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To: All Microbiology Laboratory Service Users **22nd July 2014**

RE: Review of Respiratory Serology and Viral Culture Repertoire

Following a review and critical appraisal of our current microbiology test repertoire for respiratory tract pathogens and virus culture with reference to national and international standards and guidelines, it has been decided that most respiratory serology and all virus culture will be discontinued wef 01.09.14.

Rationale for discontinuation of Respiratory Serology:

- Serologic tests lack both sensitivity and specificity. Positive serologic results do not always differentiate current from past infection. Serologic tests have poor clinical diagnostic and prognostic value for management of patients with respiratory tract infections and generally provide a retrospective diagnosis only
- A combination of routinely available methods such as direct antigen detection and molecular (PCR-based) methods has replaced serological tests for establishing the microbial aetiology of respiratory tract infections. In addition, multiplex PCR tests for the simultaneous detection of bacterial and viral respiratory pathogens are emerging technologies for use in hospital diagnostic laboratories for rapid diagnosis (in two to three hours). They also have potential to reduce the unnecessary use of antibacterial agents
- Empirical antimicrobial treatment regimens for CAP including doxycycline or clarithromycin provide adequate cover against pathogens such as *Chlamydophila pneumoniae* and *Mycoplasma pneumoniae*. Therefore routine laboratory testing for these pathogens is not recommended.

Rationale for discontinuation of Viral Culture:

- Virus isolation in culture is slow, time-consuming and labour-intensive and lacks the sensitivity needed to have an appreciable impact on clinical decision making. It has largely been superseded by a variety of molecular technologies designed to rapidly and accurately detect respiratory tract and other pathogens.

Please review the table overleaf and discuss with one of the consultant medical microbiologists if you have any specific concerns or queries.

References:

1. Mandell LA, Wunderink RG, Anzueto A, et al. Infectious Diseases Society of America/American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults. *Clin Infect Dis* 2007; 44 Suppl 2:S27.
2. Metlay JP, Fine MJ. Testing strategies in the initial management of patients with community-acquired pneumonia. *Ann Intern Med* 2003; 138:109.
3. Bartlett JG. Diagnostic tests for agents of community-acquired pneumonia. *Clin Infect Dis* 2011; 52 Suppl 4:S296.
4. Gilbert D, Spellberg, Bartlett JG. Recommendations for diagnostic studies in respiratory tract infections (Position paper of the Infectious Diseases Society of America). *Clin Infect Dis* 2010
5. File TM Jr. New diagnostic tests for pneumonia: what is their role in clinical practice? Clin Chest Med 2011; 32:417.
6. Kumar S, Hammerschlag MR. Acute respiratory infection due to Chlamydia pneumoniae: current status of diagnostic methods. *Clin Infect Dis* 2007; 44:568.
7. Caliendo AM. Multiplex PCR and emerging technologies for the detection of respiratory pathogens. *Clin Infect Dis* 2011; 52 Suppl 4:S326.
8. Gaydos CA. What is the role of newer molecular tests in the management of CAP? *Infect Dis Clin North Am* 2013; 27:49.
9. Q 7 - Good Laboratory Practice when Undertaking Serology Assays for Infectious Diseases. www.hpa.org.uk/ProductsServices/MicrobiologyPathology

The following table provides an up-to-date list of currently available tests for diagnosis of 'atypical' respiratory tract infections and some other viral infections, including optimum specimen requirements and laboratory turn-around-time (from specimen receipt in laboratory).

Etiologic agent	Available standard test	Optimum Specimen (S)	TAT	Comments
Mycoplasma pneumoniae *Chlamydophila* (formerly Chlamydia) pneumonia	Routine laboratory testing for these pathogens is not recommended			
Chlamydiophila (formerly Chlamydia) *psittaci*	Antibody test	Serum	7-14 days	Reference laboratory test
Coxiella burnetti (Q fever)	Antibody test	Serum	7-14 days	Reference laboratory test • Seroconversion is usually detected 7-14 days after the onset of symptoms • Please specify date of onset of symptoms, for meaningful testing and interpretation
Legionella pneumophila	Urine antigen*	Urine	30 min	• Urine antigen assay for the diagnosis of Legionella is useful for the diagnosis of *L. pneumophila* serogroup 1 infection. • This serogroup accounts for 80 percent of Legionnaires' disease acquired in the community.
	Culture	Induced sputum, bronchoscopic/non-bronchoscopic lavage	48-72h	• Infection with *L. pneumophila* other than *L. pneumophila* serogroup 1 infection can be detected
Respiratory syncytial virus (RSV)	RSV antigen test*	Nasal aspirate/wash, nasopharyngeal aspirate/wash bronchoscopically obtained samples	20-30 min	Rapid antigen test
RSV Influenza viruses A, B Parainfluenza viruses 1–4 Adenovirus	Direct Immunofluorescence (DIF)	Nasal aspirate/wash, nasopharyngeal aspirate/wash bronchoscopically obtained samples	1-1.5h	
Influenza viruses A, B	PCR*	Nose and/or throat swabs in viral transport medium	1.5-2h	Commercial test available in-house
Enterovirus meningitis or meningoencephalitis	PCR*	CSF		Commercial test available in-house
HSV 1&2 encephalitis	PCR	CSF	-	Reference laboratory test
HSV 1&2 genital infections	PCR	Genital specimens	-	Commercial test available in-house
HSV (1&2), VZV, EBV, CMV Meningoencephalitis	PCR	CSF		Reference laboratory test

***For requests between 2200-0700, please refer to 'Microbiology on-call service arrangements' in Pathology Handbook on the hospital Intranet**

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