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Evaluation of a Rapid Antimicrobial Susceptibility Testing System From Positive Blood Cultures For Accuracy And Potential Clinical Impact



Introduction

Bloodstream infections remain a significant global contributor to morbidity and mortality. Reducing the time to appropriate antimicrobial therapy is critical for enhancing patient outcomes and healthcare quality. Rapid advancements in diagnostic technologies continue to increase the accuracy, the turnaround time, and clinical utility of laboratory results. Performing antimicrobial susceptibility testing (AST) directly from positive blood culture (PBC) bottles enables earlier antimicrobial intervention, which may improve clinical outcomes by decreasing mortality, hospital stay duration, adverse drug events, and the emergence of antimicrobial resistance. The Q-linea ASTar System can perform phenotypic AST directly from a PBC bottle. Here, we evaluated the AST accuracy and potential clinical utility and outcomes driven by the AST results from the ASTar system.

Methods

- Seventy-five PBCs (57 prospective, 18 spiked) were evaluated.
- AST results (using the Microscan Walkaway) generated from standard of care (SoC) PBC overnight subculture were compared to AST results generated from the Q-linea ASTar system.



Assessment:

- Performance comparison (essential and categorical agreement, error rates)
- Time to actionable results (time from PBC to availability of AST report)
- Hypothetical clinical decisions: treatment adjustment type (retrospective clinical chart review)



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<u>C: Potential Therapeutic Impacts</u>

The ASTar system can decrease the time-tophenotypic AST after initial positive Gramstain result by 38.8 hours compared to the standard of care workflow (10.3 hrs vs 49.1 hrs, p<0.00001).



Chart reviews performed (n=21, 28%) suggested that results from the ASTar would have therapy adjusted in 66% of the patients



- The Q-linea ASTar generated reliable phenotypic AST results from PBC bottles.
- AST profiles generated from drug-resistant organisms were correctly identified by the ASTar.
- Implementation of technologies performing rapid AST like the ASTar may accelerate AST results by >24 hours.
- Discrepancy resolution and chart reviews are ongoing.

Results

B: Comparison of AST from SoC sub-culture versus the ASTar

**No discrepancy adjudication has been completed.

- The ASTar yielded an essential agreement of 95.5% and categorical agreement of 91.8%.
- Organisms with agreement of <90% included S. marcescens, K. variicola, and K. aerogenes.
- There were 2.6% major errors and 6.7% very major errors.
- Very major errors (n>1) were seen with aztreonam, ceftazidime, and ceftriaxone.
- Major errors (n>1) were seen with cefazolin, cefoxitin, cefuroxime, and trimethoprim-sulfamethoxazole.
- ASTar results from drug-resistant organisms (1 *blaKPC* and 13 *blaCTX-M*) were 100% concordant.

Organism	Essential Agreement (%)	Categorical Agreement (%)	Very Major Error (%)	Major Error (%)
<i>E. coli</i> (n=25)	98.4%	93.9%	0.9%	1.4%
<i>K. pneumoniae</i> (n=15)	95.9%	91.5%	3.7%	3.4%
<i>E. cloacae</i> (n=10)	95.7%	89.4%	8.3%	4.6%
<i>P. aeruginosa</i> (n=9)	96.0%	99.0%	0.0%	0.0%
<i>S. marcescens</i> (n=5)	84.5%	85.7%	100.0%	0.0%
<i>P. mirabilis</i> (n=5)	93.5%	92.5%	10.0%	3.6%
<i>K. oxytoca</i> (n=4)	94.4%	91.5%	0.0%	0.0%
<i>K. variicola</i> (n=1)	83.3%	61.1%	0.0%	11.8%
<i>K. aerogenes</i> (n=1)	81.3%	81.3%	0.0%	18.8%



*Optimization includes target source optimization and optimizing therapy against ampC-producing organism

Conclusions

• At our institution, rapid phenotypic AST platforms may potentially lead to therapeutic changes for patients with Gram-negative bacteremia.

• Technologies accelerating AST results combined with hospital antimicrobial stewardship efforts continue to show promise in improving patient outcomes.

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effazidime- vibactam 98.3% (57/58) 100% (58/58) 0% (0/0) 0% (0/58) oftolozane- zobactam 98.2% (55/56) 98.2% (55/56) 100% (1/1) 0% (0/55) eftriaxone 89.1% (57/64) 90.6% (58/64) 22.7% (5/22) 2.4% (1/42) eftriaxone 90% (54/60) 81.7% (49/60) 0% (0/19) 21.0% (8/38) porofloxacin 94.6% (70/74) 90.5% (67/74) 4.8% (1/21) 2.0% (1/49) rtapenem 98.5% (64/65) 98.4% (64/65) 0% (0/1) 0% (0/63) entamicin 95.8% (68/71) 97.2% (69/71) 0% (0/16) 1.8% (1/55) eropenem 98.6% (73/74) 98.6% (73/74) 0% (0/10) 1.4% (1/73) eropenem- borbactam 98.3% (58/59) 96.6% (57/59) 0% (0/0) 0% (0/58) peracillin- zobactam 91.7% (67/73) 89.0% (65/73) 0% (0/5) 1.6% (1/63) gecycline 96.7% (57/59) 96.6% (57/59) 100% (1/1) 0% (0/57) bramycin 98.6% (70/71) 95.8% (68/71) 0% (0/10) 1.7% (1/60) methoprim- methorya	eftazidime	90.5% (67/74)	93.2% (69/74)	17.6% (3/17)	1.8% (1/55)
aftolozane- zobactam $98.2\% (55/56)$ $98.2\% (55/56)$ $100\% (1/1)$ $0\% (0/55)$ aftriaxone $89.1\% (57/64)$ $90.6\% (58/64)$ $22.7\% (5/22)$ $2.4\% (1/42)$ aftriaxone $90\% (54/60)$ $81.7\% (49/60)$ $0\% (0/19)$ $21.0\% (8/38)$ porofloxacin $94.6\% (70/74)$ $90.5\% (67/74)$ $4.8\% (1/21)$ $2.0\% (1/49)$ protocol $98.5\% (64/65)$ $98.4\% (64/65)$ $0\% (0/1)$ $0\% (0/63)$ entamicin $95.8\% (68/71)$ $97.2\% (69/71)$ $0\% (0/8)$ $1.6\% (1/63)$ vofloxacin $97.3\% (72/74)$ $90.6\% (67/74)$ $0\% (0/16)$ $1.8\% (1/55)$ eropenem $98.6\% (73/74)$ $98.6\% (73/74)$ $0\% (0/1)$ $1.4\% (1/73)$ eropenem- borbactam $98.3\% (58/59)$ $96.6\% (57/59)$ $0\% (0/0)$ $0\% (0/58)$ gecycline $96.7\% (57/59)$ $96.6\% (57/59)$ $100\% (1/1)$ $0\% (0/57)$ borbactam $91.7\% (67/73)$ $89.0\% (65/73)$ $0\% (0/10)$ $1.6\% (1/63)$ gecycline $96.7\% (57/59)$ $96.6\% (57/59)$ $100\% (1/1)$ $0\% (0/57)$ borbactam $91.7\% (67/71)$ $95.8\% (68/71)$ $0\% (0/10)$ $1.7\% (1/60)$ nethoprim- methoxazole $95.4\% (62/65)$ $95.4\% (62/65)$ $4.8\% (1/21)$ $4.5\% (2/44)$	eftazidime- vibactam	98.3% (57/58)	100% (58/58)	0% (0/0)	0% (0/58)
eftriaxone89.1% (57/64)90.6% (58/64)22.7% (5/22)2.4% (1/42)efuroxime90% (54/60)81.7% (49/60)0% (0/19)21.0% (8/38)porofloxacin94.6% (70/74)90.5% (67/74)4.8% (1/21)2.0% (1/49)rtapenem98.5% (64/65)98.4% (64/65)0% (0/1)0% (0/63)entamicin95.8% (68/71)97.2% (69/71)0% (0/8)1.6% (1/63)vofloxacin97.3% (72/74)90.6% (67/74)0% (0/16)1.8% (1/55)eropenem98.6% (73/74)98.6% (73/74)0% (0/10)1.4% (1/73)eropenem- borbactam98.3% (58/59)96.6% (57/59)0% (0/0)0% (0/58)peracillin- zobactam91.7% (67/73)89.0% (65/73)0% (0/5)1.6% (1/63)gecycline96.7% (57/59)96.6% (57/59)100% (1/1)0% (0/57)obramycin98.6% (70/71)95.8% (68/71)0% (0/10)1.7% (1/60)methoprim- methoyranle95.4% (62/65)95.4% (62/65)4.8% (1/21)4.5% (2/44)	eftolozane- zobactam	98.2% (55/56)	98.2% (55/56)	100% (1/1)	0% (0/55)
efuroxime 90% (54/60) 81.7% (49/60) 0% (0/19) 21.0% (8/38)profloxacin 94.6% (70/74) 90.5% (67/74) 4.8% (1/21) 2.0% (1/49)rtapenem 98.5% (64/65) 98.4% (64/65) 0% (0/1) 0% (0/63)entamicin 95.8% (68/71) 97.2% (69/71) 0% (0/8) 1.6% (1/63)vofloxacin 97.3% (72/74) 90.6% (67/74) 0% (0/16) 1.8% (1/55)eropenem 98.6% (73/74) 98.6% (73/74) 0% (0/1) 1.4% (1/73)eropenem- borbactam 98.3% (58/59) 96.6% (57/59) 0% (0/0) 0% (0/58)peracillin- zobactam 91.7% (67/73) 89.0% (65/73) 0% (0/5) 1.6% (1/63)gecycline 96.7% (57/59) 96.6% (57/59) 100% (1/1) 0% (0/57)obramycin 98.6% (70/71) 95.8% (68/71) 0% (0/10) 1.7% (1/60)methoprim- methoprim- methoprim- 95.4% (62/65) 95.4% (62/65) 4.8% (1/21) 4.5% (2/44)	eftriaxone	89.1% (57/64)	90.6% (58/64)	22.7% (5/22)	2.4% (1/42)
profloxacin 94.6% (70/74) 90.5% (67/74) 4.8% (1/21) 2.0% (1/49)rtapenem 98.5% (64/65) 98.4% (64/65) 0% (0/1) 0% (0/63)entamicin 95.8% (68/71) 97.2% (69/71) 0% (0/8) 1.6% (1/63)vofloxacin 97.3% (72/74) 90.6% (67/74) 0% (0/16) 1.8% (1/55)eropenem 98.6% (73/74) 98.6% (73/74) 0% (0/10) 1.4% (1/73)eropenem- 98.3% (58/59) 96.6% (57/59) 0% (0/0) 0% (0/58)peracillin- 91.7% (67/73) 89.0% (65/73) 0% (0/5) 1.6% (1/63)gecycline 96.7% (57/59) 96.6% (57/59) 100% (1/1) 0% (0/57)obramycin 98.6% (70/71) 95.8% (68/71) 0% (0/10) 1.7% (1/60)methoprim- 95.4% (62/65) 95.4% (62/65) 4.8% (1/21) 4.5% (2/44)	efuroxime	90% (54/60)	81.7% (49/60)	0% (0/19)	21.0% (8/38)
rtapenem $98.5\% (64/65)$ $98.4\% (64/65)$ $0\% (0/1)$ $0\% (0/63)$ entamicin $95.8\% (68/71)$ $97.2\% (69/71)$ $0\% (0/8)$ $1.6\% (1/63)$ vofloxacin $97.3\% (72/74)$ $90.6\% (67/74)$ $0\% (0/16)$ $1.8\% (1/55)$ eropenem $98.6\% (73/74)$ $98.6\% (73/74)$ $0\% (0/1)$ $1.4\% (1/73)$ eropenem- borbactam $98.3\% (58/59)$ $96.6\% (57/59)$ $0\% (0/0)$ $0\% (0/58)$ peracillin- zobactam $91.7\% (67/73)$ $89.0\% (65/73)$ $0\% (0/5)$ $1.6\% (1/63)$ gecycline $96.7\% (57/59)$ $96.6\% (57/59)$ $100\% (1/1)$ $0\% (0/57)$ obramycin $98.6\% (70/71)$ $95.8\% (68/71)$ $0\% (0/10)$ $1.7\% (1/60)$	orofloxacin	94.6% (70/74)	90.5% (67/74)	4.8% (1/21)	2.0% (1/49)
entamicin $95.8\% (68/71)$ $97.2\% (69/71)$ $0\% (0/8)$ $1.6\% (1/63)$ vofloxacin $97.3\% (72/74)$ $90.6\% (67/74)$ $0\% (0/16)$ $1.8\% (1/55)$ eropenem $98.6\% (73/74)$ $98.6\% (73/74)$ $0\% (0/1)$ $1.4\% (1/73)$ eropenem- borbactam $98.3\% (58/59)$ $96.6\% (57/59)$ $0\% (0/0)$ $0\% (0/58)$ peracillin- zobactam $91.7\% (67/73)$ $89.0\% (65/73)$ $0\% (0/5)$ $1.6\% (1/63)$ gecycline $96.7\% (57/59)$ $96.6\% (57/59)$ $100\% (1/1)$ $0\% (0/57)$ obramycin $98.6\% (70/71)$ $95.8\% (68/71)$ $0\% (0/10)$ $1.7\% (1/60)$ methoprim- methoxazole $95.4\% (62/65)$ $95.4\% (62/65)$ $4.8\% (1/21)$ $4.5\% (2/44)$	rtapenem	98.5% (64/65)	98.4% (64/65)	0% (0/1)	0% (0/63)
vofloxacin97.3% (72/74)90.6% (67/74)0% (0/16)1.8% (1/55)eropenem98.6% (73/74)98.6% (73/74)0% (0/1)1.4% (1/73)eropenem- borbactam98.3% (58/59)96.6% (57/59)0% (0/0)0% (0/58)peracillin- zobactam91.7% (67/73)89.0% (65/73)0% (0/5)1.6% (1/63)gecycline96.7% (57/59)96.6% (57/59)100% (1/1)0% (0/57)obramycin98.6% (70/71)95.8% (68/71)0% (0/10)1.7% (1/60)methoprim- methoxazole95.4% (62/65)95.4% (62/65)4.8% (1/21)4.5% (2/44)	entamicin	95.8% (68/71)	97.2% (69/71)	0% (0/8)	1.6% (1/63)
eropenem98.6% (73/74)98.6% (73/74)0% (0/1)1.4% (1/73)eropenem- borbactam98.3% (58/59)96.6% (57/59)0% (0/0)0% (0/58)peracillin- zobactam91.7% (67/73)89.0% (65/73)0% (0/5)1.6% (1/63)gecycline96.7% (57/59)96.6% (57/59)100% (1/1)0% (0/57)obramycin98.6% (70/71)95.8% (68/71)0% (0/10)1.7% (1/60)methoprim- methox azole95.4% (62/65)95.4% (62/65)4.8% (1/21)4.5% (2/44)	vofloxacin	97.3% (72/74)	90.6% (67/74)	0% (0/16)	1.8% (1/55)
eropenem- borbactam98.3% (58/59)96.6% (57/59)0% (0/0)0% (0/58)peracillin- zobactam91.7% (67/73)89.0% (65/73)0% (0/5)1.6% (1/63)gecycline96.7% (57/59)96.6% (57/59)100% (1/1)0% (0/57)obramycin98.6% (70/71)95.8% (68/71)0% (0/10)1.7% (1/60)methoprim- methox azole95.4% (62/65)95.4% (62/65)4.8% (1/21)4.5% (2/44)	eropenem	98.6% (73/74)	98.6% (73/74)	0% (0/1)	1.4% (1/73)
peracillin- zobactam91.7% (67/73)89.0% (65/73)0% (0/5)1.6% (1/63)gecycline96.7% (57/59)96.6% (57/59)100% (1/1)0% (0/57)obramycin98.6% (70/71)95.8% (68/71)0% (0/10)1.7% (1/60)methoprim- methoxazole95.4% (62/65)95.4% (62/65)4.8% (1/21)4.5% (2/44)	eropenem- borbactam	98.3% (58/59)	96.6% (57/59)	0% (0/0)	0% (0/58)
gecycline96.7% (57/59)96.6% (57/59)100% (1/1)0% (0/57)obramycin98.6% (70/71)95.8% (68/71)0% (0/10)1.7% (1/60)nethoprim- methoxazole95.4% (62/65)95.4% (62/65)4.8% (1/21)4.5% (2/44)	peracillin- zobactam	91.7% (67/73)	89.0% (65/73)	0% (0/5)	1.6% (1/63)
obramycin 98.6% (70/71) 95.8% (68/71) 0% (0/10) 1.7% (1/60) methoprim- 95.4% (62/65) 95.4% (62/65) 4.8% (1/21) 4.5% (2/44)	gecycline	96.7% (57/59)	96.6% (57/59)	100% (1/1)	0% (0/57)
nethoprim- 95.4% (62/65) 95.4% (62/65) 4.8% (1/21) 4.5% (2/44)	bramycin	98.6% (70/71)	95.8% (68/71)	0% (0/10)	1.7% (1/60)
	nethoprim- methoxazole	95.4% (62/65)	95.4% (62/65)	4.8% (1/21)	4.5% (2/44)



References

- Banerjee R, Humphries R. Rapid Antimicrobial Susceptibility Testing Methods for Blood Cultures and Their Clinical Impact. Front Med (Lausanne). 2021.
- Messiaen AS et al. Impact of reporting rapid susceptibility results in Gram negative bloodstream infections: a real world prospective study. Eur J Clin Microbiol Infect Dis. 2025
- Hattab S et al. Rapid Phenotypic and Genotypic Antimicrobial Susceptibility Testing Approaches for Use in the Clinical Laboratory. Antibiotics (Basel). 2024

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