OpGen

CLEAR DIRECTION for Rapid Diagnosis of Pneumonia in Hospitalized Patients

Pneumonia can be fatal.

unyvero LRT

SHIFT THE PARADIGM

from days to hours for optimal results.

The only FDA-cleared panel for lower respiratory tract infections that detects *Pneumocystis jirovecii*

Clinical outcomes are highly dependent upon timely and appropriate therapy.

Unfortunately, standard of care microbiology has a number of limitations including:[1]

- Requirement of several days for results
- Affected by sample transport time and temperature
- Failure to determine a causative agent in >50% of pneumonia patients
- Exposure to unnecessary broad-spectrum antibiotics

Comprehensive Testing Panel

FDA-cleared Unyvero uniquely and accurately detects the most clinically relevant pathogens and antibiotic resistance markers associated with pneumonia.

BACTERIA		RESISTANCE	GENES	
Acinetobacter spp.	*Moraxella catarrhalis*	Carbapenems	*kpc*	*oxa*-48
Chlamydia pneumoniae	*Morganella morganii*		*ndm*	*oxa*-58
Citrobacter freundii	*Mycoplasma pneumoniae*		*oxa*-23	*vim*
Enterobacter cloacae complex	*Proteus* spp.		*oxa*-24	
Escherichia coli	*Pseudomonas aeruginosa*	3rd Generation Cephalosporins	*ctx*-M	
Haemophilus influenzae	*Serratia marcescens*	Oxacillin/Cefoxitin	*mec*A	
Klebsiella oxytoca	*Staphylococcus aureus*	Penicillin	*tem*	
Klebsiella pneumoniae	*Stenotrophomonas maltophilia*			
Klebsiella variicola	*Streptococcus pneumoniae*			
Legionella pneumophila				

FUNGI
Pneumocystis jirovecii *

Specimen Types:
Endotracheal Aspirate
Bronchoalveolar Lavage (including mini-BAL)

* included on the Unyvero LRT BAL panel.

Rapid, sample to answer direct from native specimen. **Simple** and clear qualitative results based on quantitative algorithms. **Sensitivity**: 91.4%; **Specificity**: 99.5%

Greater Diagnostic Accuracy. Critical Information for Life-Saving Treatment Decisions.

Wouldn't your doctors want to know?

Status Quo:
conventional culture

Initial culture: Negative → Subsequent culture: *Acinetobacter* → All patients with initial negative culture for *Acinetobacter* died.[2]

Unyvero:
in under 5 hours

Unyvero detected *Acinetobacter*

» Unyvero demonstrates correct identification of key pathogens that are often missed by culture, without relying on the growth of viable organisms.[3]

» Unyvero provides higher diagnostic yield than bacterial culture, enabling rapid diagnosis of pathogens of concern in hospitalized pneumonia patients, including COVID-19 patients in the ICU with bacterial superinfection.[4]

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One patient sample. Comprehensive results.

unyvero LRT points the way for **hospitalized pneumonia patients.**

Prompt initiation of antibiotics to treat infections reduces morbidity and saves lives.[5]

Unyvero Provides Rapid and Actionable Results and Supports Antibiotic Stewardship.

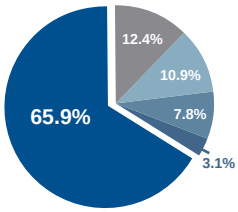
Unyvero results combined with antibiotic stewardship are efficient and safe in decreasing time on inappropriate antibiotic therapy in hospitalized patients with pneumonia at risk for Gram-negative bacteria.[6]

45.1% Unyvero reduced the use of inappropriate antibiotic therapy by **45.1%**

39 HOURS Unyvero shortened inappropriate antibiotic therapy by **39 hours**, and reduced overall antibiotic therapy duration by **22.54%**

3x **3 times** higher probability of avoiding inappropriate antibiotic therapy in the patient group diagnosed by Unyvero

Unyvero LRT panel demonstrated the opportunity to de-escalate antibiotics in 65.9% (405/615) of cases.[7]



65.9% Favors de-escalation, including anti-MRSA (69%) and anti-pseudomonal (64%)
10.9% Favors expansion; **7.8%** Favors both de-escalation and expansion; **3.1%** Start antibiotics
12.4% No change

Save time. Save money. Reduce exposure.

Unyvero LRT BAL panel enabled changes in therapy significantly faster, on average **21 hours faster**, compared to when conventional AST result was available,[8] which allows for:

- Reduction in drug cost
- Reduction in therapeutic drug monitoring (TDM) and pharmacist time
- Mitigation of the potential for adverse vancomycin-induced nephrotoxicity

Unyvero results combined with antibiotic stewardship are **efficient and safe in decreasing time** on inappropriate antibiotic therapy in hospitalized patients with pneumonia at risk for Gram-negative bacteria.[6]

$ A stringent antibiotic stewardship program can be safely implemented and it can decrease antibiotic costs by as much as **80%**.[9]

99.8% NPV The high negative predictive value (**99.8%**) of the Unyvero LRT panel is extremely useful for reducing excess exposure to unnecessary antimicrobials.[8]

Unyvero provides clinicians **earlier data** to inform antimicrobial decisions, including the critically ill COVID patients. [4]

OpGen®

Request an evaluation today: customersupport@opgen.com

References:
1. Messika J, Stoclin A, Bouvard E, et al. The Challenging Diagnosis of Non-Community-Acquired Pneumonia in Non-Mechanically Ventilated Subjects: Value of Microbiological Investigation. Respir Care. 2016;61(2):225234. doi:10.4187/respcare.04143 **2.** Pickens C, et al. Rapid diagnostic testing of bronchoalveolar lavage to detect non-fermenting gram-negative bacteria and antibiotic resistance genes. Poster presented at: American Thoracic Society; 2018 May 18-23; San Diego, CA. **3.** Unyvero LRT clinical trial data on file at Curetis. **4.** Tellapragada C, Giske CG. The Unyvero Hospital-Acquired pneumonia panel for diagnosis of secondary bacterial pneumonia in COVID-19 patients. Eur. J. Clin. Microbiol. Infect. Dis. 2021. doi.org/10.1007/s10096-021-04194-6. **5.** Centers for Disease Control and Prevention. The Core Elements of Hospital Antibiotic Stewardship Programs: 2019. **6.** Stolz D. Multiplex Bacterial PCR in Bronchoalveolar Lavage (BAL): Does It Impact Inappropriate Antibiotic Use? September 14, 2021. Webinar. **7.** Pickens C, et al. A multiplex polymerase chain reaction assay for antibiotic stewardship in suspected pneumonia. Diagnostic Microbiology & Infectious Disease. doi.org/10.1016/j.diagmicrobio.2020.115179. **8.** Snyder JW, Hoffmann W. One Academic Medical Center's Experience with the Unyvero Multiplex Platform for Testing Bronchoalveolar Lavage Fluids: Analytical and Clinical Assessment. June 29, 2021. Webinar. **9.** Mauro J, et al. Rigorous antibiotic stewardship in the hospitalized elderly population: saving lives and decreasing cost of inpatient care. JAC Antimicrob Resist. 2021. doi:10.1093/jacamr/dlab118.

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