
Highlights from the AMMI Canada- CACMID 2010 Conference: *What did Tim actually learn?*

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What's new?

- Influenza
- Infectious diseases
- Prosthetic infections
- Static vs. tidal

Influenza

- Influenza Pandemic, 2009
Dr. Danuta M. Skowronski
BCCDC
- Highlights:
 - Influenza attack rates highest in children
 - Subtype replacement
 - Pandemic waves may or may not be associated with seasons (↑ 1.4-2.5 fold pH1N1 in summer)
 - More pandemic waves?
 - Risk factors
 - Aboriginals (↓ IgG₂ levels)
 - Time to antivirals
 - Pregnancy (↓ cell-mediated in 3rd trimester)

Influenza

- Lessons learned:
 - Real-time knowledge
 - Rapid response
 - Surveillance
 - Supply
 - Prioritization
- Overall, 462 deaths (not 60,000 as predicted)

Influenza

- The Mystery Influenza Virus and Diagnostic Enigmas
Dr. Todd Hatchette
QEII Health Sciences Centre, Halifax, NS
- Highlights:
 - Diagnostic testing
 - Nasopharyngeal swabs
 - Best
 - Throat swabs alone
 - Bad
 - Combination
 - Ideal
 - In critically ill,
 - BAL or endotracheal sample
 - Rapid point-of-care influenza detection
 - 20% sensitivity

Influenza

- Influenza Vaccination Strategies in Canada
Dr. Shelly McNeil
Dalhousie University, Halifax, NS
- Highlights:
 - Adjuvant vs. non-adjuvant
 - Adjuvant
 - Rapid protection
 - Antigen sparing
 - Non-adjuvant
 - Similar efficacy
 - Why did we have the adjuvanted vaccine?
 - In 2001, Government of Canada signed contract with GSK
 - Supply “adjuvanted” pandemic vaccine

Influenza

- Problems
 - Adjuvant stability
 - 24 h
 - Syringe
 - Limited supplies
 - Sequencing of patient groups
 - Safety
 - U.S. used non-adjuvant
 - Different recommendations in pregnancy
- Unclear whether adjuvant or non-adjuvant selected for next year

ID

- What's Hot in Adult ID?
Dr. Stephen D. Shafran
University of Alberta, Edmonton, AB
- Highlights:
 1. ↑ ESBL mainly in UTIs
 2. MRSA rates stable
 3. MRSA ↑ clindamycin resistance
 4. VISA and VRSA rare
 5. VRE mainly colonizer
 6. ↑ carbapenem resistance
 7. No new antibiotics
 8. Pneumococcal conjugate vaccine in adults – pending
 9. Meningococcal vaccine in US/EU quadravalent
 - Serogroup B (1/2 of cases)

ID

- Highlights:

16. New TB drug (TMC 207 – diarylquinoline)

17. Combination invasive aspergillosis trial

- Voriconazole vs. voriconazole/anidulafungin for IA in BMT

18. HPV quadravalent vaccine for males

- 89% protection
- Reduces genital lesions
- Oral cavity disease and CA

19. Herpes zoster live vaccine in Canada

- Efficacy 61% approved in ≥ 60 years

20. Oseltamivir resistance 1% (H275Y mutation)

- Susceptible to zanamivir

21. Hepatitis E recombinant vaccine

- 95% protection

ID

- Highlights:

- 22. Malaria

- Artesunate available as SAP in Canada
 - Mosquirix vaccine in Phase 3 studies (Phase 2 efficacy 55%)

- 23. HIV

- Start HAART earlier
 - Any CD4
 - Pregnant
 - HIV neuropathy (Black)
 - HBV co-infection
 - Symptomatic patients
 - CD4
 - <350: treat all
 - 350-500: more evidence
 - >500: controversial

ID

- Highlights:

23. HIV

- Opportunistic infections
 - Treat with HAART earlier (after 12 days) than later
- Heterosexual transmission
 - If <400 VL → no transmission to partner

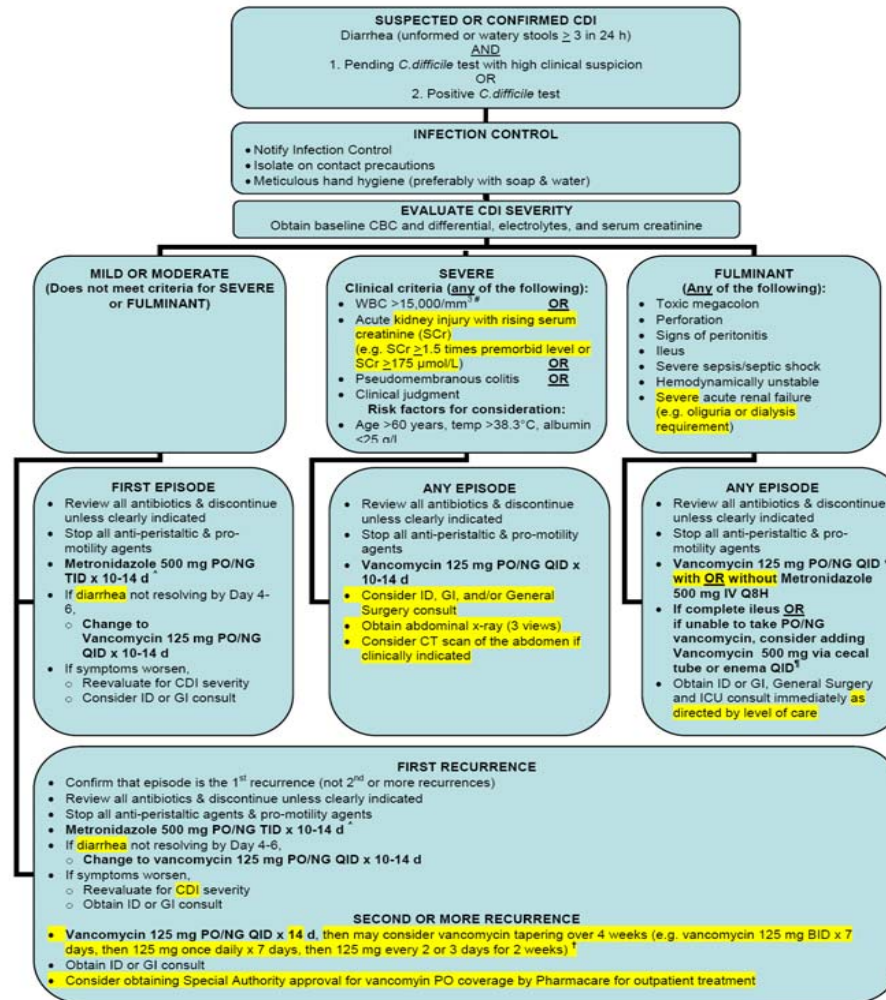
24. CDI

- New IDSA guidelines
- If 2 episodes, then increase recurrence

25. Fidaxomicin

1. Fidaxomicin (macrocyclic antibiotic – RNA polymerase) vs. vancomycin
 1. ↓ recurrence 12.8% vs. 25%
 2. Cure 79.6% vs. 65.5%

VCH-PHC Draft CDI Guidelines



^{*} In patients unable to mount a WBC response $>15,000/\text{mm}^3$, an increasing WBC with pronounced left shift may also be considered in these criteria; threshold of $>15,000/\text{mm}^3$ is based on expert opinion.

[†] May change to vancomycin if patient intolerant to metronidazole.

[‡] Doses of 125 to 500 mg may be considered; appropriate dose has not been established in clinical trials.

[§] Vancomycin IV is not effective for the treatment of CDI.

[†] Tapering regimens may vary considerably, as clinical data is limited.

Note: Physician assessment for perforation risk is required prior to rectal tube placement.

ID

VCH-PHC Draft CDI Guidelines

MILD OR MODERATE
(Does not meet criteria for SEVERE or FULMINANT)

SEVERE
Clinical criteria (any of the following):

- WBC >15,000/mm³# **OR**
 - Acute kidney injury with rising serum creatinine (SCr) (e.g. SCr ≥1.5 times premorbid level or SCr ≥175 µmol/L) **OR**
 - Pseudomembranous colitis **OR**
 - Clinical judgment
- Risk factors for consideration:**
- Age >60 years, temp >38.3°C, albumin <25 g/l

FULMINANT
(Any of the following):

- Toxic megacolon
- Perforation
- Signs of peritonitis
- Ileus
- Severe sepsis/septic shock
- Hemodynamically unstable
- Severe acute renal failure (e.g. oliguria or dialysis requirement)

FIRST EPISODE

- Review all antibiotics & discontinue unless clearly indicated
- Stop all anti-peristaltic & pro-motility agents
- Metronidazole 500 mg PO/NG TID x 10-14 d ^
- If diarrhea not resolving by Day 4-6,
 - Change to Vancomycin 125 mg PO/NG QID x 10-14 d
- If symptoms worsen,
 - Reevaluate for CDI severity
 - Consider ID or GI consult

ANY EPISODE

- Review all antibiotics & discontinue unless clearly indicated
- Stop all anti-peristaltic & pro-motility agents
- Vancomycin 125 mg PO/NG QID x 10-14 d
 - Consider ID, GI, and/or General Surgery consult
 - Obtain abdominal x-ray (3 views)
 - Consider CT scan of the abdomen if clinically indicated

ANY EPISODE

- Review all antibiotics & discontinue unless clearly indicated
- Stop all anti-peristaltic & pro-motility agents
- Vancomycin 125 mg PO/NG QID * with **OR** without Metronidazole 500 mg IV Q8H
- If complete ileus **OR** if unable to take PO/NG vancomycin, consider adding Vancomycin 500 mg via cecal tube or enema QID¹
- Obtain ID or GI, General Surgery and ICU consult immediately **as directed by level of care**

ID

■ VCH-PHC Draft CDI Guidelines

FIRST RECURRENCE

- Confirm that episode is the 1st recurrence (not 2nd or more recurrences)
- Review all antibiotics & discontinue unless clearly indicated
- Stop all anti-peristaltic agents & pro-motility agents
- **Metronidazole 500 mg PO/NG TID x 10-14 d**[^]
- If **diarrhea** not resolving by Day 4-6,
 - **Change to vancomycin 125 mg PO/NG QID x 10-14 d**
- If symptoms worsen,
 - Reevaluate for **CDI** severity
 - Obtain ID or GI consult

SECOND OR MORE RECURRENCE

- **Vancomycin 125 mg PO/NG QID x 14 d, then may consider vancomycin tapering over 4 weeks (e.g. vancomycin 125 mg BID x 7 days, then 125 mg once daily x 7 days, then 125 mg every 2 or 3 days for 2 weeks)**[†]
- Obtain ID or GI consult
- **Consider obtaining Special Authority approval for vancomycin PO coverage by Pharmacare for outpatient treatment**

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Note: Physician assessment for perforation risk is required prior to rectal tube placement.

Prosthetic Infections

- Prosthetic Joint Infections
Dr. Robin Patel
Mayo Clinic, Rochester, MN
- Highlights:

Prosthetic Infection	0 to 2 years	2 to 10 years
Knee	1.55%	0.46%
Hip	0.78%	0.33%

- Diagnosis criteria (any of the following)
 1. Acute inflammation
 2. Sinus tract
 3. Purulence
 4. Microorganisms in ≥ 2 cultures
- Labs
 - ESR/CRP
 - Differ between hip/knees and shoulder

Prosthetic Infections

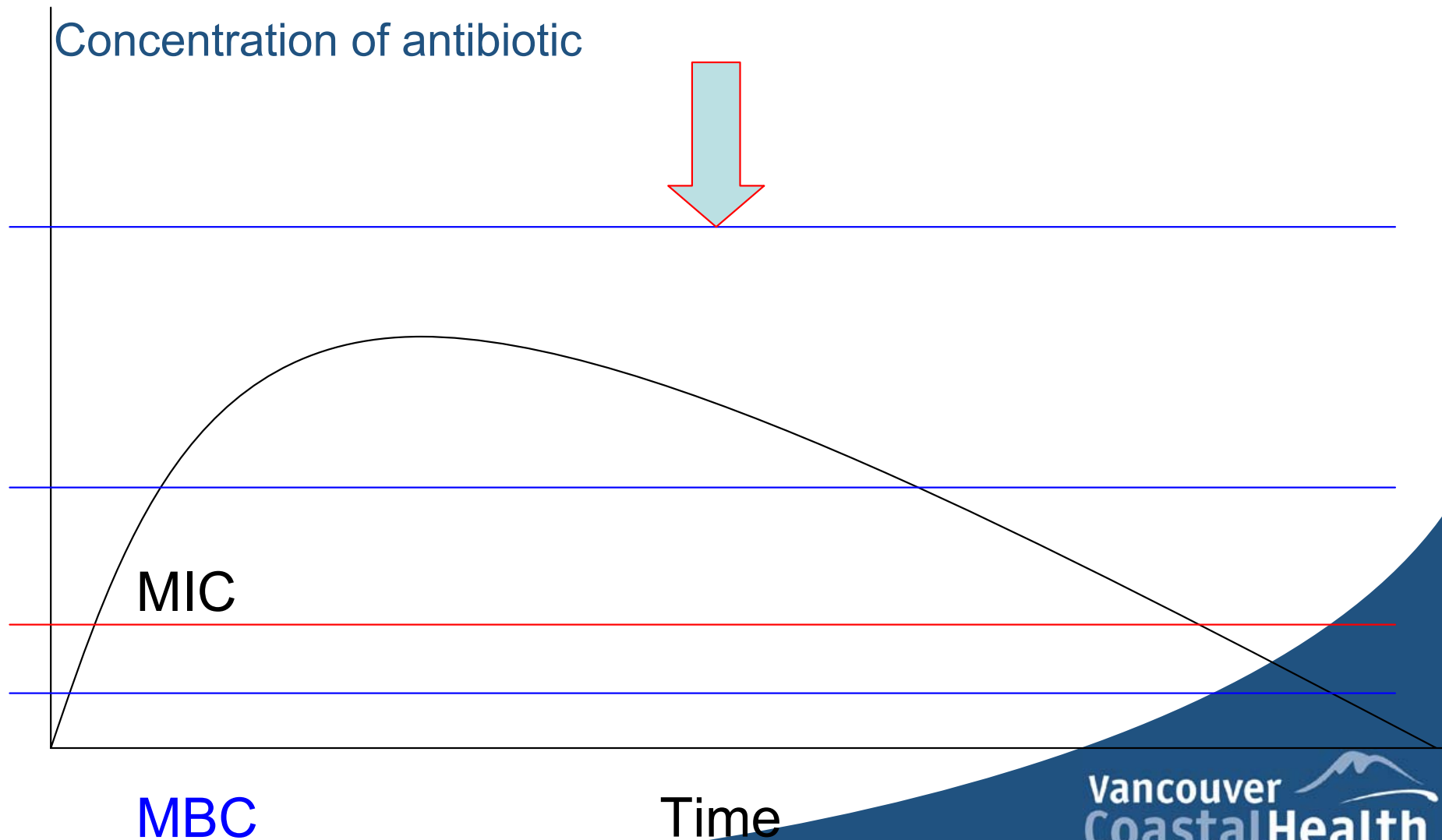
- Highlights:
 - Diagnostics
 - Combined WBC and bone scan
 - Synovial fluid
 - Leucocytes >1.1
 - Neutrophils >64%
 - Culture
 - Gram stain not definitive
 - Need fluid or tissue
 - Require at least 2 samples
 - Sonication fluid
 - Shorter time to positivity than tissue culture

Static vs. Cidal

- **Static vs. Cidal in Complex Infections**
Dr. Edward A. Dominguez
University of Nebraska Medical Center, Omaha, Nebraska
Dr. Ethan Rubinstein
University of Manitoba, Winnipeg, MB
- **Highlights:**
 - **Bacteriostatic (inhibits growth; reversible)**
 - Drugs achieving MIC, but not MBC ($MBC/MIC \geq 16$)
 - Effective against toxin producing organisms
 - **Bactericidal (kills organisms)**
 - Drugs that have same MIC and MBC ($MBC/MIC \leq 4$)
 - Effective against growth phase

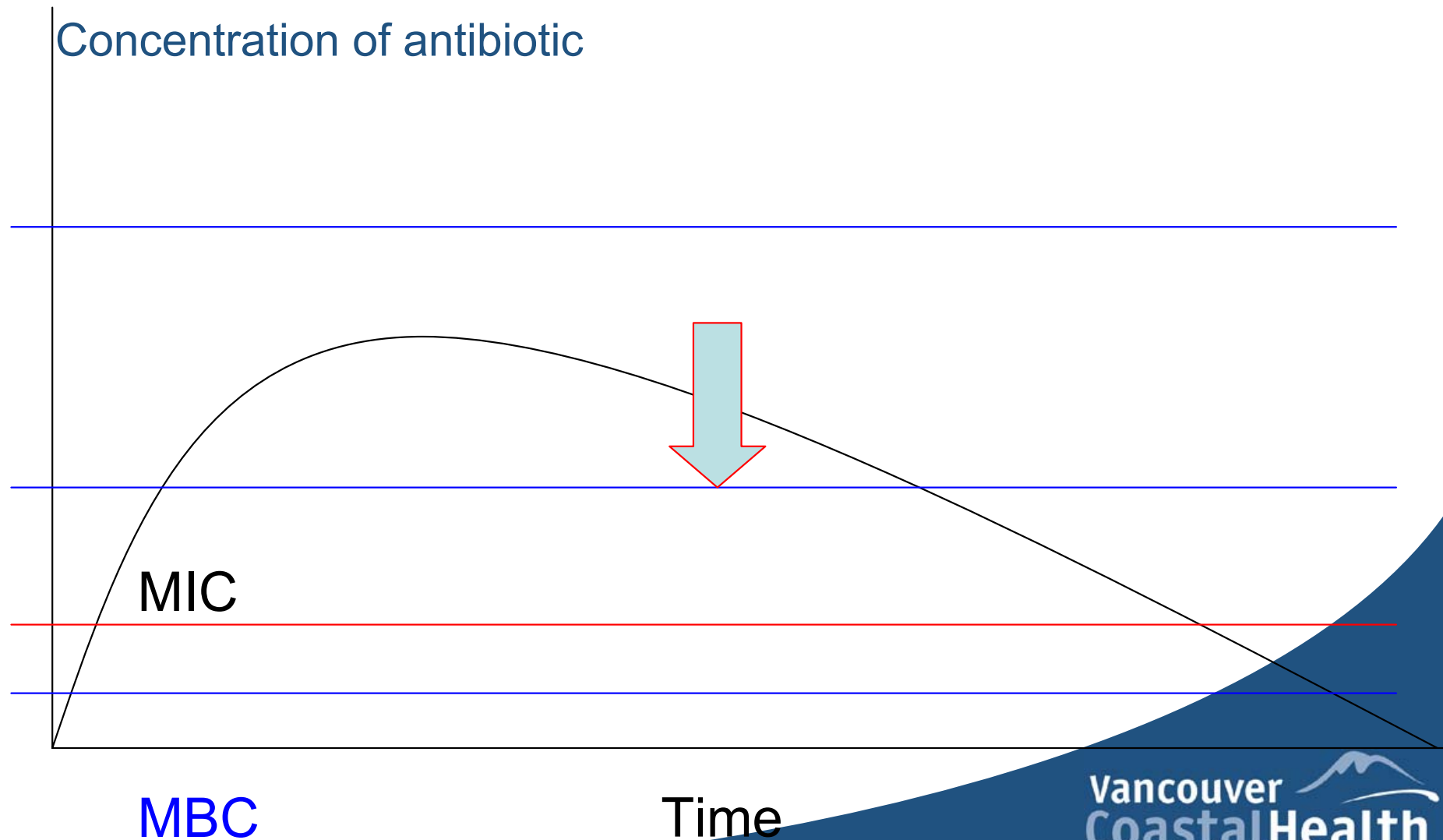
Static vs. Cidal

Bacteriostatic antimicrobial



Static vs. Cidal

Bactericidal antimicrobial



Static vs. Cidal

- Highlights:
 - Other factors affecting antimicrobial activity
 - Site, inoculum size, PK/PD, host defences
 - Bottom-line
 - If antimicrobial studied for indication, then it works!