

Issues in Diagnosis: Lessons Learned

Current Recommendations vs. Clinical Reality

Paul Van Caesele, MD

Cadham Provincial Laboratory
Manitoba Health & Healthy Living

The Setting

- Massive influx of specimens (average 1000% normal, >2200% normal seen)
- Little accompanying information*
- “All hands on deck”
- Shifting epidemiology, uncertain biology
- Complex methodology & new platforms
- Concomitant lab absenteeism

Testing Priority

- Normal – All comers with some rapid detections
- H1N1 – Several possible groups
 - Severely ill*
 - Hospitalized but not intubated/ventilated*
 - Pregnant and at risk
 - Health Care Workers
 - Other critical workers
 - Animal Workers (swine)
 - Travelers
 - Treatment Non-responders
 - Outbreaks*

Best Specimen for Viral Detection

- Normal – Nasopharyngeal swabs (throat)
- H1N1 – Limited evolving data
 - Nasopharyngeal (NP) swab (flocked)*
 - NP Aspirate*
 - Nasal swab
 - Throat swab
 - Sputum
 - Endotracheal secretions
 - Bronchoalveolar lavage*
- Timing of specimen collection a challenge
 - Rapid-progressors, biphasics, low load shedders

Sensitivity & Utility of Assays

- Normal – Range of acceptable platforms
- H1N1 – Not all tests are created equal
 - Rapid antigen detection (X)(~10-60%)
 - Direct Fluorescent microscopy (~40-60%)
 - Culture (TBA, BCL-2 or -3?)
 - RT-PCR for Influenza A* (80-99%)(viability?)
 - RT-PCR for H1N1*
- Time to Report was reasonable but still of limited value to clinicians

Monitoring for Resistance

- Normal – Standard surveillance acceptable
- H1N1 – What method?
 - Phenotypic, genotypic (what target/method) or surrogate (viral load)
- In several possible scenarios
 - Repeated measure in hospitalized or prophylaxed immunosuppressed
 - Outbreaks
 - Non-responders
 - Travelers from higher risk areas
 - Representative sampling
 - Remote communities

Co-infections & Other Viruses

- No current recommendations regarding diagnostics for other viruses
- Limited capacity to test for other respiratory viruses
 - Limits information regarding population
 - Is there something else causing SRI?
- Are bacterial superinfections as important as they were in 1918?

Information Management

- Normal – Most processes adequate
- H1N1 – Intense demand for real-time data from several stakeholders (individ. & collect.)
 - Acute care
 - Intensive Care
 - Community Care
 - Public Health & Governments
 - Media
 - Current systems were strained to cope with the demand, and patchwork systems were used

Global Lab Impact

- Normal – within system capacity
- H1N1 – pushes some systems to use of contingency plans
 - Services: Diverted or suspended
 - Stockpiling: space, time and expense
 - HR: redeployment to H1N1 effort, overtime
 - Information: Enhanced information demand at all points and by all parties