 ug/ml and 1.0 ug/ml), rifampin (1.0 ug/ml), ethambutol (5.0 ug/ml), and pyrazinamide=PZA (100 ug/ml).

# isolate was PZA indeterminate.

Source: Mycobacteriology Laboratory Network Data Report, WI State Laboratory of Hygiene, Madison, WI.

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### Virus Isolations from Clinical Specimens

| Age  | Sex | Source      | Symptoms                                      | Agent            |
|------|-----|-------------|-----------------------------------------------|------------------|
| 20   | M   | Throat swab | Cough, sore throat, fever, myalgia            | Influenza A (H1) |
| 25   | M   | Throat swab | Cough, sore throat, fever                     | Influenza A (H1) |
| 18   | M   | Throat swab | Cough, sore throat, fever, headache, myalgias | Influenza A (H1) |
| 21   | F   | Throat swab | Cough, fever                                  | Influenza A (H1) |
| 23   | F   | Throat swab | Cough, fever                                  | Influenza A (H1) |
| 20   | M   | Throat swab | Cough, fever, myalgias                        | Influenza A (H1) |
| 20   | M   | NP swab     | Influenza confirmation                        | Influenza A (H1) |
| 7    | M   | NP swab     | Influenza confirmation                        | Influenza A (H1) |
| 36   | F   | NP swab     | Influenza confirmation                        | Influenza A (H1) |
| 25   | F   | NP swab     | Influenza confirmation                        | Influenza A (H1) |
| 21   | F   | NP swab     | Influenza confirmation                        | Influenza A (H1) |
| 33   | F   | NP swab     | Influenza confirmation                        | Influenza A (H1) |
| 41   | F   | NP swab     | Influenza confirmation                        | Influenza A (H1) |
| 18   | M   | Throat swab | Fever, headache                               | Influenza A (H1) |
| 24   | F   | NP swab     | Influenza confirmation                        | Influenza A (H1) |
| 21   | F   | Throat swab | URI, cough, sore throat, fever, headache      | Influenza A (H1) |
| 20   | F   | Throat swab | ARD, cough, fever, headache, myalgias         | Influenza A (H1) |
| 34mo | M   | NP swab     | Influenza confirmation                        | Influenza A (H1) |
| 20   | F   | Throat swab | URI, cough, sore throat, fever, headache      | Influenza A (H1) |
| 21   | F   | Throat swab | Cough, fever, headache                        | Influenza A (H1) |
| 22   | M   | Throat swab | ARD, cough, sore throat, fever, headache      | Influenza A (H1) |
| 44   | M   | NP swab     | Possible influenza                            | Influenza A (H1) |
| 22   | M   | Throat swab | Cough, fever, headache                        | Influenza A (H1) |
| 20   | F   | Throat swab | Cough, sore throat, fever                     | Influenza A (H1) |
| 19   | F   | Throat swab | Bronchitis, cough, fever                      | Influenza A (H1) |

|     |   |                  |                                                 |                                   |
|-----|---|------------------|-------------------------------------------------|-----------------------------------|
| 20  | F | Throat swab      | Cough, fever 103°, myalgias                     | Influenza A (H1)                  |
| 28  | F | NP swab          | Influenza A confirmation                        | Influenza A (H1)                  |
| 21  | F | Throat swab      | Cough, sore throat, fever                       | Influenza A (H1)                  |
| 19  | M | Throat swab      | URI, cough, sore throat, fever, headache        | Influenza A (H1)                  |
| 18  | M | Throat swab      | URI, cough, sore throat, fever                  | Influenza A (H1)                  |
| 20  | M | Throat swab      | ARD, sore throat, fever, headache               | Influenza A (H1)                  |
| 21  | M | Throat swab      | Cough, sore throat, fever, headache             | Influenza A (H1)                  |
| 21  | F | Throat swab      | Cough, fever, headache                          | Influenza A (H1)                  |
| 19  | F | Throat swab      | Cough, fever                                    | Influenza B                       |
| 66  | F | NP swab          | Influenza confirmation                          | Influenza B                       |
| 16  | M | NP swab          | Influenza confirmation                          | Influenza B                       |
| 20  | F | Throat swab      | ARD, cough, fever, headache                     | Influenza B                       |
| 14  | F | NP swab          | Influenza confirmation                          | Influenza B                       |
| 19  | M | Throat swab      | Cough, fever, headache                          | Influenza B                       |
| 26  | F | Throat swab      | Bronchitis, cough, sore throat, fever, headache | Influenza B                       |
| 24  | M | Throat swab      | ARD, URI, cough, sore throat, headache          | Influenza B                       |
| 18  | F | Throat swab      | ARD, cough, sore throat, fever                  | Influenza B                       |
| 20  | M | NP swab          | Influenza B confirmation                        | Influenza B                       |
| 76  | M | NP swab          | Possible influenza                              | Respiratory Syncytial Virus (RSV) |
| 22  | F | Throat swab      | Influenza-like illness                          | Respiratory Syncytial Virus (RSV) |
| 3mo | M | NP swab          | Referred isolate                                | Rhinovirus                        |
| 19  | F | Hip lesion swab  | Vesicular rash                                  | Varicella Zoster Virus (VZV)      |
| 22  | M | Oral mucosa swab | Lymphadenopathy                                 | Herpes simplex type-1             |
| 20  | M | Throat swab      | Sore throat, fever                              | Herpes simplex type-1             |
| 18  | F | Throat swab      | Sore throat, fever, lymphadenopathy             | Herpes simplex type-1             |
| 18  | M | Throat swab      | Sore throat                                     | Herpes simplex type-1             |

### Herpes Simplex Virus Isolations

| Agent                 | Number of Isolates |
|-----------------------|--------------------|
| Herpes Simplex type 1 | 7                  |
| Herpes Simplex type 2 | 10                 |

## Molecular Amplification and PCR

| Agent                        | Method              | Tested | Positive | % Positive |
|------------------------------|---------------------|--------|----------|------------|
| <i>Chlamydia trachomatis</i> | ProbeTec            | 623    | 92       | 14.8%      |
| <i>Neisseria gonorrhoeae</i> | ProbeTec / GenProbe | 781    | 68       | 8.7%       |
| Adenovirus                   | Real-time PCR       | 1      | 0        | 0%         |
| Herpes Simplex Virus         | Real-time PCR       | 1      | 1        | 100%       |
| Influenza A/B                | Real-time RT-PCR    | 93     | 57       | 61.3%      |
| Parainfluenza Virus          | Real-time RT-PCR    | 1      | 0        | 0%         |
| Respiratory Syncytial Virus  | Real-time RT-PCR    | 2      | 2        | 100%       |

The MHD laboratory is currently performing DNA sequence-based microbial identification for selective reference bacteria and fungal isolates. This rapid, high throughput molecular assay targets 16S rRNA and the D2 region of the 26S rRNA genes for the detection of bacteria and fungal species. Please call the laboratory at (414) 286-3526 for further detail.

## DNA Sequencing

| Reference Microbe | Target gene | Final Identification                |
|-------------------|-------------|-------------------------------------|
| Bacteria          | 16S rRNA    | <i>Bacillus simplex</i>             |
| Bacteria          | 16S rRNA    | <i>Capnocytophaga</i> species       |
| Bacteria          | 16S rRNA    | <i>E. coli/Shigella dysenteriae</i> |
| Bacteria          | 16S rRNA    | <i>Klebsiella</i> species           |
| Bacteria          | 16S rRNA    | <i>Lactococcus lactis</i>           |
| Bacteria          | 16S rRNA    | <i>Sporocinia</i> species           |
| Bacteria          | 16S rRNA    | <i>Stenotrophomonas maltophilia</i> |
| Fungus            | D2/26S      | <i>Aspergillus fumigatus</i>        |
| Fungus            | D2/26S      | <i>Aspergillus versicolor</i>       |
| Fungus            | D2/26S      | <i>Paecilomyces lilacinus</i>       |
| Fungus            | D2/26S      | <i>Trichophyton</i> species         |

City of Milwaukee Outbreak Investigations Updates:

- o Salmonella serotypes associated with the Pistachios recall were isolated from patients from various states: AZ, CA, NJ, NE, NY, MO, MN, MT, FL, PA, TN, WA and WY. No case from WI has been associated with this outbreak so far. Mainly Salmonella Montevideo (PFGE Xba pattern JIXX01.0011) is linked to this outbreak but Salmonella Newport (JJPX01.2265) and Salmonella Senftenberg (JMPX01.0256) are also being considered. A Salmonella Montevideo isolate confirmed in our lab on 1/30/09 has a different PFGE XbaI pattern from the outbreak strain.
- o Several small clusters of Norovirus have been identified in our community in recent weeks.
- o Influenza Update - A total of 24 H1N1 isolates from MHDL were further analyzed and characterized at CDC by hemagglutination-inhibition using post-infection ferret antisera and sequence analysis. A total 19 of 24 reported back as A/BRISBANE/59/2007-LIKE (H1N1), which is one of the recommended Northern Hemisphere trivalent influenza vaccine strains for 2009-10.
- o From SurVNet for the week of April 4<sup>th</sup>:

**Vaccine Match Information**

|             | A/H3                              | A/H1                                | B                                 |
|-------------|-----------------------------------|-------------------------------------|-----------------------------------|
| Match Notes | 86 tests, 86 related=100% related | 549 tests, 549 related=100% related | 211 tests, 44 related=21% related |

*\*'related' means similar to the vaccine strain*

**Labs Data To-Date**

| Lab  | Number Tested to date | Number Positive | Most Recent Week Percent Positive | Predominant A Subtype and Strain | Predominant B Strain | Predominant Type (A or B) |
|------|-----------------------|-----------------|-----------------------------------|----------------------------------|----------------------|---------------------------|
| CDC  | 87,331                | 12,180          | 17                                | (H1), Brisbane                   | Victoria             | A                         |
| WSLH | 8,542                 | 1,604           | 23                                | (H1)                             | NA                   | A                         |
| MHD  | 281                   | 110             | 8                                 | (H1)                             | NA                   | NA                        |