

practical

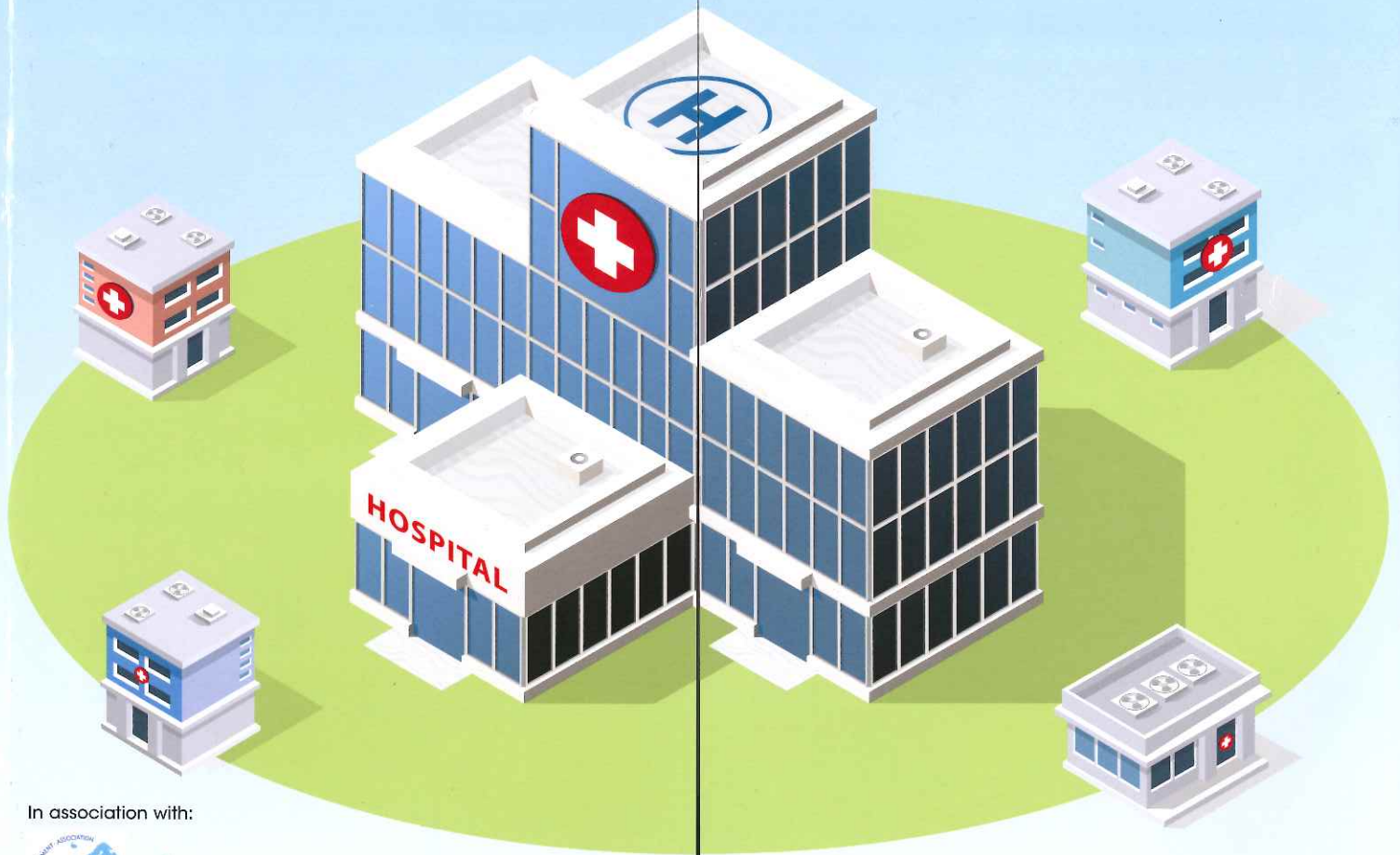
patient care

www.practical-patient-care.com

Issue 20 2017 • £31.00 €49.00 \$65.00

Good things come in small hospitals

Dr James Nichols explains the ins and outs of micro-hospitals - are they good, bad or just a fad?



In association with:



GlobalData.

Applied technology

How can smartphone systems make operating theatres more productive?

Roadmap to change

Professor Amin Rostami on the need to rethink dose management in public healthcare

WOUND CARE • INFECTION CONTROL • DIAGNOSTICS • E-CARE

Combat influenza

With influenza and respiratory syncytial virus (RSV) putting a major strain on healthcare providers worldwide, doctors are hunting for methods to tackle outbreaks effectively. Laboratory director at Hong Kong Adventist Hospital – Tseun Wan, **Dr Stanley Leung Wai-ming**, discusses the capabilities of molecular testing to provide quick and accurate diagnoses.

Seasonal illnesses like influenza and respiratory syncytial virus (RSV) are an increasingly common part of medical practice. The consequences of inaction are shocking: approximately 500,000 people die of flu complications each year. All this puts increased pressure on doctors to diagnose and manage patients more effectively. Traditionally, hospitals relied on enzyme immunoassays (EIAs) to diagnose patients, but this method can be unreliable as they are not sensitive enough to be accurate.

However, there is an innovative alternative available: rapid real time RT-PCR (reverse transcriptase PCR) testing. This methodology is a molecular method recognised as a highly sensitive and specific alternative for the detection of respiratory RNA viruses. This is good news for physicians and patients alike, explains Dr Stanley Leung Wai-ming, the laboratory director at Hong Kong Adventist Hospital – Tseun Wan. “Influenza has become an epidemic in Hong Kong,” he says. “We have a lot of casualties, causing a lot of admissions and deaths, particularly of younger children and elderly patients. *Influenza A*, *Influenza B* and RSV detection is really critical to us.”

Initially, doctors diagnose patients purely based on physical signs. “We usually notice if a patient has particular symptoms, like coughing, fever, nasal discharge or even pneumonia,” explains Leung. This can cause problems though. As influenza and RSV patients share many

Dr Stanley Leung Wai-ming

Dr Stanley Leung Wai-ming is the laboratory director at the prominent Hong Kong Adventist Hospital – Tseun Wan. A private not-for-profit hospital, the Adventist was established in 1964 and provides specialist services in cardiology, gynecology, obstetrics, surgical, pediatrics, orthopedics and urology.

of the same symptoms, it can often be a challenge to know exactly what patients are suffering from.

With a sensitivity rate of around 94% and a specificity rate of over 94%, RT-PCR tests can distinguish between illnesses far more precisely than EIAs. “[We prefer these tests] because of [their] accuracy and sensitivity,” Leung says. “They have a high degree of specificity compared with enzymatic testing, which only has about 70% sensitivity. We miss a lot of cases if there’s an infection.”

While EIAs are quick to perform, they suffer from other limitations. Notably, they can be complicated to set up, and reading the results can be challenging, even for scientists. For their part, molecular tests like RT-PCRs are simple and easy to use. Leung explains: “You just add the sample to the cartridge. Then you put the cartridge in a machine, and it automatically performs the tests.” Doctors can process samples in under a minute, and full test results are ready in under half an hour.

At the same time, Leung uses molecular testing that send results directly back to his hospital’s laboratory information systems, sparing staff the task of manual data entry. This automated approach also precludes human error, something that can’t be guaranteed when he uses EIAs. “The major difference [with RT-PCRs] is

that [our] enzymatic testing machines lack computer links with our laboratory information system. So we need to manually enter all the information into our system. In that scenario, there might be an input error.”

All this undoubtedly helps doctors. More importantly, though, molecular testing is saving lives, especially among vulnerable groups. “If we can accurately identify the influenza patients, we can prescribe the right medication to them as soon as possible,” says Leung. “This is particularly helpful to elderly patients, especially if they have critical symptoms like pneumonia.”

Moreover, molecular testing can stop the spread of infection in hospitals. “We really need to ensure that someone definitely has influenza,” Leung continues. “For critically ill patients, when we’re picking where in a hospital they’ll be admitted, we want to put [influenza] patients into a single room to reduce local infections to other patients. This is really good for patient management.”

Overall, Leung is confident that molecular tests provide better quality of care than the alternatives. “We have a hard time explaining the [limitations] of EIA tests to clinicians and patients,” he admits. “But with the advantages of molecular testing, we can be more confident about providing a good service to our clients.” ■

Xpert® Xpress speed
— it's like they put a **NOW**
button on the cartridge!

Introducing *the POWER of*
NOW.

Xpert® Xpress: A new family of tests with no-compromise quality,
ease-of-use, and results in 30 minutes or less.



Xpert® Xpress Strep A—Now Available!

Xpert Xpress Strep A—rapid, quality results, no compromise.

Xpert Xpress Strep A delivers accurate Strep A results in as soon as 18 minutes*.
With more Xpress products on the way, including tests for Vaginitis/Vaginosis and
Chlamydia/Gonorrhea¹, Xpress is the next diagnostic game changer from Cepheid.

Join us at: www.cepheid.com/xpress

Vira Solelh | 81470 Maurens-Scopont, France | PHONE +33.563.82.53.00 | FAX +33.563.82.53.01 | EMAIL cepheid@cepheid.com

* With Early Assay Termination (EAT) for positive results.

¹ The product information is intended to outline our general product direction and it should not be relied upon in making a purchasing decision as the development, release, and timing of any of our products remains at our discretion and is also subject to regulatory approvals. Product availability based on timing of regulatory submission and approval.

CE IVD In Vitro Diagnostic Medical Device Not all products available in all countries. Targeted Test Menu Subject to Revision.

 **Cepheid**
A better way.

Diagnose with confidence: reliable results, every time

Cepheid has developed a test that offers reliably fast results, every time. *Practical Patient Care* talks to Dr Ellen Jo Baron, the company's executive director of medical affairs, about Cepheid's new Xpert Xpress Strep A test.

What is GAS pharyngitis and why is it sometimes hard to detect?

Dr Ellen Jo Baron: 'Pharyngitis' means inflammation of the throat, but most people know it as a simple sore throat. Several types of bacteria and viruses can infect the lining of the back of the throat and cause a reaction – pus cells, redness and pain. GAS stands for 'group A *Streptococcus*' and is the major bacterial cause of a sore throat. It is important to detect and treat it with penicillin or a similar antibiotic. If untreated, patients can develop illnesses like rheumatic fever. It's not hard to detect GAS using a good culture in the laboratory, but right now many clinics use rapid antigen tests that, while fast, are not very sensitive.

What are the technical advantages of Xpert Xpress Strep A over other GAS diagnostics solutions currently on the market?

It is easy to perform – only a few simple steps are needed – and results are available in around 20 minutes. It's also one of the most sensitive commercially available tests around. The instrument used is small and portable, so it can be performed in several outpatient settings. It can be connected to the laboratory or hospital computer system, or deliver results directly to a cloud information system. This allows them to be quickly sent back to caregivers. The sample – a swab of the back of the throat – is placed into a tube of liquid that can be used for other tests later if necessary, such as to culture for other bacteria that might have caused someone's sore throat if the Xpert Xpress Strep A test is negative.

“Xpert Xpress Strep A is so accurate, clinicians can diagnose patients immediately. This saves patients time, avoiding unnecessary trips to the drug store.”

How do these advantages translate for hospital staff?

One problem with antigen tests is that, if the staff don't go back to check the result in time, they have to do it again. With our test, it doesn't matter if you didn't get back in time as the answer has already been determined and it's on the computer screen. At the same time, because



Cepheid's test ensures that children are only prescribed antibiotics when they are needed.

our tests are highly accurate, doctors can make reliable care decisions for patients immediately.

What are the benefits for patients?

Because Xpert Xpress Strep A is so accurate, clinicians can diagnose patients immediately. This saves patients time, avoiding unnecessary trips to the drug store. Our tests also cut back on using unnecessary antibiotics that lead to all kinds of problems. One of the more common reasons that children come into healthcare is adverse effects associated with taking antibiotics. Our test is able to cut back on these because children will only get antibiotics when they need them. It also helps with a patient's state of mind.

What plans do you have to improve your assays in future?

We are always working to improve our assays, including making them faster and more sensitive. Our Xpert Xpress product line is the latest development from Cepheid, offering tests with no compromise in quality and ease of use, and even faster results that patients and healthcare providers can truly benefit from. We also have been able to multiplex many of our assays for broader organism coverage. ■

Further information
Cepheid
www.cephheid.com



Xpert® Xpress speed
— it's like they put a **NOW**
button on the cartridge!

Introducing the POWER of
NOW.

Xpert® Xpress: A new family of tests with no-compromise quality, ease-of-use, and results in 30 minutes or less.



Xpert® Xpress Strep A—Now Available!

Xpert Xpress Strep A—rapid, quality results, no compromise.

Xpert Xpress Strep A delivers accurate Strep A results in as soon as 18 minutes*. With more Xpress products on the way, including tests for Vaginitis/Vaginosis and Chlamydia/Gonorrhea, Xpress is the next diagnostic game changer from Cepheid.

Join us at: www.cephheid.com/xpress

Vira Soleih | 81470 Maurens-Scopont, France | PHONE +33.563.82.53.00 | FAX +33.563.82.53.01 | EMAIL cephheid@cephheid.eu

* With Early Assay Termination (EAT) for positive results.

† The product information is intended to outline our general product direction and it should not be relied upon in making a purchasing decision as the development, release, and timing of any of our products remains at our discretion and is also subject to regulatory approvals. Product availability based on timing of regulatory submission and approval.

CE IVD In Vitro Diagnostic Medical Device Not all products available in all countries. Targeted Test Menu Subject to Revision.

Cepheid
A better way.