Background. Pulmonary nocardiosis is an infection targeting immunocompromised patients characterized by high mortality and requires nonfrontline antibiotics for treatment. Nocardiosis is currently confirmed or excluded by BAL fluid culture followed by further phenotypic identification steps. A culture-independent method with more timely results would accelerate the administration of appropriate treatment. A rapid Nocardia (NOC) PCR assay for BAL has been neither previously validated nor offered for clinical testing to our knowledge.

Methods. Oligonucleotides for a rapid NOC PCR comprehensive of the causative agents of nocardiosis were aligned to the 16S regions of common NOC species and other. Specificity was validated against publicly available bacterial 16S sequences. Rapid automated nucleic acid extraction (<1 hour for 24 samples) followed by fast PCR (<1 hour) was validated according to relevant compliance standards. Spiked/unspiked human BAL samples were used to assess analytical specificity, limit of detection (LOD), precision and accuracy using NOC and non-NOC strains.

Results. The NOC PCR detected, among others, the most common NOC species (*N. cyriacigeorgica, N. nova, N. farcinica and N. brasiliensis*). We estimate more than 95% of causative agents of nocardiosis are detectable by the assay. No cross reactivity was detected from 30 non-NOC bacterial pathogens except for *Rhodococcus* and *Crostiella spp.* LOD in BAL fluid was determined to be 206, 41, and 26 copies/µL for *N. cyriacigeorgica, N. nova,* and *N. transvalensis,* respectively. Intra- and inter-assy precision studies revealed copies/µL %CV’s of <10% and <8% at a high concentration and <21% and <26% at a low concentration, respectively. Accuracy studies yielded 100% concordance with 33 BAL positives and 20 BAL negatives.

Conclusion. The specificity, inclusivity, sensitivity, precision and accuracy of a qualitative PCR have been deployed as an aid in the diagnosis of pulmonary nocardiosis. NOC PCR allows for a culture-independent method that can rapidly detect clinically relevant NOC species with an improved turnaround time, leading to prompt diagnosis and administration of appropriate treatment.

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1997. Impact of Blood Culture Fill Volumes
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Background. Historically, increases in blood culture (BC) fill volumes (FVs) have been shown to increase yield of BCs and lower contamination rates. Low FV are a common cause of false negative BCs. 10 mL is considered an ideal FV for a BC. In 2015 and 2016, at North Shore University Hospital, FVs averaged <5 mL per BC. In 2017, several interventions were implemented to increase FVs, including convening informal meetings and seminars to educate nursing staff, educational phlebotomy posters, and placing 10-mL markings on BC bottles and using butterfly catheters and Webster for collection. Our aim was to assess trends in overall yield (OY), contaminants and FVs.

Methods. Average FVs, positive BC, quantities and organism identification were obtained from 2015 through 2017. Contaminants included bacillus, coagulase negative staphylococcus, micrococcus and single sets of a-hemolytic streptococcus. OY was the number of positive sets, excluding contaminants, divided by the total number of BCs. Subgroup yield (SY) was the number of positive sets in a subgroup divided by the total number of BCs. Trends in OY, SY, and contaminants were assessed using the Cochran Armitage Trend test. The one-way ANOVA test was used to assess differences between FVs by year.

Results. OY increased over the 2015–2017 period (Table 1; P < 0.0001). All SYs increased except for staphylococcus and anaerobes. Contaminants did not show a decreasing trend (Table 2; P = 0.9002).

Table 1. Yield by Year

| Year | % Value |
|------|---------|
| 2015 | 6.37    |
| 2016 | 7.57    |
| 2017 | 8.49    |

Table 2. Mean FV by Year

| Year | Total BC ordered, n | Contaminants, % | Mean FV (SD), mL |
|------|---------------------|-----------------|-----------------|
| 2015 | 35,624              | 2.87            | 4.32 (0.26)     |
| 2016 | 38,440              | 2.99            | 4.39 (1.39)     |
| 2017 | 37,042              | 2.88            | 6.11 (0.98)     |

Conclusion. BC FVs successfully increased with interventions implemented. While OY increased each year, an association between yield and FVs could not be determined due to small sample sizes. Further evaluation at quarterly intervals is ongoing and may help establish a correlation.

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1998. Urine Culture Incubation Time: One vs. 2 Days?
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Background. One day incubation time for non-invasive urine cultures makes the lab operation and work flow more efficient. However, it has been a matter of debate since striking a balance between time of growth of potential pathogens and significant saving in labor and incubation space for large volume laboratories, or laboratories with total microbiology automation.

Methods. Only routinely collected urine cultures has been included in this study and invasive collection such as nephrostomy, straight or diagnostic catheter collection were excluded. SHSL urine culture procedure defines the workup cut off for uropathogenic organism routine culture and >100,000 CFU/mL. Total of 2,709 urine samples were processed using WASP automated plating system. 1 µL sterile loops were used to inoculate BAP/MAC bi-plates. Plates were incubated in 5% CO2 at 35°C for at least 18 hours and maximum 24 hours for the first day evaluation. All no-growth plates were examined with a regular bench top magnifier/light for evidence of growth, and if verified, they were incubated for an extra day of incubation. Organism identifications performed by Vitek MS instrument.

Results. Total of 501 out of 2,709 samples were determined No-Growth on the first day examination, and after second day of incubation 435 stayed as No-Growth (86.8%), 66 samples (13.2%) indicate growth of normal Uro-Genital (UG) microbiota, and no uropathogenic organisms detected. Among those with growth 54 (10.8%) samples grew <10K, 10 samples (2.0%) grew 10-50K, and 2 samples (0.4%) (95% CI= 0.1% - 1.5%) grew >50K CFU/mL of normal UG microbiota.

Conclusion. Although small percentage with low level urogenital microbiota was missed on the first day of incubation, there were no uropathogenic organisms missed. Therefore, the 1-day incubation of routine urine culture plates in CO2, and careful examination of the plates appeared to have same efficiency of 2-day incubation in urine culture diagnosis. One-day incubation time has been validated and may help establish a correlation.

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1999. Performance of Pneumococcal Urinary Antigen Testing: Riding the Vaccination Waves?
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Background. Urinary antigen testing for Streptococcus pneumoniae (PaGT) is rapid, and can still be used days after initiation of antibiotic therapy or when conventional methods are failing. PaGT is recommended by international guidelines in severe community acquired pneumonia (CAP). The test attains an excellent sensitivity (>90%) in adults but shows a varying specificity (60–85%). We aimed to analyze the PaGT sensitivity in a population with blood culture proven invasive pneumococcal disease (IPD) and to study its performance for the different pneumococcal serotypes.

Methods. PaGT (BinaxNOW®, Alere®) was introduced in 2009 in a large secondary care hospital in Ghent, Belgium. PaGT is requested by the attending physician or the clinical microbiologist in case of IPD suspicion. Pneumococci from blood are identified by standard methods (optochin susceptibility and bile solubility) and serotyped by the national reference center. Overall PaGT performance and test sensitivity for different serotypes were calculated.

Results. Over a 9-year period, (2009–2017), 235 bacteremia episodes in 234 patients were observed with an average of 26 episodes/year (range 12–36). 31/235 (13%) episodes occurred in pediatric patients. Most prevalent serotypes were 1, 12, 8, 3, 7, 9, 5, and 6 for the whole time period. PaGT was performed in 161/235 (69%), test execution for the individual most prevalent serotypes ranged from 55% to 86%. PaGT was positive. PaGT positive results varied according to the most