Gender as a Risk Factor for Antibiotic Resistance – Independent Risk Factors in a Multivariate Model for Pneumococcal Bacteremia in Women

Variable	Odds Ratio	95% Confidence Interval
Pediatric Serotype	1.59	1.18 – 2.15
Penicillin Resistance	1.65	1.06 – 2.59
HIV Seropositive	1.85	1.26 – 2.71
Age 18 – 39 vs. 40+	1.72	1.25 – 2.36

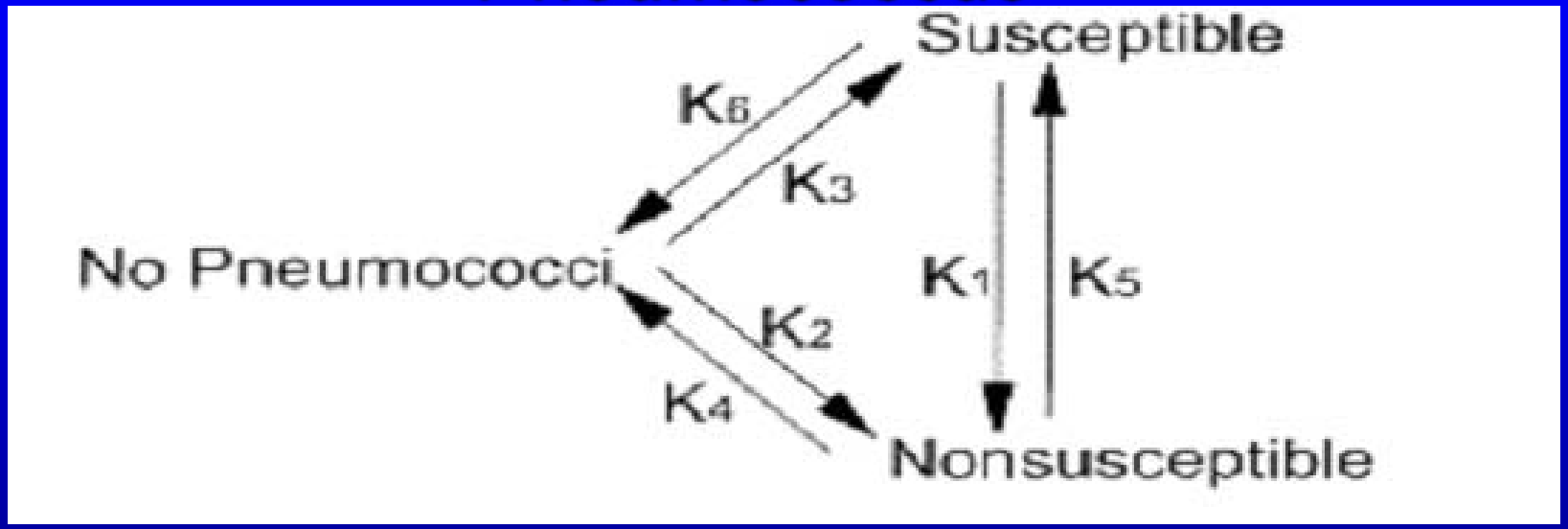
Buie et al, JID 2004, 189 , 1996 - 2000

Levofloxacin – Resistant Pneumococci in Children in South Africa

Characteristics	Levofloxacin -non-susceptible	Levofloxacin-susceptible	P value	Relative risk (95% confidence intervals)
2000-2006				
Age (years)*	1 (0-13)	1 (0-15)	0.81	Not available
Male	7/12 (58)	4265/7855 (54)	0.78	1.18 (0.37-3.71)
Isolation from CSF	3/12 (33)	2371/8040 (29)	0.73	0.80 (0.22-2.94)
Penicillin non-susceptible	5/12 (42)	2955/8040 (37)	0.72	1.23 (0.39-3.87)
Rifampin non-susceptible	12/12 (100)	355/8040 (4)	<0.001	Undefined
2003-2006#				
HIV	9/9 (100)	1376/1745 (79)	0.12	Undefined
Nosocomial infection	8/10 (80)	109/2709 (4)	<0.001	88.96 (19.10-414.29)
History of tuberculosis treatment	8/9 (89)	396/2202 (18)	<0.001	35.78 (4.49-285.30)
Case fatality rate (no of deaths/no of cases with known outcome)	4/10 (40)	622/2695 (23)	0.20	2.21 (0.63-7.82)

Von Gottberg, Klugman et al, Lancet, 2008, 371,1108.

Impact of Fansidar Therapy for Malaria on Cotrimoxazole - Resistance in the Pneumococcus



TRANSITION RATE BETWEEN INITIAL VISIT AND 1-WEEK VISIT	K1	
No Treatment	6/50	(12%)
Cotrimoxazole	29/69	(42%)
Fansidar	29/96	(30%)

TRANSITION RATE BETWEEN INITIAL VISIT AND 4-WEEK VISIT	K1	
No Treatment	2/24	(8%)
Cotrimoxazole	9/40	(23%)
Fansidar	28/73	(38%)

Feikin et al, JID, 2000, 181, 1501 – 5.

Vaccine Efficacy and Artemesinin Resistance

- **Efficacy of RTS,*S*/AS01E Vaccine against Malaria in Children 5 to 17 Months of Age, Bejon et al, NEJM, Dec 11, 2008.** Intention-to-treat analysis, which showed an unadjusted efficacy rate of 49% (95% CI, 26 to 65; P<0.001)
- **Evidence of Artemisinin-Resistant Malaria in Western Cambodia. Noedl et al, NEJM epub ahead of print Dec 8.**

HIV Resistance

- **Response to antiretroviral therapy after a single, peripartum dose of nevirapine Lockman et al, NEJM, Jan 11, 2007.**
- Among 60 women starting antiretroviral treatment within 6 months after receiving placebo or a single dose of nevirapine, no women in the placebo group and 41.7% in the nevirapine group had virologic failure ($P<0.001$).


REPORT: MEDICAL MISTAKES A LEADING CAUSE OF DEATH
SURGERY
POST-OP
POST-"OOPS!"
MORGUE

Bad Bugs, No Drugs

As Antibiotic Discovery Stagnates ...
A Public Health Crisis Brews

IDSA
Infectious Diseases Society of America

July 2004

Management of Multidrug-Resistant Organisms In Healthcare Settings, 2006

Jane D. Siegel, MD; Emily Rhinehart, RN MPH CIC; Marguerite Jackson, PhD; Linda Chiarello, RN MS; the Healthcare Infection Control Practices Advisory Committee

http://www.cdc.gov/ncidod/dhqp/pdf/ar/mdroGuideline2006.pdf

Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship

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Clin Infect Dis 2007 (Jan 15); 44: 159-77

Hospital Infections in Developing Countries

- Hardly on the radar screen
- Need assessments are urgent
- Disease burden likely to be enormous
- An urgent priority underserved area for GF

What is the Capacity to Detect Resistance in Developing Countries ?

- Almost nil

The Development of a Global Awareness of the Importance of Laboratory Capacity

- IHR
- GLI
- Pepfar (ASM)
- WHO Lab Capacity Meeting Lyon, 2008
- WHO Antimicrobial Resistance Meetings, Geneva, 2009

ASM Lab Cap Countries

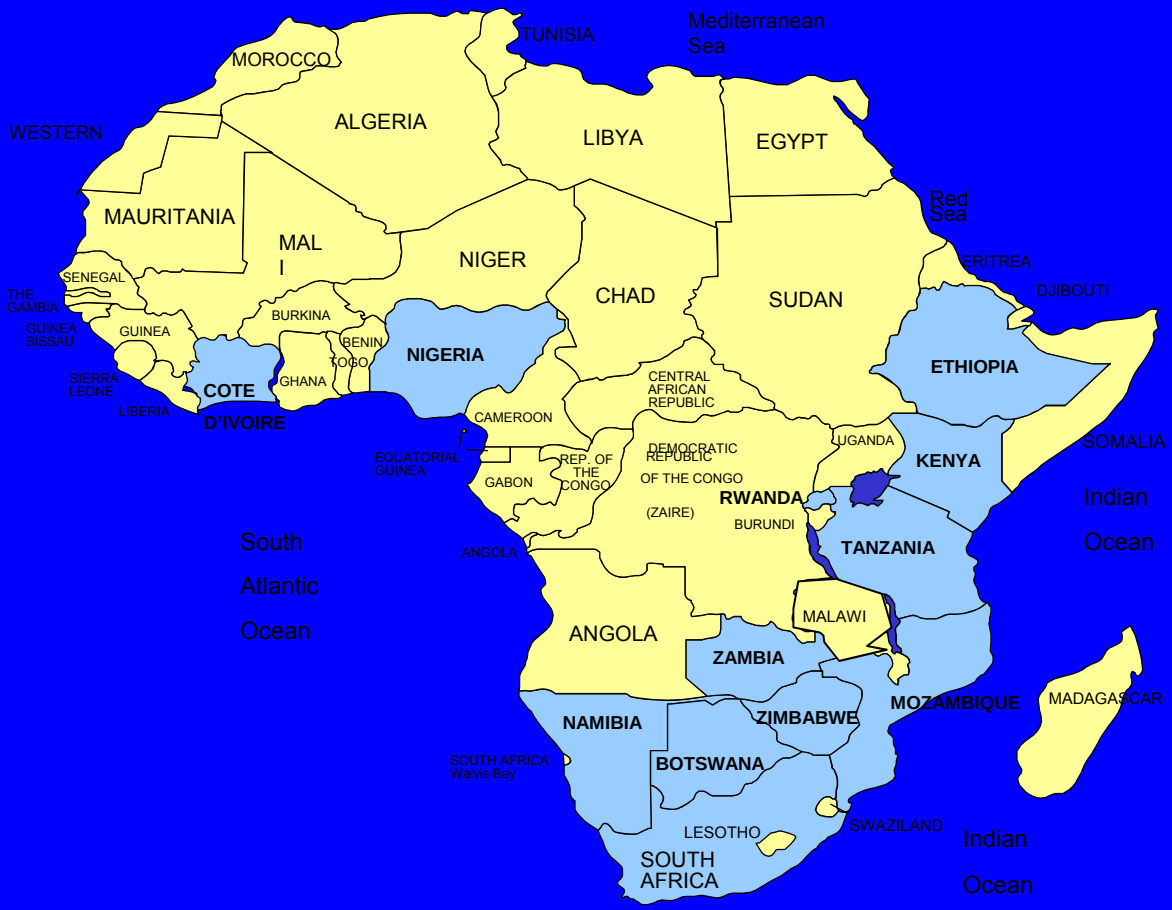
INDIA

CHINA

THAILAND

GUATEMALA

HAITI



Conclusion

- Resistance is biologically inevitable and its magnitude is proportional to the access of the organism to the antimicrobial.
- Increasing access to care will increase resistance.
- Developing countries are at great risk given their lack of capacity to detect resistance and to control its ascent.