

Antimicrobial prophylaxis for transplant recipients

Peter Chin-Hong, MD MAS

February 4, 2015



University of California
San Francisco

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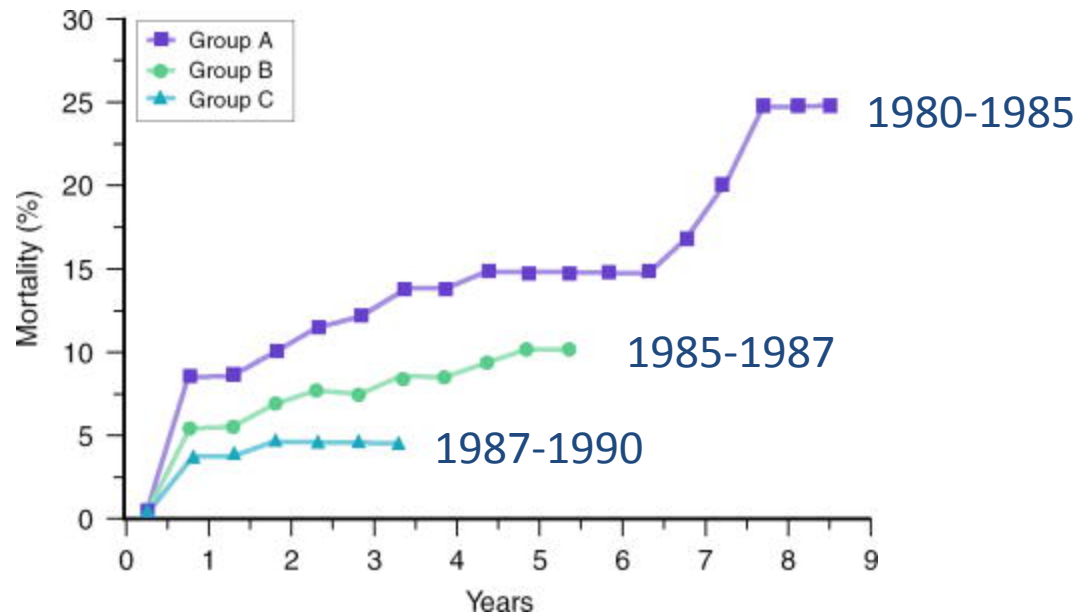
Objective

- To list and understand the approach to three prevention strategies used to prevent infections in transplant recipients:
 - universal prophylaxis
 - preemptive therapy
 - vaccination

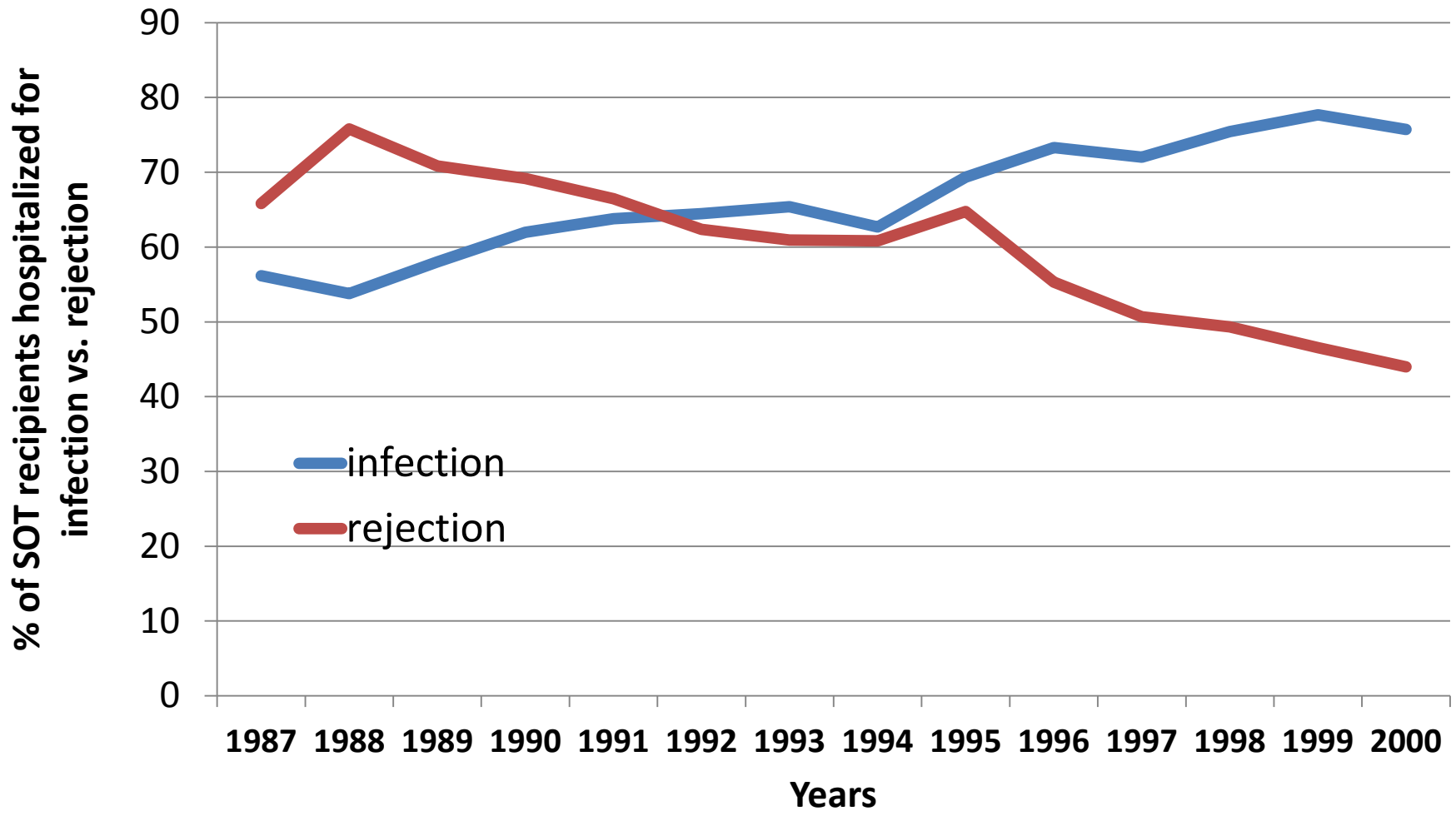
Disclosures

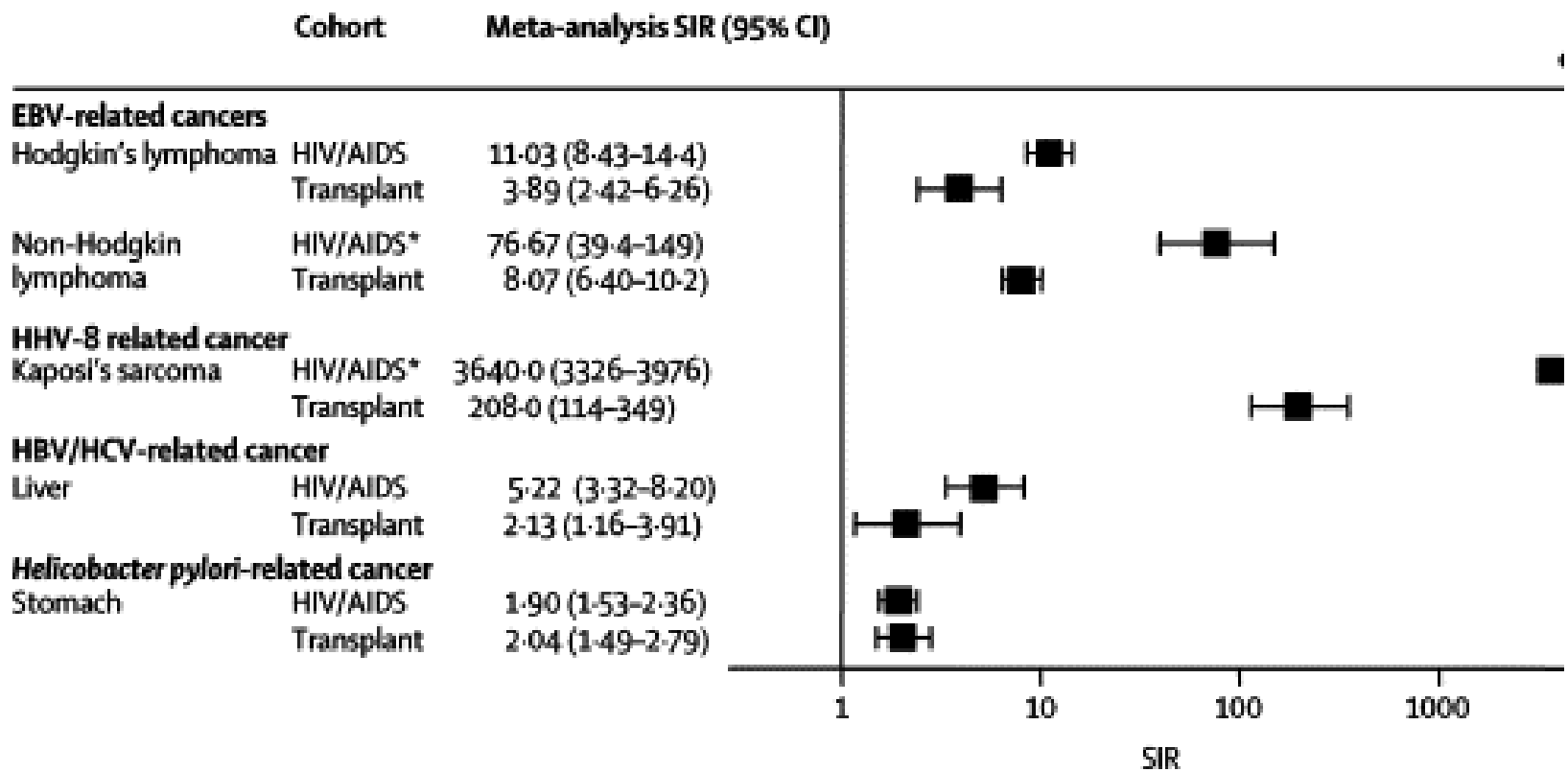
None

Infection-related mortality in heart transplant recipients

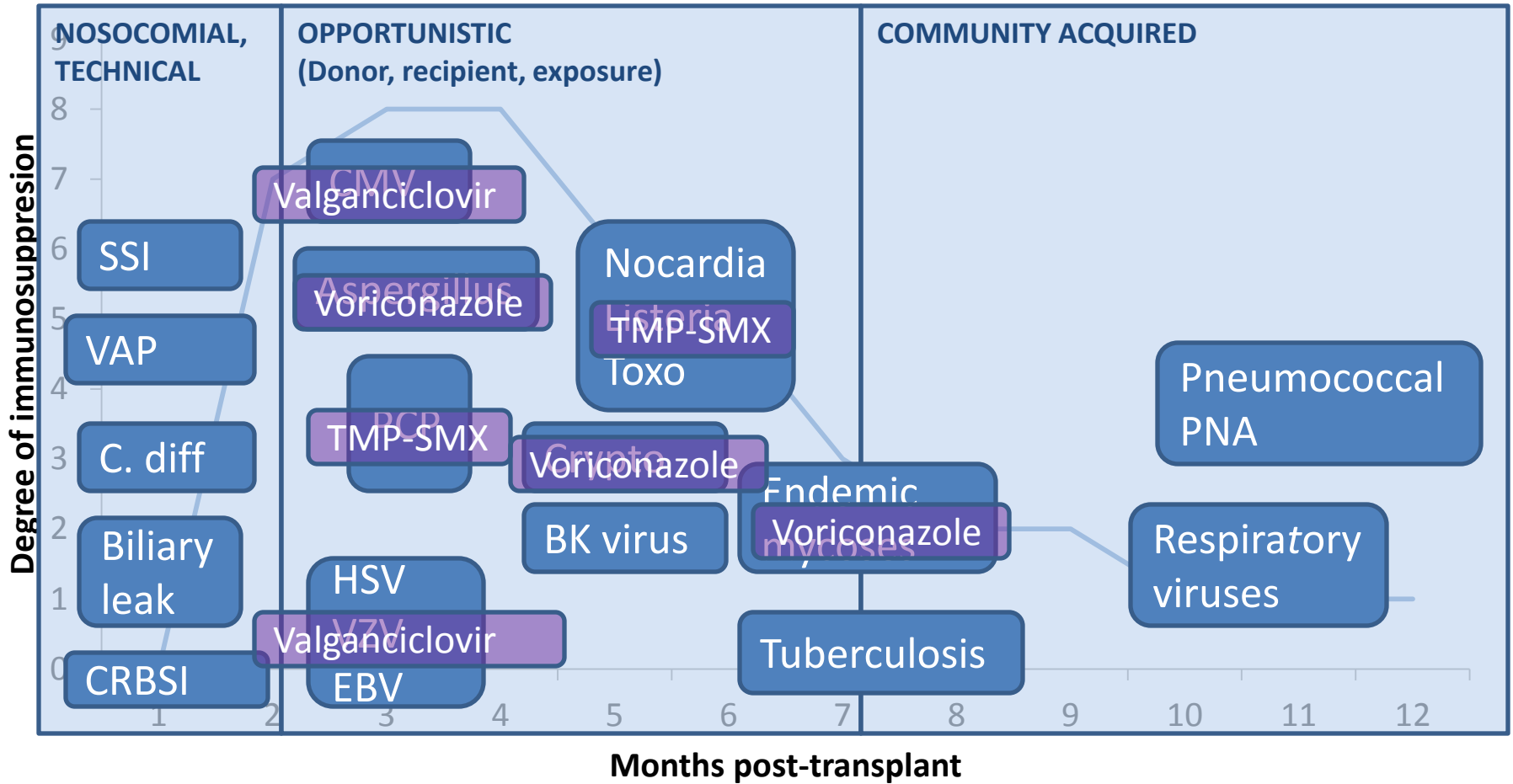


Indication for hospitalization post-transplantation





Infection Treatment for rejection



Prevention

Universal prophylaxis

Preemptive therapy

Vaccination

Prevention

Universal prophylaxis

Preemptive therapy

Vaccination

Universal prophylaxis

Surgical prophylaxis

- Standard surgical antibiotic prophylaxis
- Choice of drugs can vary by organ
- Liver
 - Roux-en-Y peritoneal soilage
- Lung
 - Cystic fibrosis
- Intestines/pancreas

Universal prophylaxis

Post transplant: Bacteria and viruses



PCP (and more)

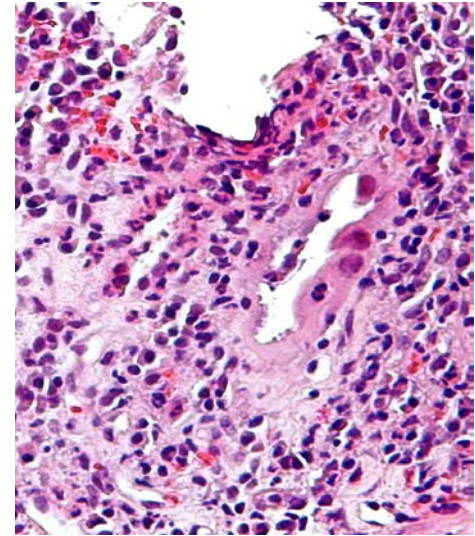
- *Pneumocystis jiroveci*
- *Listeria*
- *Toxoplasma*
- *Nocardia**
- TMP-SMX SS once daily, or DS 3-7x/week
- 12 months +

*breakthrough seen



HSV/VZV

- *Herpes simplex virus*
- *Varicella zoster virus*
- Acyclovir (if no CMV prophylaxis needed)
- 3-6 months post transplant



CMV

- *Cytomegalovirus*
- Valganciclovir
- 6-12 months post transplant depending on organ
- Prophylaxis and pre-emptive strategies used

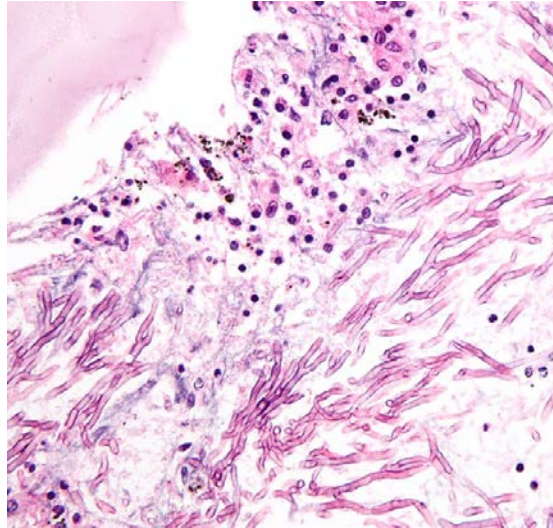
Universal prophylaxis

Post transplant: Fungus



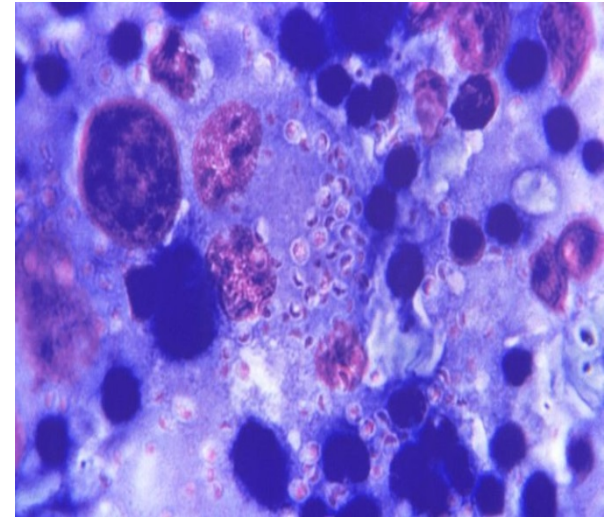
Candida

- *Candida albicans*
- *Non albicans candida*
- Fluconazole
- Duration depends on organ
- 7-14 days in liver if high risk (eg ICU)



Aspergillus

- *Aspergillus fumigatus*
- Voriconazole or posaconazole or other
- 2 months or more post transplant depending on organ (lung, some liver, allo HSCT)



Histoplasmosis

- *Histoplasma capsulatum*
- Itraconazole or other
- 6 months-indefinite post transplant depending on where patient lives

Case

40 year old woman s/p recent allo HSCT (pre-engraftment) feels well. ANC now $100/\text{mm}^3$. Afebrile. She has a central line in place.

Case

What do you do?

- A. Nothing
- B. Remove the central line
- C. Levofloxacin 500mg PO qd
- D. Levofloxacin 750mg PO qd
- E. Moxifloxacin 400mg PO qd
- F. Vancomycin 1g IV bid

Bacterial Infections in HSCT

Early (days 0-20)

- Pseudomonas, Klebsiella, E. Coli
- coagulase-negative Staph
- Strep spp. (S. viridans)

Late (days 100+)

- Encapsulated organisms (S. pneumoniae, H. influenzae)

Bacterial Infections in HSCT

Prophylaxis

- Annals: systematic analysis of 52 studies with FQ: RR reduced by 50%.
- NEJM: RCT Levofloxacin in high-risk patients. All outcomes improved except mortality.
- NEJM: RCT Levofloxacin in low-risk patients. No change in mortality.
- Toxicity higher for active drug in all studies
- Hard to study impact of prophylaxis on drug resistance given time frame under observation

Prevention

Universal prophylaxis

Preemptive therapy

Vaccination

Vaccines

- Give as early as possible especially if live (MMR, VZV) and wait >4 weeks
- Inactivated vaccines safe post transplant (HPV, influenza, pneumococcus)
- Vaccinate both with PCV13 and PPSV23
- Varicella vaccine ok post transplant if >24 months post HSCT and minimally immunosuppressed in solid organ transplants

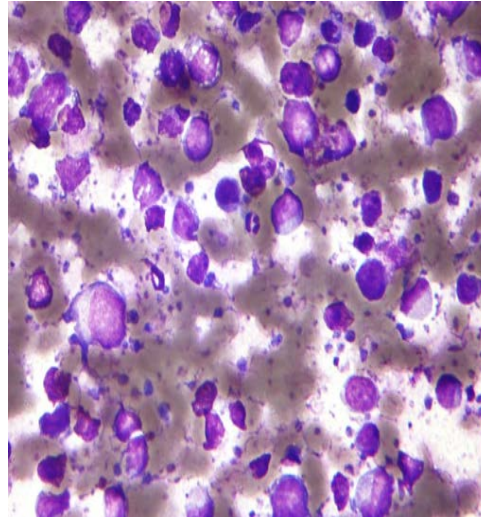
Post transplant malignancies

Prevention



Cervical cancer (and more)

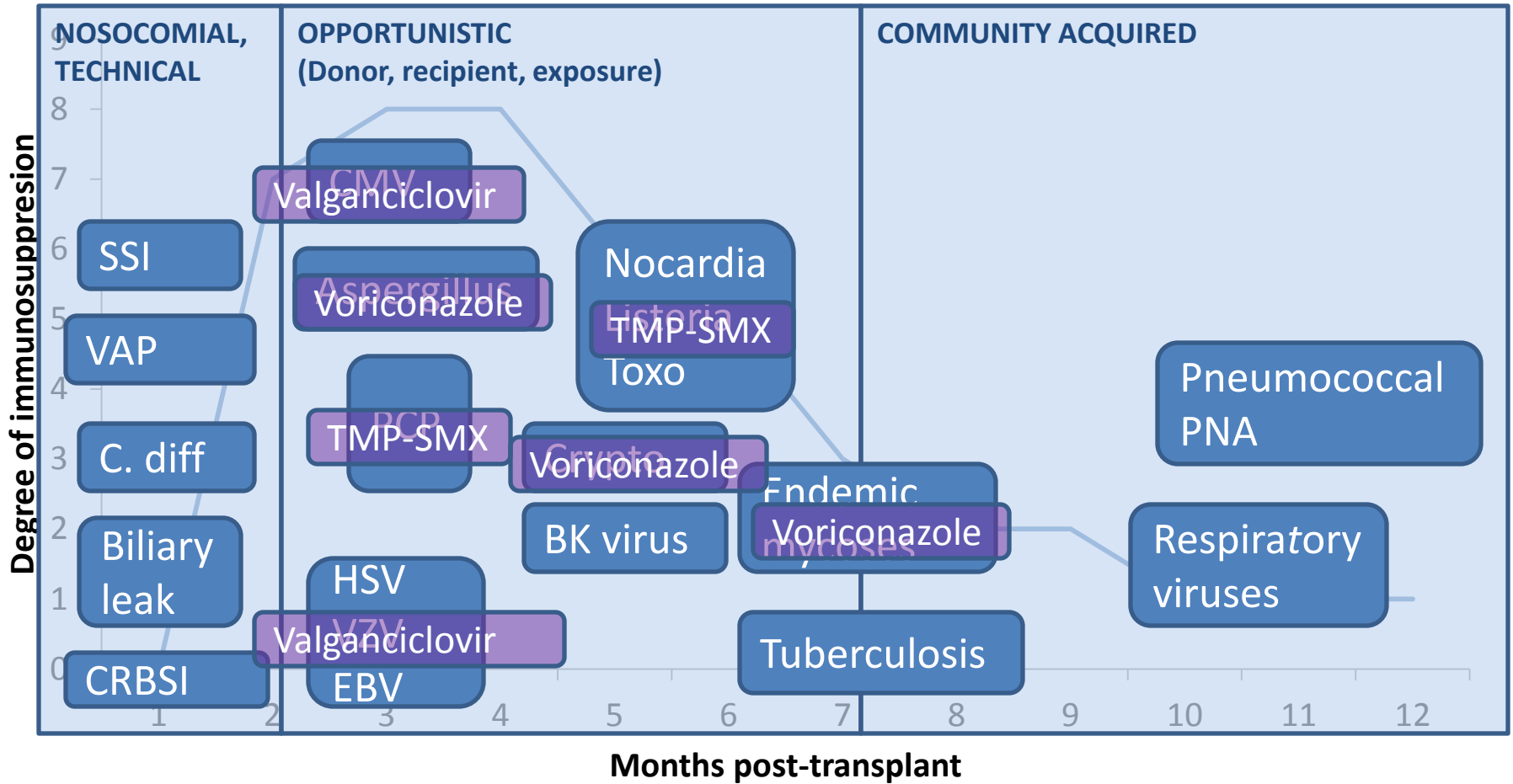
- *Human papillomavirus*
- Vaccine
- Screening



Post transplant lymphoproliferative disease (PTLD)

- *EBV*
- Controversial

Infection Treatment for rejection



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