

ANTIBIOTICS IN BLOODY DIARRHEA

PROS AND CONS

6th Danish Pediatric Infectious Diseases Symposium
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ANTIBIOTICS IN BLOODY DIARRHEA

Pros

Cons

CASE

7 years old girl presents with bloody diarrhea. Temperature 38,4 degrees Celsius. Moderate dehydration, ABC-stable.

Initial therapy: Rehydration



ANTIBIOTICS IN BLOODY DIARRHEA

Pros

Cons

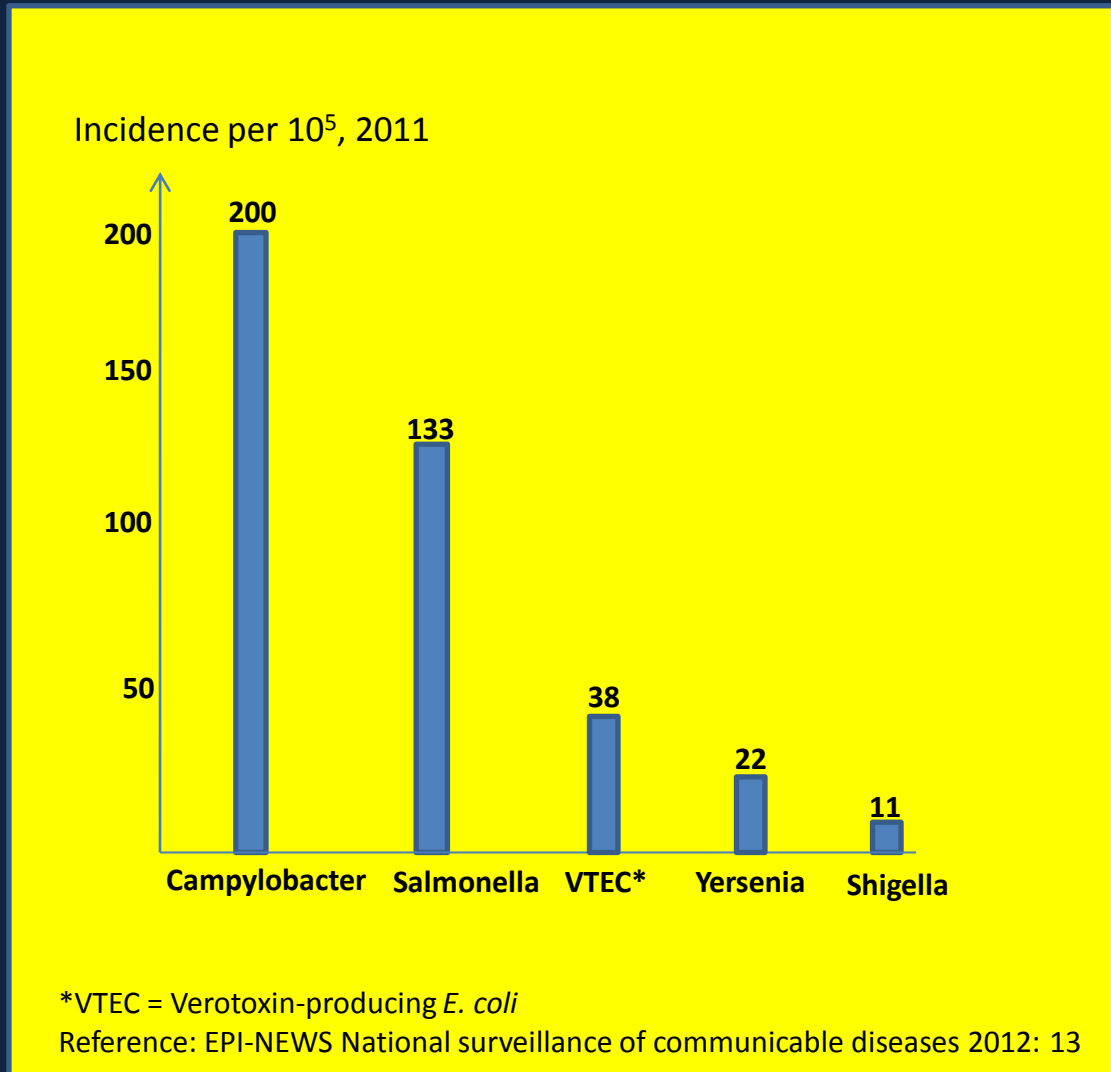
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ANTIBIOTICS – pros and cons??? Two minutes with the person next to you

ETIOLOGY OF BACTERIAL INTESTINAL INFECTIONS IN DANISH CHILDREN



TREATMENT OF CAMPYLOBACTER ENTERITIS

Treatment only for patients with severe disease, given the self-limited nature of most Campylobacter infections.

Red Book 2012:

Azithromycin and erythromycin

- 1) shorten the duration of intestinal symptoms when given early after disease onset, and
- 2) usually eradicates the organism from stool within 2 or 3 days

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***Clinical Infectious Diseases 2007; 44:696-700**

BRIEF REPORT

A Meta-Analysis on the Effects of Antibiotic Treatment on Duration of Symptoms Caused by Infection with *Campylobacter* Species

Anders Tersmette,¹ Tommi Asikainen,² Johan Giesecke,^{1,3} and Karl Ek Dahl^{1,3}

¹Karolinska Institutet, Department of Medical Epidemiology and Biostatistics, ²Stockholm University, Department of Mathematical Statistics, and ³European Centre for Disease Prevention and Control, Stockholm, Sweden

(See the editorial commentary by Ruiz-Palacios on pages 701-3)

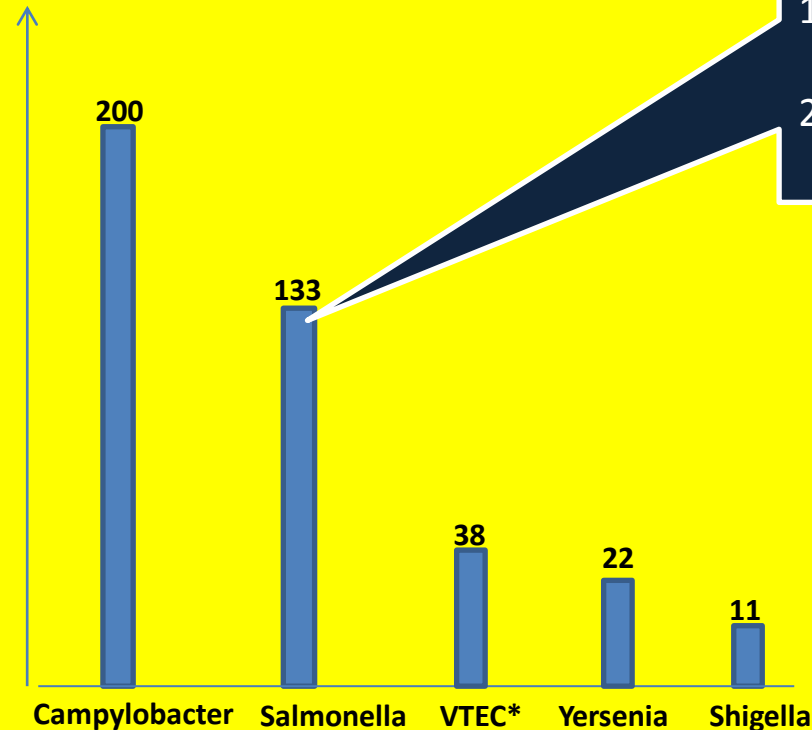
double-blind, randomized, controlled trial comparing antibiotic treatment

Materials and methods. We defined inclusion criteria included only double-blind, placebo-controlled clinical trials. Patients of all ages were included; they all suffered from diarrhea, and *Campylobacter* species was identified by stool culture for all. The clinical outcome measured was duration, in days, of diarrhea after the start of therapy. We also tried to measure clearance of *Campylobacter* species in stool samples after therapy; however, studies presented these data in different ways and seldom with any measure of variance of the results, thereby making a meta-analysis difficult to perform. These data are, therefore, compiled in a descriptive table.

Antibiotics shorten the duration of diarrhea by 1,3 days when given within 3-4 days of disease onset

ANTIBIOTICS IN BACTERIAL INTESTINAL INFECTIONS

Yearly incidence 2010-2011



*VTEC = Verotoxin-producing *E. coli*

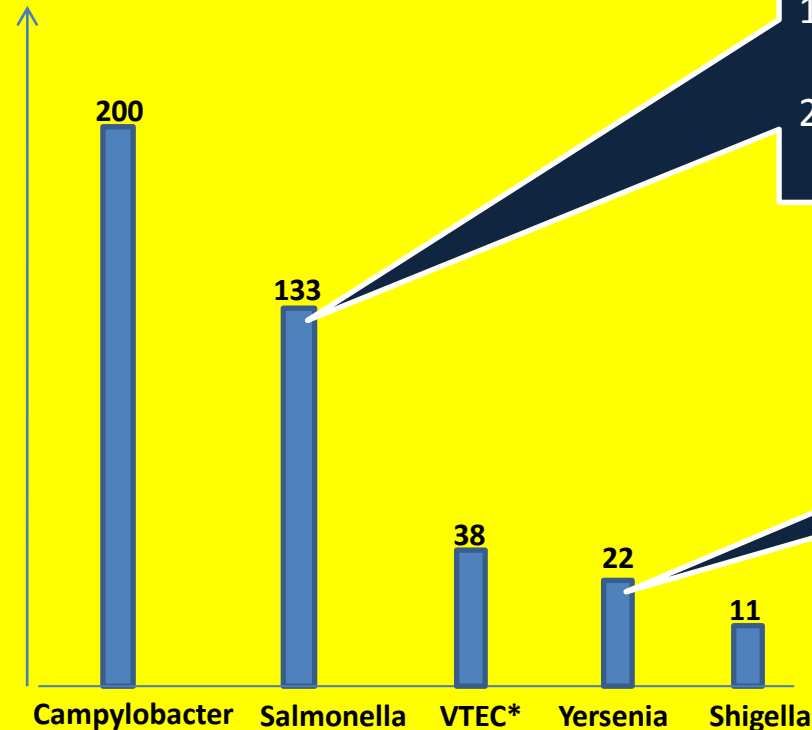
Red Book 2012, Salmonella:

Antibiotics is not indicated to patients with uncomplicated dysentery caused by nontyphoidal Salmonella species since therapy

- 1) does not shorten the duration of the disease and
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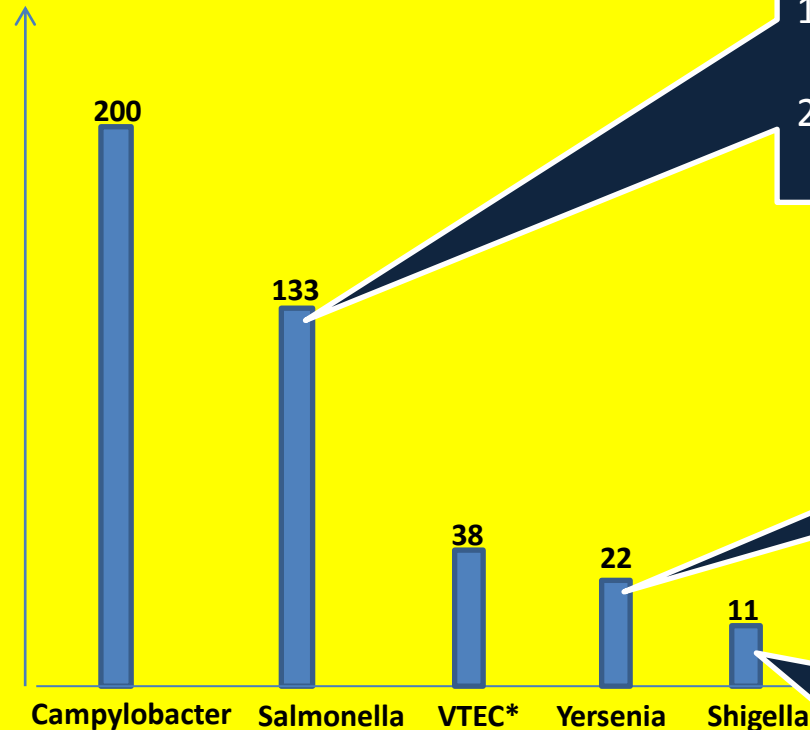
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Red Book 2012, Yersenia:

Only antibiotics if septicemic

Red Book 2012, Shigella:

Bloody diarrhea: Always antibiotics

- 1) Therapy shorten the duration of the disease
 - 2) Therapy shorten the duration of excretion of Shigella organisms
- Milder disease: Antibiotics is controversial

ANTIBIOTICS AND VTEC *E. coli*

????

ANTIBIOTICS AND VTEC *E. coli* :

Clinical Infectious Diseases 2012; 55(1):33-41

MAJOR ARTICLE

Risk Factors for the Hemolytic Uremic Syndrome in Children Infected With *Escherichia coli* O157:H7: A Multivariable Analysis

Craig S. Wong,¹ Jody C. Mooney,² John R. Brandt,¹ Amy O. Staples,¹ Srdjan Jelacic,² Daniel R. Boster,² Sandra L. Watkins,² and Phillip I. Tarr²

¹Department of Pediatrics, Division of Nephrology, University of New Mexico Children's Hospital, Albuquerque; ²Divisions of Gastroenterology and Hepatology, Children's Hospital, University of Washington, Seattle, WA, USA

Method:

Prospective cohort study in 5 states in USA 1997-2006 including 259 children with *E. coli* O157:H7, including 36 with HUS (14%)

Result:

Exposure to antibiotics within the first week of illness tripled the risk of developing HUS (OR 3,62, $p = 0,02$) (multivariable logistic regression adjusting for severity of intestinal infection)

Conclusion:

Antibiotic use during *E. coli* O157:H7 infections is associated with a higher rate of subsequent HUS

ANTIBIOTICS AND VTEC *E. coli* :

Pediatric Infectious Disease Journal 2012; 31:37-41

ORIGINAL STUDIES

Antibiotic Treatment of *Escherichia coli* O157 Infection and the Risk of Hemolytic Uremic Syndrome, Minnesota

Kirk E. Smith, DVM, PhD, Peter R. Wilker, PhD, MPH,* Paul L. Reiter, PhD, MPH,*
Erin B. Hedican, MPH,* Jeff B. Bender, DVM, MS,† and Craig W. Hedberg, PhD, MPH‡*

Background: Infection with *Escherichia coli* O157 (O157) can lead to the development of hemolytic uremic syndrome (HUS), a life-threatening condition characterized by anemia, and acute renal failure. The majority of cases occur in

Method:

Matched case-control study including 76 children with HUS and 129 children with *E. coli* O157 infection

Result:

Exposure to bactericidal antibiotics within the first week of illness increased the risk of developing HUS (OR 5,1, $p = 0,03$) (multivariate regression model adjusting for severity of intestinal infection)

Conclusion:

Bactericidal antibiotics, particularly β -lactams, in O157 infection was associated with subsequent development of HUS

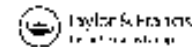
ANTIBIOTICS AND VTEC *E. coli*

Prolonged, asymptomatic carriage



Scandinavian Journal of Infectious Diseases 2005; 37:61-63

Scandinavian Journal of Infectious Diseases, 2005; 37: 61–63



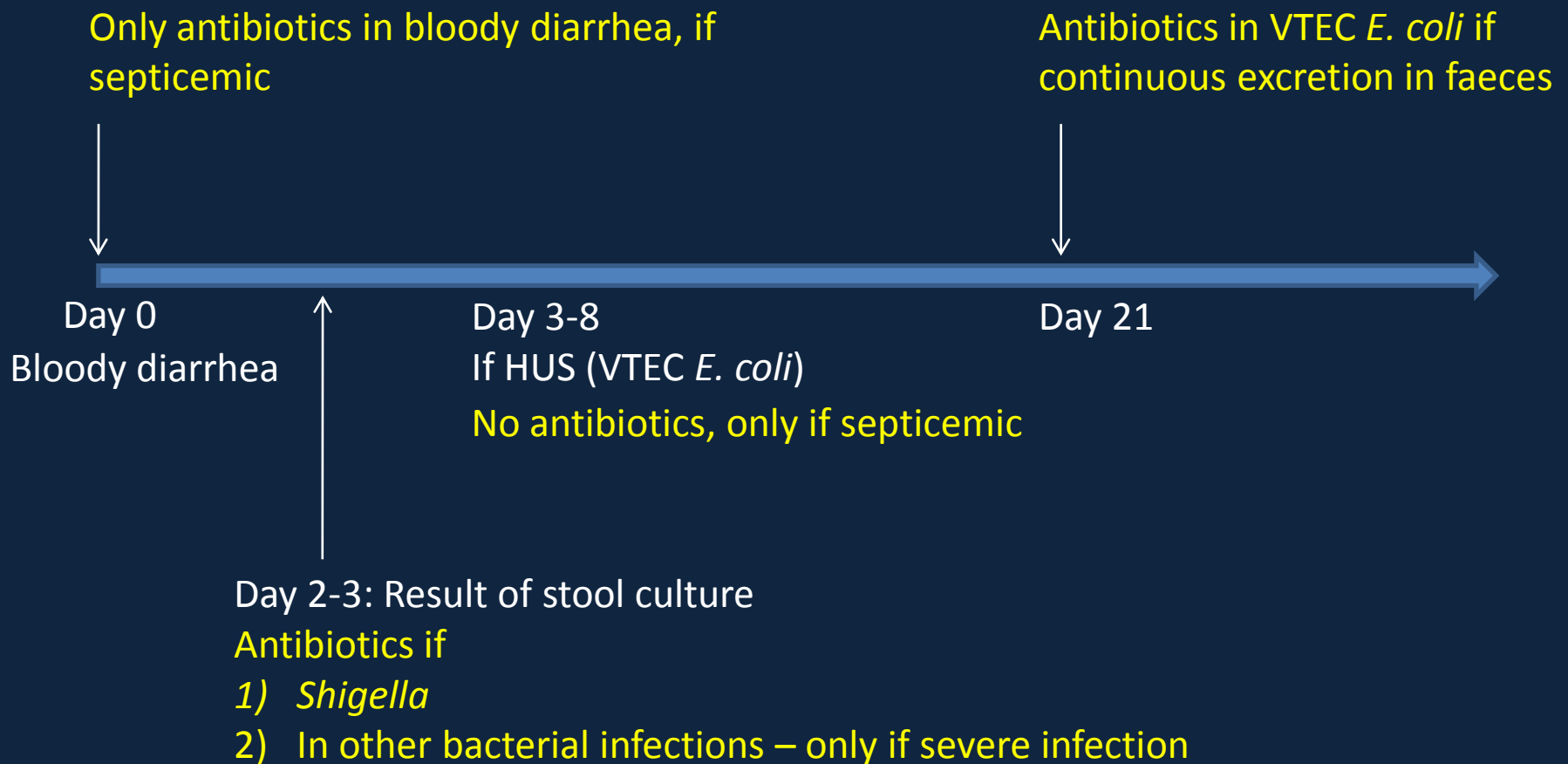
SHORT COMMUNICATION

Antimicrobial treatment of asymptomatic carriers of verocytotoxin-producing *Escherichia coli*: An empiric study

CHARLOTTE JENSEN¹, PETER SCHIELLERUP¹, KATHARINA E.P. OLSEN¹,
FLEMMING SCHEUTZ^{1,2}, ESKILD PETERSEN¹, PETER GERNER-SMIDT¹ &
KÅRE MØLBAK^{1,3}

From the ¹Unit of Gastrointestinal Infections, Department of Bacteriology, Mycology and Parasitology, Statens Serum Institut, ²The International *Escherichia* and *Klebsiella* Centre (WHO Reference Centre), Statens Serum Institut, and ³Department of Epidemiology, Statens Serum Institut, Copenhagen, Denmark

ANTIBIOTICS IN BLOODY DIARRRHEA CONCLUSIONS



The potential harm from antibiotic treatment of an infection with Verotoxin-producing *E. coli* (VTEC) exceeds the potential harm from delaying treatment of other bacteria causing dysentery