Infectious Disease in the ER

Dr. David Carr
University Health Network
February 20th 2012

Objectives

- Antibiotic choices
  - Minimizing inpatient burden
  - Making wise choices in the face of resistance
- A Review of the up to date recommendations in treating common ER infections
- The many twists and turns of cellulitis
- Viruses: Why not to treat? When to prevent?

DRUGS

Antibiotics

- Why all the fuss?
- 1/3 of all ED visits are ID related
- #1 or 2 prescriber of PCN's and Cephalosporins
- 142,000 visits per year in the U.S 2nd to adverse effects of abx
- Only 5 new abx have been approved by the FDA in the last 5 years

Antibiotics: Bioavailability

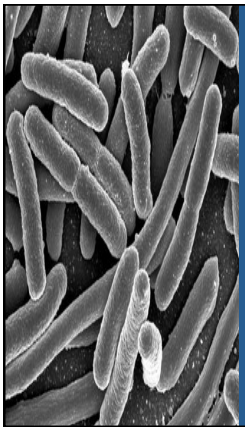
- Bioavailability: percentage of the drug that is absorbed
- One of the key determinants of selecting a PO abx
- High bioavailability allows for outpt treatment
- Divided into 3 categories

Antibiotics: Bioavailability

- Low: not well absorbed
  - A PO agent not for serious infection→ nitrofurantoin
- Good: [blood and tissue] < than if given IV
  - [Therapeutic] in excess of [effective] i.e. cephalexin
- High: > 90% absorption orally
  - Ideal to treat serious infections
  - Quinolones, TMP/SMX, linezolid, doxycycline, metronidazole, clindamycin

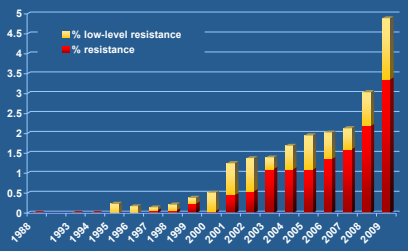
Antibiotics: PO vs IV

- Old habits die hard
- Oral abx with good or high bioavailability achieve [blood/target] in an hour in those with a functioning mouth and gut
- IM injections lead to lower but prolonged [serum]
- The envelope is being pushed for PO ABX
  - outpatient PO febrile neutropenic treatment guidelines



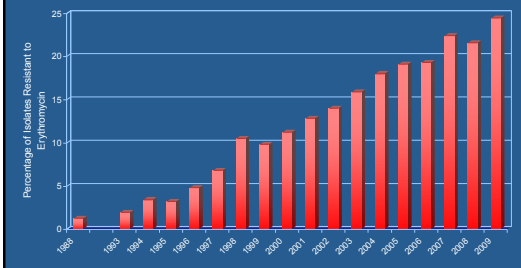
THE BUGS

Percentage of Amoxicillin Non-Susceptible *S. pneumoniae* in Canada: 1988-2009



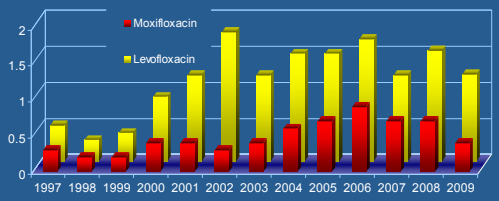
Canadian Bacterial Surveillance Network, June 2010

Macrolide-Resistant Pneumococci: Canadian Bacterial Surveillance Network, 1988-2009



Canadian Bacterial Surveillance Network, June 2010

Fluoroquinolone-Resistant Pneumococci: Canadian Bacterial Surveillance Network, 1997-2009



Canadian Bacterial Surveillance Network, June 2010

Antibiotic resistance: keep treating viruses

- Pharyngitis 80-90% viral
  - If strep score >= 4→ + Strep in 51%
- AOM→ 80-90% resolve in 48-72 hours
- Sinusitis is viral 98 % of the time
- Bronchitis & whiplash- I hate these terms
  - 90% viral
  - stop smoking
- Why are wait times correlated to patient entitlement to antibiotics?

Antibiotic Therapeutic Principles

- **Collateral damage**
  - The adverse effect of antibiotics →
    - Selection of drug resistant organisms (VRE/ESBL/MRSA)
    - Colonization with an alternate infection (Cdiff)
  - Take an antibiotic history from the past 3/12
  - Avoid the broad spectrum big guns

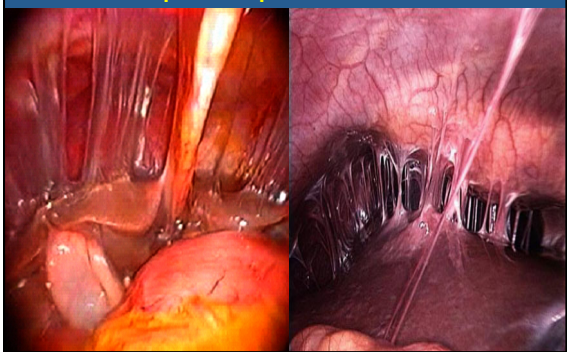
Case 1: Handover

- 32 y.o female RUQ pain
  - T 38 BP 120/80 HR 88
  - WBC 12 AST/ALT ~50 BHCG negative
  - Awaiting US
  - Handover instructions:
    - Refer to surgery if cholecystitis
    - D/c home if US normal

Case 1: Handover

- US:
  - No evidence of gallstones
  - Thickened fluid filled fallopian tubes and minimal free fluid
- Re-examine patient
  - New sexual partner/ hx STI in the past
  - CMT/adnexal tenderness
  - Endocervical swab + Chlamydia
- Diagnosis: Fitz-Hugh Curtis syndrome/PID

FHC: perihepatic adhesions



PID: The facts

- Affects 11% of women of reproductive age
- 2/3 go unrecognized
- Scandinavian Cohort 1960-1985
- In patients with >= 1 episode of PID:
  - 1/5 had infertility
  - 1/4 had a recurrence
  - 1/10 – 1st pregnancy after episode of PID was ectopic
  - 1/4 have chronic pelvic pain
- This is a bad disease

PID: Definition

CDC definition

- Abdo or pelvic pain in sexually active women/no other cause identified with >= 1 of the following:
  - Adnexal tenderness
  - CMT
  - Uterine tenderness
- Additional criteria
  - Elevated temperature (1/3), ESR/CRP, + swabs and US
- Low threshold to treat and dx

Design of the PID Evaluation and Clinical Health (PEACH) Study

Effectiveness of Treatment Strategies of Some Women With Pelvic Inflammatory Disease

A Randomized Trial

831 women with PID multicenter RCT: 7 years follow up
Inpatients: IV cefoxitin + doxy
Outpatients: IM Cefoxitin/ po probenacid + doxy
RESULTS:
No difference in pregnancy rates, infertility, chronic pelvic pain or ectopic pregnancies
No outcome difference in patients with fever, severe pain or increased WBC

Obstetrics and Gyne: Vol. 106, NO. 3, September 2005

Infection Type	Recommended Regimen	Pregnancy	Penicillin Allergy
Chlamydia (uncomplicated)	Azithromycin 1g po single dose or Doxycycline 100mg po bid X 7	Amoxicillin 500mg po tid X 7days Or Azithromycin 1g po Or Erythromycin 2g/ day po X 7d	Azithromycin 1g po single dose or Doxycycline 100mg po bid X 7

Canadian Guidelines on Sexually Transmitted Infections 2010

Infection Type	Recommended Regimen	Pregnancy	Penicillin Allergy
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Gonorrhea (uncomplicated)	Cefixime 800mg po or Ceftriaxone 250mg IM	Cefixime 800mg po or Ceftriaxone 250mg IM	*Azithro*mycin 2g po or Spectinomycin 2g IM (special access)

Canadian Guidelines on Sexually Transmitted Infections 2010

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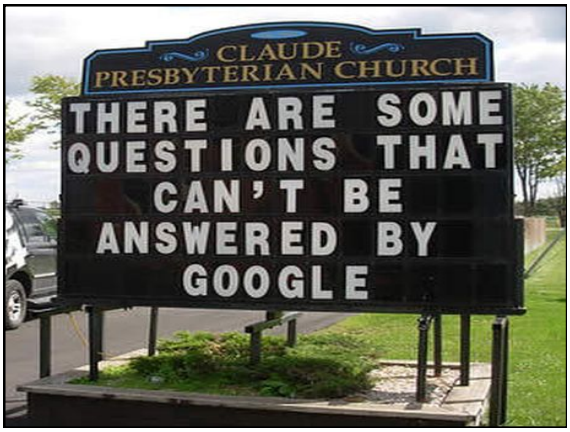
Gonorrhea (uncomplicated)	Cefixime 800mg po or Ceftriaxone 250mg IM	Cefixime 800mg po or Ceftriaxone 250mg IM	*Azithro*mycin 2g po or Spectinomycin 2g IM (special access)
PID (outpatient) -f/u in 48-72 hr if no improvement- parenteral therapy	Ceftriaxone 250-500mg IM or Cefixime 800 mg PLUS Doxy 100mg bid X 14 d +/- Metronidazole	Consider inpatient treatment?	Spectinomycin 2g IM + Doxy 100mg po bid X 14d +/- metro 500 mg po bid X 14 d

Canadian Guidelines on Sexually Transmitted Infections 2010

PID: Treatment

- Quinolone resistance in Ontario: Cipro is out
- Higher Ceftriaxone and Cefixime doses
- No single dose azithromycin for PID
- PID Inpatient:
  - IV cefoxitin 2 g q6h /doxycycline 100mg q12
  - IV clindamycin 900mg q8h + IV gentamycin
- Treat partners in past 60 days regardless of symptoms/test results
  - and no sex for 7 days



Case 2: Pyelonephritis

- 24 y.o female dysuria and frequency x 3days
  - Now c/o right flank pain/nausea/vomit X1
  - Lying down on a fast track stretcher
  - Looks unwell
  - T 38.8 HR 110 BP 124/83
  - Right CVA tenderness
- Can we send her home on oral antibiotics?

ELSEVIER International Journal of Antimicrobial Agents 27 (2006) 468–475 www.ischemo.org

Antibiotic resistance in *Escherichia coli* outpatient urinary isolates: final results from the North American Urinary Tract Infection Collaborative Alliance (NAUTICA)

George G. Zhanel[a,b,c,*], Tamiko L. Hisanaga[a], Nancy M. Laing[a], Melanie R. DeCorby[a], Kim A. Nichol[c], Barb Weshnowski[c], Jack Johnson[d], Ayman Noreddin[e], Don E. Low[f], James A. Karlowsky[b,c], for the NAUTICA Group, Daryl J. Hoban[b,c]

[a] Department of Medical Microbiology, Faculty of Medicine, University of Manitoba, Man., Canada
[b] Department of Medicine, Health Sciences Centre, Winnipeg, Man., Canada
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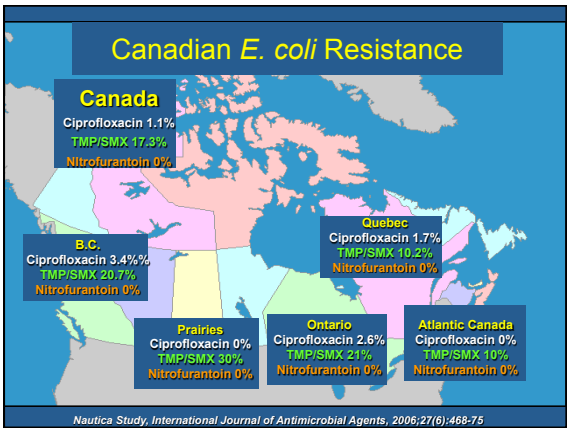
[f] Mount Sinai Hospital, Toronto, Ont., Canada

Received 25 January 2006; accepted 21 February 2006

Abstract

The North American Urinary Tract Infection Collaborative Alliance (NAUTICA) study determined the antibiotic susceptibility to commonly used agents for urinary tract infections of outpatient *Escherichia coli* urinary isolates obtained from various geographic regions in the USA and Canada. NAUTICA involved 40 medical centres (30 from the USA and 10 from Canada). From April 2003 to June 2004 inclusive, each centre submitted up to 50 consecutive outpatient midstream urine isolates. All isolates were identified to species level by each laboratory's existing protocol. Susceptibility testing was determined using the Clinical and Laboratory Standards Institute (CLSI) microdilution method. Ampicillin (resistant ≥32 μg/mL), sulphamethoxazole/trimethoprim (SMX/TMP) (resistant ≥4 μg/mL), nitrofurantoin (resistant ≥128 μg/mL), ciprofloxacin (resistant ≥4 μg/mL) and levofloxacin (resistant ≥8 μg/mL) resistance breakpoints used were those published by the CLSI. Of the 1142 *E. coli* collected, 75.5% (862) were collected from the USA and 280 (24.5%) were from Canada. Patient demographics revealed a mean age of 48.1 years (range, 2 months to 99 years), with female patients representing 79.4% of patients and males representing 20.6%. Overall, resistance to ampicillin was 37.7%, followed by SMX/TMP (21.3%), nitrofurantoin (1.1%), ciprofloxacin (5.5%) and levofloxacin (5.1%). Resistance rates for all antimicrobials were higher in US medical centres compared with Canadian centres ($P < 0.05$). Fluoroquinolone resistance was highest in patients ≥65 years of age ($P < 0.05$). Resistance rates demonstrated considerable geographic variability both in the USA and Canada. This study reports higher rates of antibiotic resistance in US versus Canadian outpatient urinary isolates of *E. coli* and demonstrates the continuing evolution of resistance to antimicrobial agents.

Keywords: Antibiotic resistance; *Escherichia coli*; Urinary



"Evaluation for the outpt treatment of uncomplicated pyelonephritis"

- RULE OF TWO's
  - 2 L of IV Fluids
  - 2 g of ceftriaxone IV or 2X/day cipro or TMP/SMX
  - 2 Tylenol #3
  - 2 glasses of water
  - 2 hours of observation
  - 2 days- follow up within

IDSA GUIDELINES

International Clinical Practice Guidelines for the Treatment of Acute Uncomplicated Cystitis and Pyelonephritis in Women: A 2010 Update by the Infectious Diseases Society of America and the European Society for Microbiology and Infectious Diseases

Kalpana Gupta,[1] Thomas M. Hooton,[2] Kurt G. Naber,[3] Björn Wullt,[3,4] Richard Colgan,[5] Loren G. Miller,[6] Gregory J. Moran,[7] Lindsay E. Nicolle,[8] Raul Raz,[9] Anthony J. Schaeffer,[9] and David E. Soper[7]

UTI: Macrobid 100 mg BID x 5 day
Septra 1 T DS BID x 3 days
2nd line Cipro 250 mg BID x 3days

Pyelonephritis: Cipro 500 mg BID x 7 days
Levofloxacin 750 mg X 5 days
Septra 1 T DS BID X 14 d (< 20% resist)

Inpatient Pyelo: IV FQ, IV 3rd gen ceph or IV Gent +/- amp

Case 3: Cellulitis

- 32 y.o healthy male presents with left leg redness X 3 days
  - Seen at WIC 2 days ago put on cephalexin 500mg qid
  - Returns because redness has increased up leg
  - Apparent cellulitis without abscess on exam

Case 3: Cellulitis

- Treatment Options?
- Keep on going with the cephalexin?
- Switch to a different PO abx?
- Probenacid + Ancef + CCAC
- Do we need a big gun abx?

Case 4: Cellulitis

- What is the most underrated non pharmacologic treatment for cellulitis?

Once-Daily Intravenous Cefazolin Plus Oral Probenecid Is Equivalent to Once-Daily Intravenous Ceftriaxone Plus Oral Placebo for the Treatment of Moderate-to-Severe Cellulitis in Adults

M. Lindsay Grayson,[1,2a] Malcolm McDonald,[3] Kimberley Gibson,[3] Eugene Athan,[3] Wendy J. Munckhof,[4] Phillip Paull,[3] and Fran Chambers[3]

Randomized Double blind trial: 60 patients in each group
Follow up at end of treatment and 1/12
Similar rates of clinical cure with similar # of doses
Conclusion: use of less expensive option is appropriate for mod-severe cellulitis and it avoids need for 3rd generation cephalosporin

Clinical Infectious Disease June 2002:34:1440-8

Case 4: The Hockey Player

- 22 y.o hockey player notices redness around left wrist a few hours after finishing a hockey game
  - Are you concerned?
- Given a script for cephalexin 500 mg po QID and told to return to the ER the next day for f/u
- Returns the following day with a weeping cellulitis with abscess formation
- Diagnosis: MRSA infection

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A Menace In the Locker Room

MRSA, a strain of antibiotic-resistant staphylococcus once confined to hospitals, is striking athletes at an alarming rate and with dire consequences

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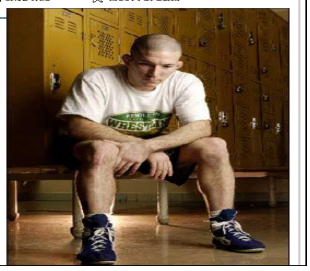
By Phil Taylor

It was just a tiny red mark on Chris Bettineski's right calf -- a bug bite, he thought, when he noticed it in January of last year, or maybe an ingrown hair. He had endured far nastier welts than that during his high school and college wrestling career, and even during his two seasons as an assistant coach at Pendleton (Ore.) High he had often come away with worse scrapes and scratches after getting down on the mat with the kids at practice. A pinprick on his calf? Hardly worth a second thought.

But a couple of days later at a Pendleton meet, he noticed that the mark had grown bigger and a bit painful, and by the time he went to bed that Saturday night, it was about the circumference of a baseball and starting to throb. Still, he waited until Monday morning to see a doctor, who



Case 4: The Hockey Player

- How big of a problem is MRSA?
- How do you treat him with his cellulitis/abscess?
  - I & D alone
  - I & D PLUS antibiotic covering MRSA? MSSA? Strep?
  - I & D and coverage of all the above?

CA-MRSA

- 1st described in the 80's, popularity in 2000's
- Often described as "spider bite" and seen with abscesses , furuncles, folliculitis, infected wounds etc
- High risk groups: Athletes, jails, military recruits, newborn nurseries, daycare centres, health care workers, IVDU, MSM, HIV

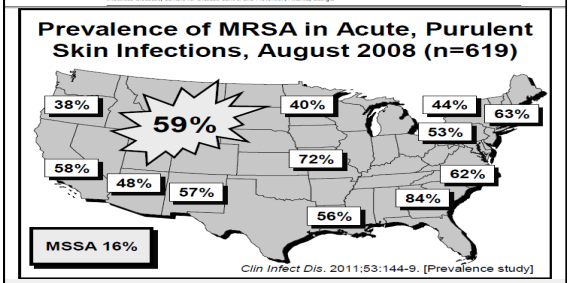
MRSA Comparisons

Characteristics	CA-MRSA	HA-MRSA
Sites involved	Skin and soft tissue	Respiratory
Age of patients	Younger	Older, Nosocomial
Microbiology	CA-MRSA 10 Clone USA 300 genotype Panton-Valentine Leukocidin	USA 100 genotype
Resistance patterns	Beta Lactam Resistance	Multi-drug resistance
Arrival	Now Playing	On Video

Comparison of *Staphylococcus aureus* From Skin and Soft-Tissue Infections in US Emergency Department Patients, 2004 and 2008

David A. Talan,[1,2] Anusha Krishnadasan,[1] Rachel J. Gorwitz,[2] Gregory E. Fosheim,[3] Brandi Limbago,[3] Valerie Albrecht,[3] and Gregory J. Moran[1,2] for The *EMERGEncy* ID Net Study Group

[1]Department of Emergency Medicine and [2]Division of Infectious Diseases, David Geffen School of Medicine at UCLA, Olive View–University of California at Los Angeles Medical Center, Sylmar, California; and [3]Division of Healthcare Quality Promotion, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia



Clin Infect Dis. 2011;53:144-9. [Prevalence study]

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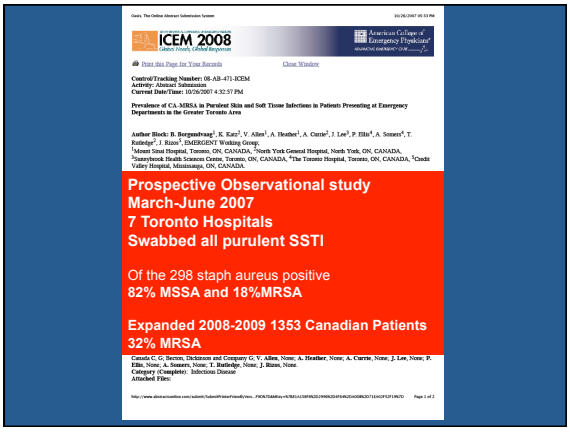
[1]Department of Emergency Medicine and [2]Division of Infectious Diseases, David Geffen School of Medicine at UCLA, Olive View–University of California at Los Angeles Medical Center, Sylmar, California; and [3]Division of Healthcare Quality Promotion, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia

Prevalence MRSA Varied from 38-84%

Susceptibilities

TMP/SMX	98%
Doxycycline	100%
Clindamycin	94%
Rifampin	99%
Vancomycin	100%
Linezolid	100%



ICEM 2008

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Control/Tracking Number: 08-AB-471-ICEM
Activity: Abstract Submission
Current Date/Time: 10/26/2007 4:32:57 PM

Prevalence of CA-MRSA in Purulent Skin and Soft Tissue Infections in Patients Presenting at Emergency Departments in the Greater Toronto Area

Author Block: B. Bergmdvaag[1], K. Karz[2], V. Allen[1], A. Heather[1], A. Currie[2], J. Lee[3], P. Ellis[4], A. Somers[4], T. Rutledge[5], J. Rizzo[5], EMERGENT Working Group;
[1]Mount Sinai Hospital, Toronto, ON, CANADA, [2]North York General Hospital, North York, ON, CANADA, [3]Sunnybrook Health Sciences Centre, Toronto, ON, CANADA, [4]The Toronto Hospital, Toronto, ON, CANADA, [5]Credit Valley Hospital, Mississauga, ON, CANADA.

Prospective Observational study
March-June 2007
7 Toronto Hospitals
Swabbed all purulent SSTI

Of the 298 staph aureus positive
82% MSSA and 18%MRSA

Expanded 2008-2009 1353 Canadian Patients
32% MRSA

Canada C. G. Bayles, Dickinson and Company G. V. Allen, None; A. Heather, None; A. Currie, None; J. Lee, None; P. Ellis, None; A. Somers, None; T. Rutledge, None; J. Rizzo, None.
Category (Complete): Infectious Disease
Attached Files:

Do Abscesses need antibiotics?

- **Are Antibiotics Necessary After Incision and Drainage of a Cutaneous Abscess?**
  - *Review of 5 studies (3 RCT's) and 1 abstract*
  - *1 of the studies (166pts) had MRSA rate of 52%*
  - *All studies showed I&D alone group comparable to I&D group + ABX*
  - *BOTTTOM LINE: CUT IT OUT*
  - **Annals of Emergency Medicine** - Volume 50, Issue 1 July 2007. *Hankin, A., Evererett. W.W*
- *Abscess: I &D plus septra VS I&D + placebo*
  - *Similar cure and recurrence rates in both groups*

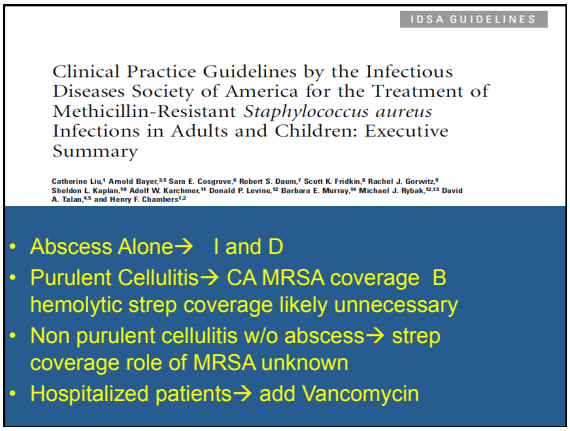
Ann Emerg Med 2010 (55) 401-407 , Ann Emerg Med 2010 (56) 283—7

Cutaneous Abscess: 2011 IDSA Guidelines

- I & D alone
- Consider antibiotics if:
  - Severe or extensive disease (multiple sites)
  - Rapidly progressing cellulitis
  - Systemically unwell
  - Age/co-morbidities
  - Hard to drain area (face, hand, genitalia)
  - Lack of response to I and D alone
- Decolonization?

Adding MRSA Coverage

- "Consider treating for MRSA if rate" > 10-15%
- TMP/SMX 1 TAB DS BID-QID or Doxycycline 100 mg po BID + Cephalexin 500 mg po QID
- Clindamycin 300-450 mg po QID alone
  - Inducible resistance
- Vancomycin 1g IV q12h if severe



IDSA GUIDELINES

Clinical Practice Guidelines by the Infectious Diseases Society of America for the Treatment of Methicillin-Resistant *Staphylococcus aureus* Infections in Adults and Children: Executive Summary

Catherine Liu,[1] Arnold Bayer,[2,3] Sara E. Cosgrove,[4] Robert S. Daum,[7] Scott K. Fridkin,[8] Rachel J. Gorwitz,[9] Sheldon L. Kaplan,[10] Adolf W. Karchmer,[11] Donald P. Levine,[12] Barbara E. Murray,[13] Michael J. Rybak,[12,13] David A. Talan,[4,5] and Henry F. Chambers[1,2]

- Abscess Alone→ I and D
- Purulent Cellulitis→ CA MRSA coverage B hemolytic strep coverage likely unnecessary
- Non purulent cellulitis w/o abscess→ strep coverage role of MRSA unknown
- Hospitalized patients→ add Vancomycin

WASH YOUR HANDS!

Case 5: The new millennium

- 33 y.o female presents to the ER with a suprapatellar abscess around her L knee
- PMHX: Nil Meds Nil NKDA
- O/E small fluctuant abscess from a "bite"
  - ? Secondary cellulitis
- Treated with I and D + 2g Ancef
- 2 days later she returned because worsening redness
  - Put on Septra 1 tab DS BID x 7d and swab obtained

Case 5: The new millennium

- Culture: MRSA + (R) TMP/SMX Clinda(S) RN to call PT and change script?
- Patient advised to return to ER as she had a severe headache, neck pain
- O/E: Looks horrible
- Meningismus, jolt, severe distress
- Temp 36.6 123/82 18 95 100%
- Knee " much better" No redness, abscess, no signs septic joint
- What next?

Bacterial Meningitis Treatment

- Dexamethasone: 0.15 mg/kg (10 mg) q6h x 2 -4 d
- Vancomycin 2 g iv q12h
  plus
  Ceftriaxone 2 g iv q12h
- Add ampicillin 2g iv q4h if possible Listeria:
  elderly, alcoholic, immunocompromised

Clinical Infectious Diseases 2004:39;1267-84

Case 5: Back to Our patient

- CT head Normal
- Labs WBC 3.8 Lactate 1.0 lytes cr, coags N
- LP : 100 WBC (87% lymph's)
- Gram stain neg Blood cultures neg X 2
- Diagnosis: Aseptic Meningitis?
- Patient discharged from 2 days later prompt recovery
- Why?

Case 5: DIAM

- Diagnosis of exclusion→ treat infectious causes
- Signs and symptoms begin 24-48hrs after initiation of the medication
- The clinical recovery should be rapid after cessation of the drug (24-48hr)
- Repeat reactions are likely and symptoms are more severe and have shorter latency period
- Can occur in pt's who previously tolerated the medication

Case 5: DIAM

- Classes of Drugs
  - ABX: **Septra** (most common), Cephalosporins, pcn, clinda, flagly, INH
  - NSAIDS "motrin meningitis" (2nd most common)
  - Vaccines: IVIG, Hep B, MMR
  - Others Carbamazepine, Azathioprine, intrathecal agents
- Often there is an underlying autoimmune condition associated with the patient ie SLE

Case 6: Summer time blues

- 18 y.o healthy male up at the cottage
  - Stung by a bee on his right thigh
  - Visits a WIC 8 hrs later–> script for cephalexin
  - Increased redness at 24hrs return to WIC
    - Sent to ER for IV antibiotics
  - Given cefazolin /probenacid for 2 days
  - No improvement, 4th MD assessment
    - What do you do?
  - What if it was a mammalian bite?

Do Mammalian Bites Require Antibiotic Prophylaxis?

EBEM Commentator
Troy W. S. Turner, MD, FRCPC

From the Division of Pediatric Emergency Medicine, Department of Pediatrics, University of Alberta, Edmonton, Alberta, Canada.

[*Ann Emerg Med.* 2004;44:274-276.]

SYSTEMATIC REVIEW SOURCE

This is a systematic review abstract, a regular feature of the *Annals'* Evidence-Based Emergency Medicine (EBEM)

Review of the Cochrane meta analysis of 8 RCT's of 674 patients with mammalian bites Antibiotics prophylaxis associated with statistically significant reduction of infection in wounds of human bites BUT not dog or cat bites. Antibiotics useful for all hand bites. NNT 4 to prevent 1 hand bite infection 95% CI (2-50)

The *Annals'* EBEM editors prepared the abstract of this Cochrane systematic review as well as the Evidence-Based Medicine Teaching Points.

OBJECTIVE

STUDY SELECTION

Published and unpublished manuscripts, letters, and abstracts were considered for inclusion. Studies were selected for randomized clinical trials or quasirandomized trials of antibiotics versus placebo or no intervention, started within 24 hours of injury with no clinical signs of infection. Included trials produced data including overall incidence of infection (presumed or microbiologically confirmed); some studies also included information on site of wound, aggressor species, and type of wound.

DATA EXTRACTION

Two investigators extracted data independently.

assessment of patient compliance, infection rates in both groups of patients, assessment of the outcomes, local care (before and after the visit to emergency departments), suturing of the injury, time of follow-up, drop out, and cost analysis.

Bites

Criteria	Dog Bites
Organism	P. multocida C. capnocytophagia S. Aureus
Infection rate	Similar to non bite lacerations ~ 5% Police dogs worse
Treatment	Amox/clav 500 TID Ceftriaxone or Pipp/Tazo Rabies?
Notes	No evidence to treat empirically Treat hand bites/IC only Can close most lacerations

Bites

Criteria	Cat Bites
Organism	P. multocida S. aureus
Infection rate	80 % get infected
Treatment	Amox/clav 500 TID Ceftriaxone Im/IV
Notes	Prophylactic treatment for all P. mult occurs early with 24 hrs

Bites

Criteria	Human Bites
Organism	Strep viridans S. epidermidis E. corrodens Cornebacterium
Infection rate	"Bacterial load of mouth is similar to feces" > 10 %
Treatment	Amox/clav Ceftriaxone + metronidazole HBIG
Notes	Treat through/through lacerations Clean/Irrigate X-ray: CFI 38% fight bite patient's lie about the mechanism

Case 7: The referral note

- Please assess the 20 y.o male who had an I & D of a sebaceous cyst of the neck one year ago
- Not been seen in 1 year
- Apparently the wound has not healed and worse
- He needs another I & D of the opposite site and possibly a plastics referral for a skin graft
- My thoughts…….

Case 7: The referral note

- What else do you want to know?

Case 7: Scrofula

- TB is the oldest documented Infectious disease ever documented
- King's evil: Scrofula could be cured by the touch of a monarch
- Scrofula is TB of the cervical lymph nodes and adjacent skin
- Most cases in N. America are pulmonary
- 50 % of cases are from immunocompromised hosts

Case 7: Scrofula

- Firm, rubbery node that is matted "cold abscess"
- Non tender slightly fluctuant with purple hue
- Drains infrequently and 1/3 bilateral
- DDX:
  - sebaceous cyst, TGDC or brachial cleft cyst, malignancy (lymphoma, mets)
  - Infectious: cat scratch, viral, fungal

Scrofula: Diagnosis and Treatment

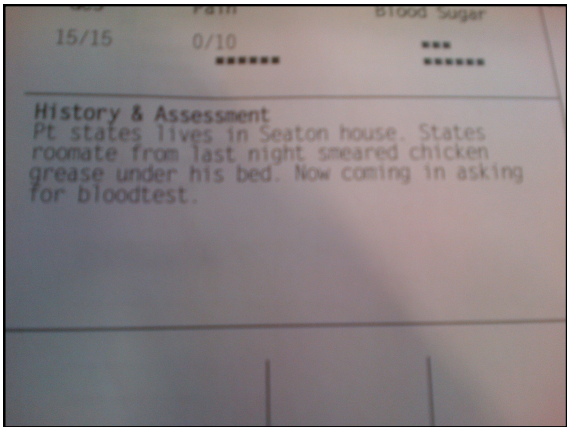
- PPD + in 85%
- Pulmonary TB in 10-24%→ Do CXR
- FNA
- Standard precautions
- Treat like pulmonary TB
  - INH, Rifampin, Ethambutol, Pyrazinamide
- Responds very well to treatment
- But he did not travel

Case 7: Travel Related Illness

- You do not have to travel to get a "travellers related" disease
  - They come to you
- Ethnically profile your patients
- Consider domestic causes of fever
- Never forget malaria: most common febrile TRI
- Remember SARS
  - When in doubt isolate

"Don't Get Bit,
Don't Do It,
Don't Get Lit,
Don't Eat @#&%!"

Dr Jay keystone travel wisdom



Case 8: The Needlestick

- 27 y.o PGY 2 sustained an injury while injecting a wound on an homeless substance abuser
- He washes it out thoroughly
- What else do you want to know?
  - HIV status? Risk factors?
  - Needle type?
  - How deep was the puncture?
- Would you recommend HIV PEP?
  - Would you take it?

Case 8: The Needlestick

- Only one documented and two possible occupation exposures in Canada (2003)
- Feces, saliva, mucous, tears, vomit, urine all low risk unless blood tainted
- Long term adverse outcome with triple therapy 1:5000 and death in 1:15,000-50,000
- Build a Bayseian model to quantify risk in the context of everyday life
- What are your chances of dying in the next 365 days?

Table 1. Risks in everyday life

Risk of dying in the next 12 months	
Overall risk of dying **in the next 12 months** (all causes)	1/3 000
Specific causes of death **in the next 12 months**	
• from a lightning strike	1/2 000 000
• in an accident in your bathtub or shower	1/1 000 000
• from a previously unknown allergy to a prescribed drug	1/1 000 000
• by choking to death on food	1/160 000
• in a bicycle accident (if you own a bicycle)	1/130 000
• from toxic shock if you use tampons	1/100 000
• by drowning	1/50 000
• from a fire	1/50 000
• as a pedestrian hit by a car or truck	1/40 000
• in a work-related accident (office workers)	1/37 000
• from a fall	1/20 000
• in a work-related accident (overall)	1/11 000
• by being murdered	1/11 000
• while jogging (average 2 h/wk)	1/10 000
• in a road accident	1/6 000
• from any kind of accident	1/3 000
Other risks	
• risk of dying on your next commerical jet flight	1/5 000000
• lifetime risk of being on a bridge when it collapses	1/4 000 000
• risk of dying if you get influenza	1/5 000
• risk of being diagnosed with cancer in the next 12 months (overall death rate 50%)	1/3 600
• risk of being diagnosed with lung cancer in the next 12 months if you are (or were) a smoker (overall death rate about 90%)	1/250
• risk of having a heart attack in the next 12 months if you are over 35 years of age	1/77

Adapted from Lauden L. *The Book of Risks: Fascinating Facts About the Chances We Take Every Day*; John Wiley & Sons Inc; 1994.

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TABLE OF CONTENTS

Should emergency departments offer postexposure prophylaxis for non-occupational exposure to HIV?

Editorials / Commentaries

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CJEM 2003;5(1):38-45

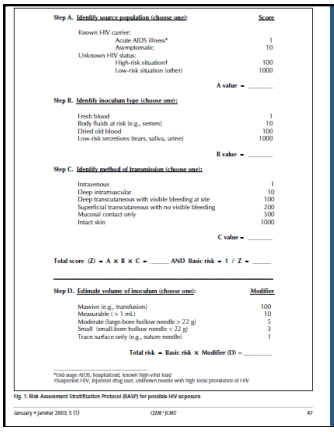
Table 1. Estimated risk of infection after exposure to an HIV positive source

Type of exposure	Per-contact risk	Reference
Receptive anal intercourse; asymptomatic source	0.008–0.032	<7>
Receptive anal intercourse (1° HIV infection)	0.1–0.3	<8>
Insertive anal intercourse	0.0003	<9>
Receptive vaginal intercourse	0.0005–0.002	<4,10–13>
Insertive vaginal intercourse	0.0003–0.0009	<10–13>
Oral intercourse*	Not quantified, low risk. Increased risk if lesions or sores in mouth	<3,14>
Needle sharing	0.0067 (mathematical modelling data)	<15>
Occupational percutaneous exposure	0.003	<1>
Bite	No contact with blood — low risk	<3,11,15>

* Case reports in literature. Identified as an independent risk factor in 3 of 24 epidemiologic studies.

Case 8: The Needlestick

- 27 y.o PGY 2 sustained an injury while injecting a wound on an **homeless substance abuser**
- He washes it out thoroughly
- What else do you want to know?
  - HIV status? Risk factors- **LOTS**
  - **25 gauge needle**
  - **Pierced glove, no obvious bleeding**
- What are his odds of contracting HIV?



Step A. Identify source population (choose one): Score

Known HIV carrier:
Acute AIDS illness* 1
Asymptomatic 10
Unknown HIV status:
High-risk situation† 100
Low-risk situation (other) 1000

A value = _____

Step B. Identify inoculum type (choose one):

Fresh blood 1
Body fluids at risk (e.g., semen) 10
Dried old blood 100
Low-risk secretions (tears, saliva, urine) 1000

B value = _____

Step C. Identify method of transmission (choose one):

Intravenous 1
Deep intramuscular 10
Deep transcutaneous with visible bleeding at site 100
Superficial transcutaneous with no visible bleeding 200
Mucosal contact only 500
Intact skin 1000

C value = _____

Total score (Z) = A × B × C = _____ AND Basic risk = 1 / Z = _____

Step D. Estimate volume of inoculum (choose one): Modifier

Massive (e.g., transfusion) 100
Measurable (> 1 mL) 10
Moderate (large-bore hollow needle > 22 g) 5
Small (small-bore hollow needle < 22 g) 3
Trace surface only (e.g., suture needle) 1

Total risk = Basic risk × Modifier (D) = _____

*End-stage AIDS, hospitalized, known high-viral load
†Suspected HIV, injection drug user, unknown needle with high local prevalence of HIV

Fig. 1. Risk Assessment Stratification Protocol (RASP) for possible HIV exposure

A = 100

B =1

C= 200

BASIC RISK = 1/A X B X C
BASIC RISK = 1/20,000

D (MODIFIER) =3

TOTAL RISK = 3/20,000

Risk Assessment Stratification Protocol (RASP) to help patients decide on the use of postexposure prophylaxis for HIV exposure

Editorials / Commentaries

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CJEM 2003;5(1):46-48

Table 2. Risk level and treatment recommendation

Risk level	Suggested treatment
< 1/1000	Definitely indicated
1/1000–1/10 000	Recommended but optional
1/10 001–1/100 000	Optional but not recommended
>1/100 000	Not indicated

Summary

- Choose your outpatient antibiotics wisely
  - Know your bioavailability of the drug
  - Know your target organism and resistance patterns
  - Know your infection
- PID is mostly an outpatient problem
  - Quinolones are out for STD's
  - Err on the side of caution: over treat PID
  - Pyelonephritis often is an outpatient problem
  - Be weary of local resistance patterns to TMP/SMX
  - Rule of two's: Not violated → D/C

Summary

- SSTI are evolving
  - Re-think the impulse to write cephalexin X 7d
  - MRSA has to be considered for every SSTI
  - Treat abscesses properly
- Septra: as if SJS wasn't enough
- You don't have to travel to get a TRI
  - Ethnically profile your patients
- Consider a new approach to HIV PEP
  - Empower patients to aid in the decision process