



LIFE Worldwide: Leading International Fungal Education



January 2018

Welcome to the first LIFE Worldwide newsletter of 2018. We've taken the 'New Year, new you' message to heart and completely revamped our newsletter – hope you like it! We look forward to seeing some of you at Advances Against Aspergillosis in Lisbon next week, where we will be helping to set up a Portuguese patient support group. – LIFE team

News



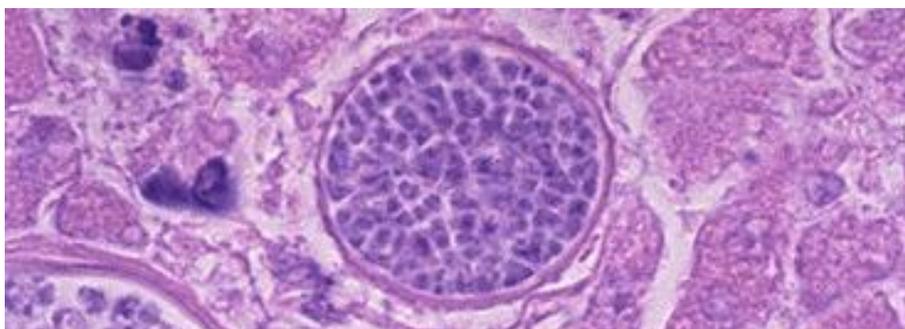
IMMY sōna™: a new rapid (<30min) lateral flow antibody test for Coccidioides IgG & IgM

Valley Fever, caused by the soil-borne fungus *Coccidioides*, causes flu-like illness and occasionally pneumonia or meningitis in arid parts of America. Incidence has markedly increased in recent years, and extended into non-endemic areas, but existing serological diagnostics are labour-intensive and slow — generally taking between 3 and 7 days.

IMMY (Oklahoma, USA) have registered a new lateral flow device (CTA2003, sōna™) with the FDA, which delivers a result in less than 30 minutes on the basis of detection of both IgG and IgM. The test involves diluting serum in the diluent provided by IMMY, then inserting an assay strip that is read like a pregnancy test after 20 minutes.

The test has a high negative predictive value (100%; CI=91–100%), meaning that it can be used to reliably rule out Valley Fever in uninfected patients, thus avoiding unnecessary treatment with antifungals. A positive result reduces the time to antifungal treatment, but would generally be followed up with traditional serological testing as the positive predictive value was lower (77%; CI=63–87%).

► Read more: [IMMY website](#)



Clinical patterns of histoplasmosis in India and Africa

Since [histoplasmosis](#) was first described in India in 1954, there has been an acceleration of reports and interest in India, even without the benefit of [serological](#) or [molecular](#) testing. Dr Ayush Gupta and colleagues from the [All India Institute of Medical Sciences](#) (AIIMS, Delhi) recently compiled a set of 204 cases from the literature and contributed a further 10 from AIIMS. They found striking differences in the clinical characteristics of subacute and [acute \(progressive\) disseminated](#) histoplasmosis in non-immunocompromised and immune-compromised patients. In subacute disease, weight loss was common (60%) in contrast to lymphadenopathy which was relatively uncommon in this group (14%); even more striking was the lack of adrenal involvement among immunocompromised patients (6%). Among immunocompromised patients, pulmonary involvement (29%) and skin lesions (55%) were commonly seen. AIDS was the underlying diagnosis in 72% of the immunocompromised cases. Men were affected 6 times as frequently as women, possibly due to increased occupational exposure. Unfortunately, responses to therapy with either itraconazole or amphotericin B were sub-optimal (<50%).

► Read it now: [Gupta et al \(2017\) Mycopathologia 182:1077-93.](#)

Dr Rita Oladele and colleagues in Lagos and Manchester systematically reviewed the available scientific literature for [histoplasmosis in Africa](#). 470 cases (247 dubosii and 185 capsulatum cases) were identified from 32 countries from published cases and series, but this is thought to be a great underestimation. A small number of dubosii cases (previously called 'African histoplasmosis') were seen in HIV positive patients, with different manifestations from non-immunocompromised patients. The country to report the most cases was Nigeria, with 124 cases. Studies found positive skin test reactions to the antigen histoplasmin among ~3% of community members and ~5–10% of hospital patients, although much higher prevalence (~35%) was seen among rural populations. N.B. skin testing measures whether a person has ever had an infection (i.e. not only current infections).

► Read it now: [Oladele et al \(2018\) PLoS Neglected Tropical Diseases 12\(1\):e0006046](#)

Watch out for influenza-associated aspergillosis in critical care

Influenza-associated aspergillosis (IAA) is underdiagnosed: only 68 cases were reported before 2017, with a mortality rate of 47%. However, two recent studies suggest that some deaths from IAA could be prevented through increased awareness of the signs among ICU clinicians. In a recent letter to the [American Journal of Respiratory and Critical Care Medicine](#), the Dutch-Belgian Mycoses Study Group described 23 further cases in the Netherlands alone between Dec 2015 and April 2016. Of 144 influenza patients, 16% also had aspergillosis, and 61% of those died during while admitted to the ICU. They suggest that delays in diagnosing and initiating antifungal therapy may have contributed to this rate. Worryingly, 30% of IAA patients were infected with azole-resistant strains.

► Read it now: [van der Veerdonk et al \(2017\) Am J Resp Crit Care Med 196\(4\):524-7.](#)

A second paper looked at Spanish ICUs between 2009 and 2015. Of 2901 influenza patients, 1% were co-infected with *Aspergillus* spp, and this was associated with a higher mortality rate (aOR 4.1, 95 % CI 1.9–9.6).

► Read it now: [Martin-Loeches et al \(2017\) Intensive Care Med \(2017\) 43:48–58.](#)

Signs to watch for:

- Radiological findings: cavitary lesions, nodules, air-crescent signs
- Diagnostic tests: galactomannan in serum or bronchoalveolar lavage
- Clinical signs: dyspnea, haemoptysis or pleural friction rub
- Worsening of respiratory insufficiency despite more >3 days of antibiotic therapy

Asia Fungal Working Group survey reveals inconsistent practices and availability of tests in mycology labs across much of Asia

The [Asia Fungal Working Group](#) (AFWG; an [ISHAM](#) working group) have been conducting an online survey of management practices and tests offered by mycology labs across Asia. [Dr Chindamporn](#) and colleagues recently published the results to date as a gap analysis in the journal [Medical Mycology](#). Responses were received from 241 mycology labs in 7 countries (China, India, Indonesia, the Philippines, Singapore, Taiwan and Thailand).

Overall management of the lab (% of responding labs):

- Operates as a separate designated mycology lab (54%)
- Conducts regular formal staff training (43%)
- Participates in external quality assessment schemes (EQAS) programs (56%)

Tests offered (% of responding labs):

- Identification by DNA sequencing (17%)
- MALDI-TOF MS (12%)
- Susceptibility testing (59%)
- Serology for fungal diagnosis (32%)
- Therapeutic drug monitoring for azoles (8%)

These results highlight the need for investment in facilities, in particular molecular testing and biosafety hoods. The AFWG is taking action to start [EQAS](#) programmes for mycology laboratories in each country.

The survey forms part of the AFWG's ongoing research and is open for mycology lab managers to [submit responses electronically](#) (includes other Asian countries and Australia/New Zealand). There is a [separate AFWG survey](#) about fungal infection management for clinicians based in Asia.



- Read it now: [Chindamporn et al \(2017\) Survey of laboratory practices for diagnosis of fungal infection in seven Asian countries: An Asia Fungal Working Group \(AFWG\) initiative. Medical Mycology, 0, 1–10.](#)

Diagnostic tip

Frozen sections for rapid AIFS diagnosis



Early diagnosis and treatment initiation is crucial in reducing morbidity and mortality from acute invasive fungal sinusitis (AIFS) among immunocompromised patients and those with uncontrolled diabetes. Primarily caused by the opportunistic pathogens *Aspergillus* or *Mucor*, infections begin with an unexplained fever and other nondescript symptoms (headache, congestion, facial pain) but progress aggressively. A [general protocol for management](#) was published by Gillespie in 1998, which recommended early rigid nasal endoscopy and CT scan, with mucosal discolouration, ulceration, or local invasion being suggestive of fungal sinusitis.

[Permanent \(paraffin-embedded\) pathology](#) is the gold standard for diagnosis of AIFS, but Dr Melancon and Dr Clinger describe a method of frozen section analysis that can give a provisional diagnosis up to 48 hours earlier. Samples were frozen at -24°C and cut into 5µm sections, which were stained with [H&E](#). Using 31 samples from 28 patients, they obtained a sensitivity of 88% and specificity of 100%.

Where facilities are available, it is worth considering using the frozen section technique alongside usual pathology reporting in patients at particular risk of AIFS who would benefit from expedited initiation of antifungal treatment or in particularly aggressive infections where clinicians are must make the decision whether to proceed with disfiguring surgeries (e.g. exenteration) under considerable time pressure.

► Read it now: [Melancon and Clinger \(2017\) Head Neck Surg 157\(2\):314-9.](#)

Section in the spotlight

Antibody testing



Serological tests measuring antibodies (generally IgG or IgE; IgM for coccidioidomycosis) against pathogens are a valuable tool for the diagnosis and monitoring of many fungal infections and allergies. Since the last newsletter, we have added a number of new antibody tests to our list, including the IMMY sōna™ test featured above. A video protocol is also available for use of immunodiffusion methods.

► [Go there now](#)

Courses



- Masterclass in [Practical Allergy Diagnosis](#) in Marburg, Germany (23-24 March 2018).
- 5-day course on [Infectious Diseases in Adults](#) at Harvard Medical School, Boston (30 April-4 May 2018).
- Spanish-language 2-year postgraduate course in [Medical Mycology](#) at the [INHRR](#) in Venezuela.

Or take our Moodle-based online course on fungal histology and microscopy at [Microfungi.net](#)

Conferences



- 8th [Advances Against Aspergillosis](#) (Lisbon; 1-3 March 2018)
- 14th [ASM Conference on Candida and candidiasis](#) (Rhode Island; 15-19 April 2018)
- 28th [ECCMID conference](#) (Madrid; 21-24 April)
- 20th [ISHAM Congress](#) (Amsterdam; 30 June-4 July), followed by [ISHAM Working Groups on Black Yeasts and Chromoblastomycosis](#) (Utrecht; 5-6 July 2018)

Featured LIFE video

Lumbar puncture

As part of our free educational programme, a video protocol for performing lumbar puncture has been made available. Keep watching the LIFE Worldwide website for more free diagnostic videos in the coming months, or visit the [LIFE Worldwide](#) YouTube channel to watch videos made by other organizations. Fungal CNS infections are commonly caused by *Candida*, *Cryptococcus*, *Aspergillus* or Mucorales - [click here for an illustrated review](#), or [click here for a paper describing analysis of CNS fluid in more detail](#).

[Watch it now](#)

Really important review

Fungi in bronchiectasis

While the most common fungi to be isolated from bronchiectasis patients are *Candida albicans* (45%) and *Aspergillus* spp. (24%), advances in diagnostic techniques have made it possible to look at the human lung microbiome in more detail. Dr Luis Máiz and colleagues in Madrid have reviewed the different types of fungi that are found in the lungs of bronchiectasis patients, and discuss which ones are likely to be a normal part of the microbiota and which ones may be considered opportunistic pathogens.

[Read it now](#)

New book

Oxford Textbook of Medical Mycology

A new comprehensive reference textbook for scientists and clinicians. It covers the principles of medical mycology and provides detailed information on fungal diseases and the agents that cause them. The last two sections cover modern diagnostics and a systems-based approach to management. Edited by Christopher Kibbler, Richard Barton, Neil Gow, Susan Howell, Donna MacCallum, and Rohini Manuel. Also available for [Amazon Kindle](#). ISBN: 9780198755388 Oxford University Press

[Buy it now](#)

Notices



[do we have any notices that need to go in here?]



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