
MEYER
Azienda Ospedaliero-Universitaria
Urinocolture:
antibiogramma diretto
riduzione TAT
e
outcomes clinici

Appropriatezza dei tempi di risposta

Accessi Pronto Soccorso anno 2012 43783

Pazienti con età inferiore a 12 mesi

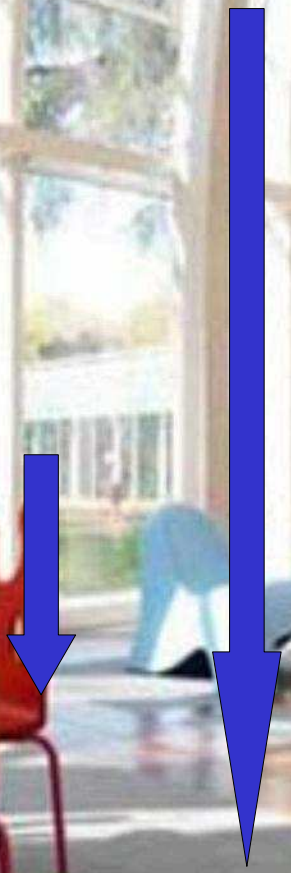
4412

Posti letto OBI

8

TAT : turnaround time

- Ordine
- Inserimento
- Raccolta
- Identificazione
- Trasporto
- Preparazione
- Analisi
- Risposta
- Interpretazione
- Azione



Reducing Laboratory Turnaround Time Outliers Can Reduce Emergency Department Patient Length of Stay

An 11-Hospital Study

Lorne E. Holland, MD,[1] Linda L. Smith,[2] and Kenneth E. Blick, PhD[3]

Key Words: Turnaround time; Length of stay; Emergency department; Quality improvement

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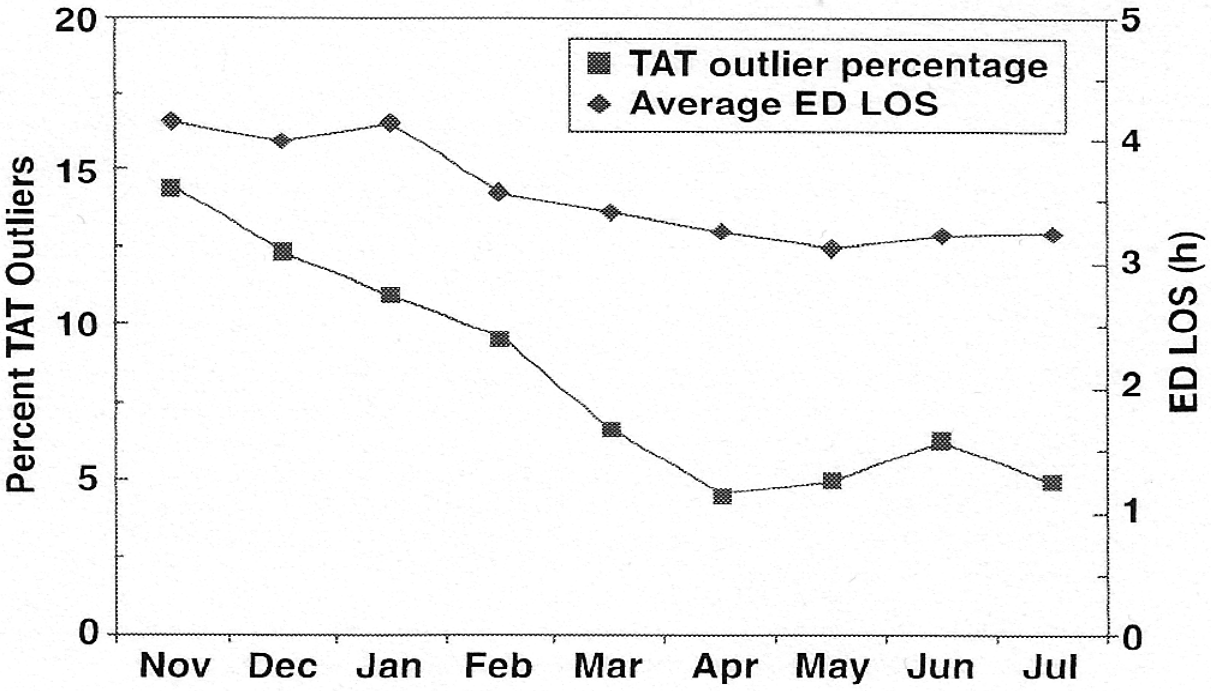
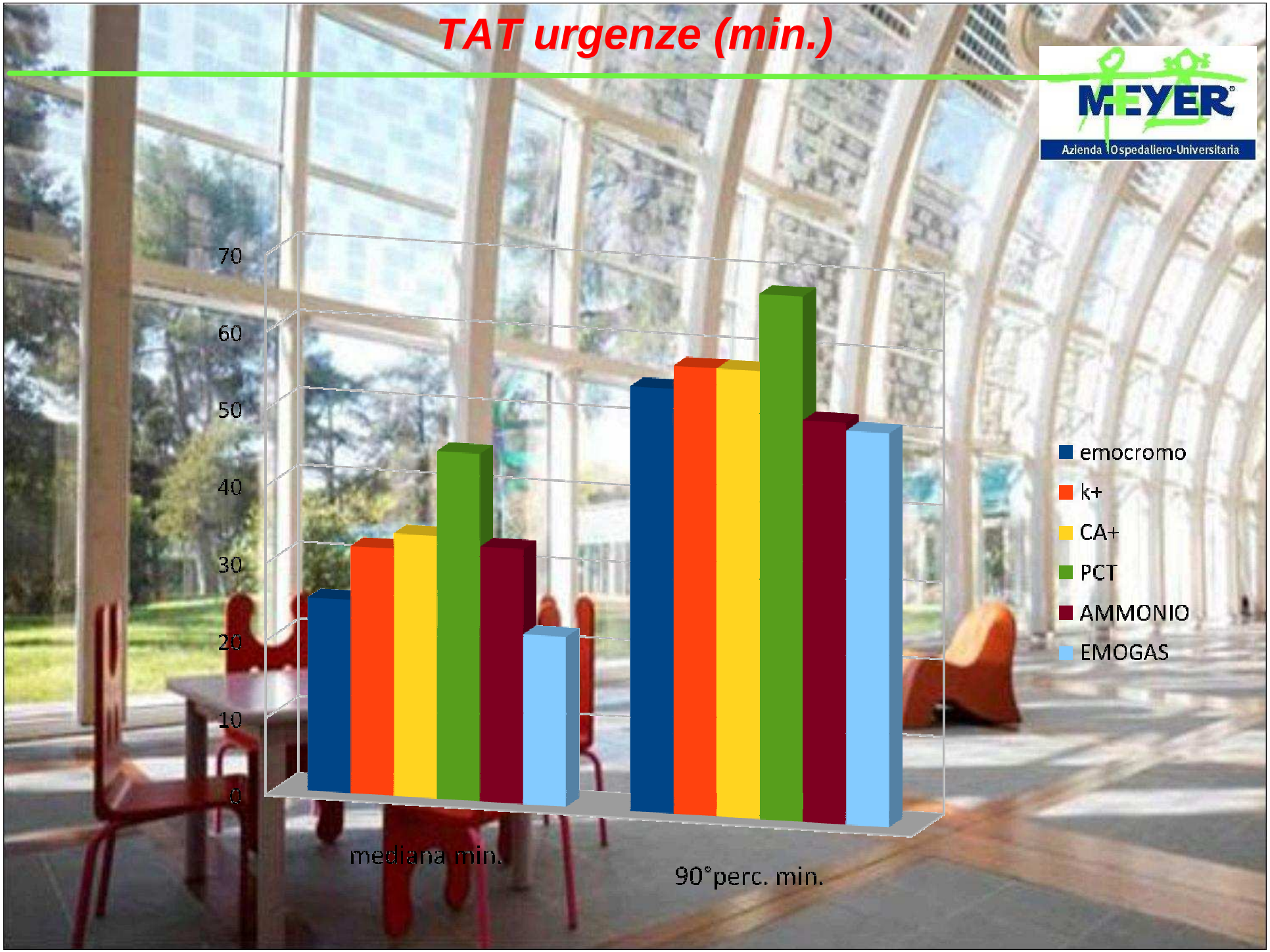


Figure 3 Changes in the emergency department (ED) length of stay (LOS) in relation to the percentage of laboratory turnaround time (TAT) outliers at 1 hospital.

TAT urgenze (min.)



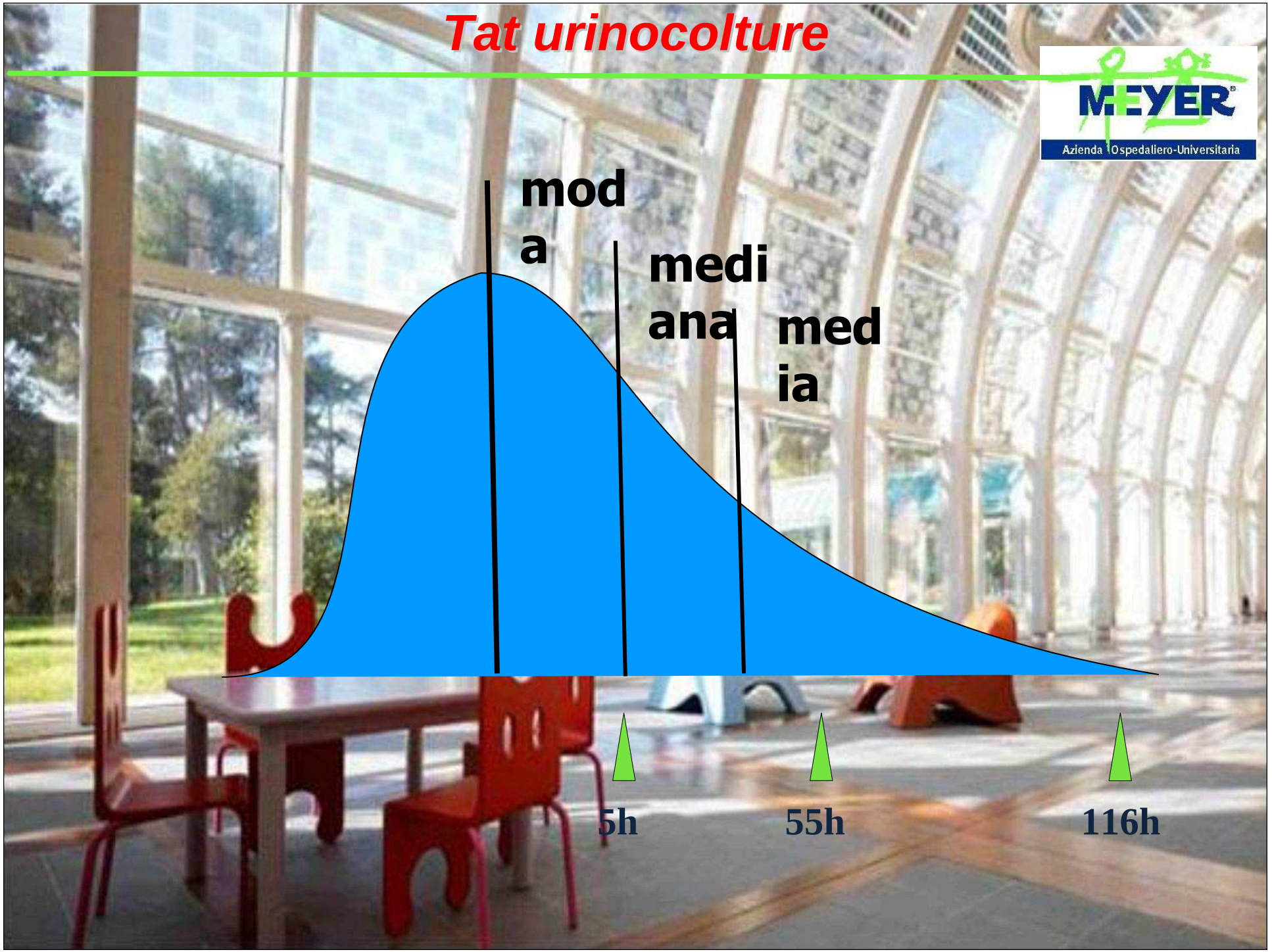
TAT urinocolture urgenti

STATISTICHE ANNUALI URINOCOLTURE 2012

- CAMPIONI PRONTO SOCCORSO 738
- CAMPIONI POSITIVI 205 (27,78%)
- CAMPIONI NEGATIVI 533 (72,22%)

- **PAZIENTI ETA' < 12 MESI** **276 (37,4%)**
- CAMPIONI POSITIVI 75 (17,17%)
- CAMPIONI NEGATIVI 201 (72,83%)

Tat urinocolture



FLOW CHART

HB&L

Negativo **Positivo**

5 ore

Validazione clinica **Semina su piastra**

24 ore

Identificazione e Antibiogramma

Validazione clinica (da 60 a 116 ore)

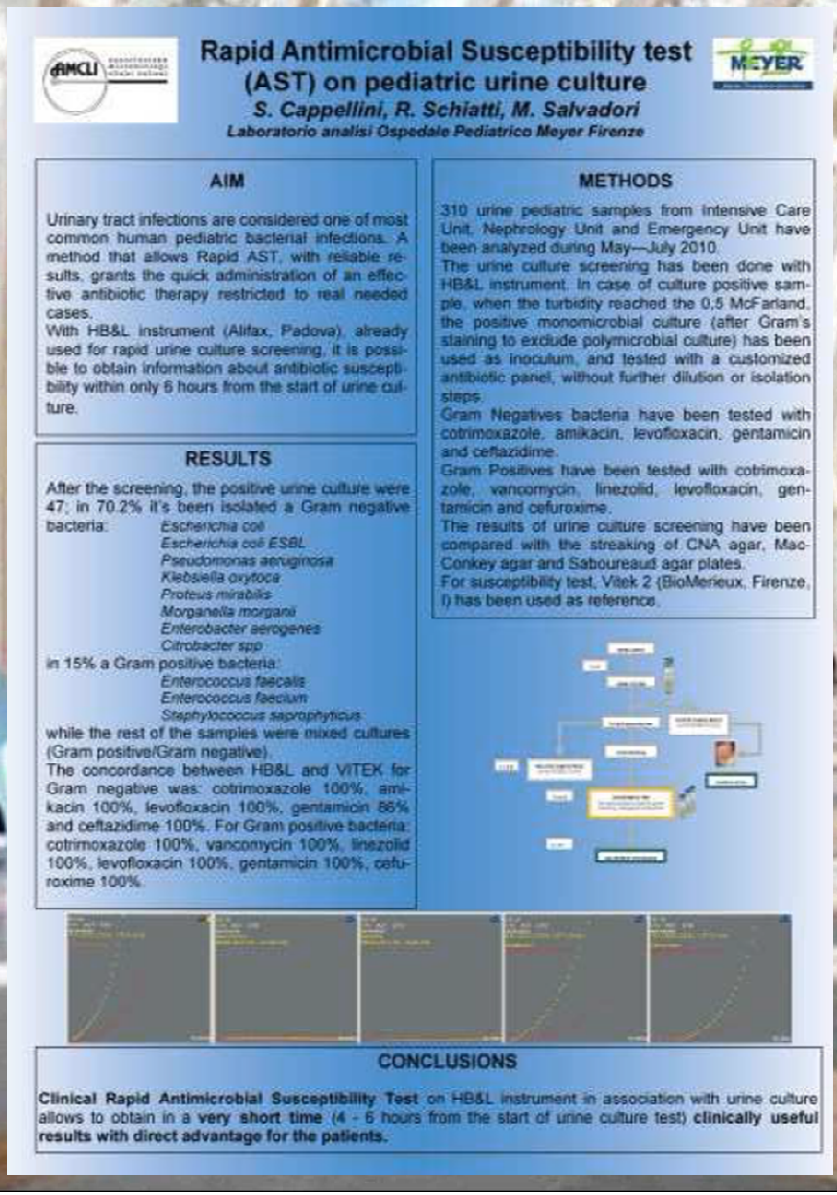
Rapid Antimicrobial Susceptibility test (AST) on pediatric urine culture

Azienda Ospedaliero-Universitaria

RESULTS

Ceftazidime	99,7%
Cefuroxime	100%
Cotrimoxazolo	99,8%
Amikacina	100%
Levofloxacina	100%
Gentamicina	86,4%
Vancomicina	99,7%
Linezolid	100%

Esposto all'AMCLI nel 2011



Rapid Antimicrobial Susceptibility test (AST) on pediatric urine culture

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Laboratorio analisi Ospedale Pediatrico Meyer Firenze

AIM

Urinary tract infections are considered one of most common human pediatric bacterial infections. A method that allows Rapid AST, with reliable results, grants the quick administration of an effective antibiotic therapy restricted to real needed cases.
With HB&L instrument (Alifax, Padova), already used for rapid urine culture screening, it is possible to obtain information about antibiotic susceptibility within only 6 hours from the start of urine culture.

METHODS

310 urine pediatric samples from Intensive Care Unit, Nephrology Unit and Emergency Unit have been analyzed during May—July 2010.
The urine culture screening has been done with HB&L instrument. In case of culture positive sample, when the turbidity reached the 0,5 McFarland, the positive monomicrobial culture (after Gram's staining to exclude polymicrobial culture) has been used as inoculum, and tested with a customized antibiotic panel, without further dilution or isolation steps.
Gram Negatives bacteria have been tested with cotrimoxazole, amikacin, levofloxacin, gentamicin and ceftazidime.
Gram Positives have been tested with cotrimoxazole, vancomycin, linezolid, levofloxacin, gentamicin and cefuroxime.
The results of urine culture screening have been compared with the streaking of CNA agar, MacConkey agar and Sabouraud agar plates.
For susceptibility test, Vitek 2 (BioMerieux, Firenze, I) has been used as reference.

RESULTS

After the screening, the positive urine culture were 47; in 70.2% it's been isolated a Gram negative bacteria:
Escherichia coli
Escherichia coli ESBL
Pseudomonas aeruginosa
Klebsiella oxytoca
Proteus mirabilis
Morganella morganii
Enterobacter aerogenes
Citrobacter spp
in 15% a Gram positive bacteria:
Enterococcus faecalis
Enterococcus faecium
Staphylococcus saprophyticus
while the rest of the samples were mixed cultures (Gram positive/Gram negative).
The concordance between HB&L and VITEK for Gram negative was: cotrimoxazole 100%, amikacin 100%, levofloxacin 100%, gentamicin 86% and ceftazidime 100%. For Gram positive bacteria: cotrimoxazole 100%, vancomycin 100%, linezolid 100%, levofloxacin 100%, gentamicin 100%, cefuroxime 100%.

CONCLUSIONS

Clinical Rapid Antimicrobial Susceptibility Test on HB&L instrument in association with urine culture allows to obtain in a **very short time** (4 - 6 hours from the start of urine culture test) **clinically useful results with direct advantage for the patients.**

REPARTI COINVONTI

PRONTO SOCCORSO

PEDIATRIE MEDICHE (A e B)

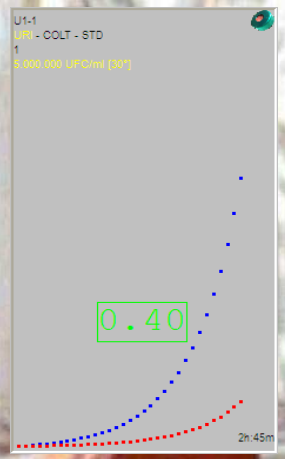
NEFROLOGIA

FLOW CHART STUDIO

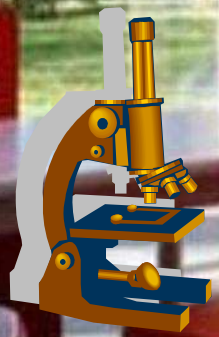
Azienda Ospedaliero-Universitaria

ALFRED 60 AST

Negativo **Positivo**



Validazione clinica **0.5 McFarland**



Colorazione di Gram

Antibiogramma con pannello personalizzato → ***5 ore*** → **Validazione clinica (da 8 a 24 ore)**

DATI STUDIO

CAMPIONI ANALIZZATI
252

CAMPIONI POSITIVI
51 (20,23%)

CAMPIONI NEGATIVI 199
(79,43%)

CAMPIONI POSITIVI < 12 MESI 20
(39,21%)

MOLECOLE TESTATE

MOLECOLA	CONCORDANZA	
Cefuroxime	100%	
Ceftazidime	97,5%	(1 Minor Error)
Ceftriaxone	100%	
Levofloxacina	97,5%	(1 Minor Error)
Amikacina	95%	(1 Minor Error, 1 Mayor Error)
Meropenem	100%	
Cefoxitina	100%	
Cotrimoxazolo	85%	(1 Mayor Error)
Teicoplanina	100%	
Vancomicina	85%	(1 Mayor Error)
Ampicillina	100%	

POSSIBILITA' TERAPIA ANTICIPATA

24 ore	(43%)	22
48 ore	(45,1%)	23
72 ore	(3,9%)	2
96 ore	(7,9%)	4

CONCORDANZA ANTIBIOGRAMMA CLINICO

GRAM NEGATIVI	98,6%
GRAM POSITIVI	96%

Quali sarebbero state le conseguenze cliniche dell'applicazione della metodica studiata?

OUTCOMES 1

ANTICIPO VERIFICA TERAPIA APPROPRIATA

POSSIBILITA' TERAPIA ANTICIPATA

24 ore	(43%)	22
48 ore	(45,1%)	23
72 ore	(3,9%)	2
96 ore	(7,9%)	4

CONCORDANZA ANTIBIOGRAMMA CLINICO

GRAM NEGATIVI	98,6%
GRAM POSITIVI	96%

OUTCOMES 2

RIDUZIONE PERIODO DI DEGENZA

HB&L

200 pernottamenti risparmiati per pazienti con età < 1 anno risultati ***NEGATIVI***

ALFRED 60 AST

Possibili ulteriori120 pernottamenti risparmiati per pazienti con età < 1 anno risultati ***POSITIVI***

OUTCOMES 3

RIDUZIONE COSTI

Costo medio degenza Ospedale Pediatrico Meyer

410 €

Negativi 82000€/anno

Positivi 49200€/anno

TOTALE 131200€/anno

PROSPETTIVE FUTURE

La metodica utilizzata può essere applicata anche su altri liquidi biologici, ecco perchè stiamo affrontando un nuovo studio sui Liquor.


GRAZIE PER
L'ATTENZIONE