Catching Flu with the Front Door Open in Winter

Yusuf GRAY, Advanced Biomedical Scientist & POCT Team Manager

Rapid Introduction of Influenza A&B Point of Care Testing in the main acute patient admitting departments.

The NHS sees increasing demand on its acute admissions services year on year and the pressures on these admitting services causes increasing problems in patient flow both within the hospital and back into community care. This is exacerbated every year during flu season as we see a surge of patients attending with potential acute respiratory viral infections. Many of these in previous years have been admitted to hospital wards, laboratory tests taken in the ward and treatment only given after receiving these results. It is not uncommon for patients to be walloping on trolleys in the Emergency Department (ED) waiting for decisions on admission to the hospital or for a decision to treat and discharge.

If we can confirm which patients have influenza at the point of entry through the acute front doors of the hospital, they may be treated earlier, reducing the length of stay in hospital, or may be discharged on treatment, not adding to pressures to admit to wards.

Methods

The Abbott ID Now® Influenza A and B rapid molecular test (version 2) (ID Now was the Alere-i) was selected for the study, which provides results within 15 minutes. Experience in Sheffield has shown that the use of throat swabs provides a better sensitivity than the nasal swabs suggested by the manufacturer for use in the , and we used Sigma ViruChe® swabs (Medical Wire). A protocol had previously been agreed where any patient with both Flu A & B negative results would have a confirmatory swab sent to the laboratory for confirmation, RSV testing and possibly an extended respiratory viral panel.

Clinical staff in ED and MAU were trained initially by Abbott and POCT for the first days and then by POCT. As we were using the system “off label” by using throat swabs, it was important to make sure staff understood the sample collection process. During use it was determined that taking two swabs at the same time was best for patients, rather than going back to re-swab in the case of a double negative flu A&B. This was particularly true for paediatric patients.

During training it was not possible, due to a limited POCT staff resource, to provide staff with individual usernames and passwords. Each instrument operated alone, so usernames and passwords would have required entry in all three instruments. Each instrument was given a single multi-user username [MAU Muriel, ED (Triage) Edward and ED (Resus) Rebecca] and password.

Results

Since the service was introduced we trained over 120 clinical staff across ED and MAU within the first two weeks. A further 1000 tests were purchased mid-February after the first tranche had been used.

The performance of the service metrics:

• over 1400 tests on patients in the ED and MAU (to week 14)
• 28% were found to be flu positive
• Flu A Sensitivity [True Positives / (True Positives + False Negatives)] = 54.7%
• Flu A Specificity [True Negatives / (True Negatives + False Positives)]= 99.1%
• 33.3% patients tested were discharged (not admitted to a hospital ward), from 19% in MAU to 60% in ED Triage

• 74% of tests followed the testing protocol completely
• 9.8% were failed tests (sample was not correctly dispensed into the test unit). This was due to a misunderstanding of how the transfer cartridge worked and the user training by the manufacturer. This made users concentrate on the clicking noises made during locking onto the test module and the dispensing of the sample. We identified that by getting users to ignore the clicks, concentrate on the movement of the orange indicator button and giving them the idea that it works like a syringe, the error rate reduced significantly.

Conclusions

With preparation of plans and documentation before the introduction of point of care flu testing, it is possible to train sufficient staff to an adequate level to enable the service within a very short timescale. From ordering of materials to introduction into service took 9 days, including two bank holidays.

The only way that this was possible was having:

• The lead respiratory consultant driving the business cases
• Key consultants in both ED and MAU championing the introduction in their areas.
• Supported by the Virology consultant, and laboratory for the confirmatory testing.
• Arrangement for the urgent financial transfers and processing of the order.
• Arrangements with Clinical Engineering to test and add equipment to the Trust register on the day of delivery (Christmas eve).
• Point of Care Technologies support for logistics, training and most importantly a daily check that results had been reported.

The testing protocol was much more complicated than most POCT services and required the Trust to report all positive results centrally to Public Health England. We found that staff did not understand the need to provide a copy of the results on a request form (manual or electronic request) with full patient ID. This required the POCT team to copy results electronically and add to a database and check the reporting, providing a manual report to the Virology laboratory if required. This takes a significant amount of staff time and must be factored into the POCT workloads, and costs.

We identified a problem with user’s understanding of the mechanism of the sample transfer device which results in a number of failed tests. This is expensive and causes delays for patient treatment and/or discharge. We were able to reduce this with additional training and user guides, although it is difficult to ensure we capture all users.

Feedback from the clinical teams was that they found the service very useful and the number of patients discharged was more than double that seen in the previous flu season (15%).

This test system is more complicated to use than most POCT devices, as there are several key steps, users must complete successfully. However, with the use of the results database we managed to ensure full reporting and with the use of a sample transfer cartridge there is a lower risk of surface and instrument contamination.

References:

Great. paul.gray@nhs.net