# Antimicrobial Prophylaxis for Allogeneic and Autologous Hematopoietic Stem Cell Transplant Recipients: To be initiated at the time of admission for transplantation

Developed by: Immunocompromised ID consultative, Antimicrobial Stewardship Program, Pharmacy and Bone Marrow Transplant services

| Allogeneic stem cell transplantation | |
|---|---|
| **Antibacterial** | **Pre-engraftment: Levofloxacin PO 500mg daily*[1-4]**<br>• Begin at Day 0 (or sooner if ANC <500) and continue until ANC >500 on 2 consecutive samples or patient develops neutropenic fever<br>• Adjust dosage for CrCl <50<br><br>**Chronic GVHD:**<br>• **Penicillin VK 250mg twice daily[3]** for pneumococcal prophylaxis (not necessary if patient is still receiving levofloxacin)<br>• Ensure patient up to date with pneumococcal vaccine series beginning 6 months post-transplantation[3] |
| **Antifungal** | **Pre-engraftment: Fluconazole 400mg daily or Micafungin 50mg daily[3,4]**<br>• Begin on admission and continue until engraftment<br>• If prior history of mold infection, consider Posaconazole DR 300mg daily<br>  • If unable to tolerate PO, recommend Micafungin 50mg daily<br>**Post-engraftment:**<br>**Low risk patients:**<br>• **Fluconazole 400mg daily[3-5]**<br>• Adjust dosage for CrCl <50<br>• Continue until day 75 or no longer receiving immunosuppression<br>**High risk patients (acute GVHD (grade II to IV), chronic extensive GVHD, history of IFI, alemtuzumab receipt, or high dose steroids):**<br>• **Posaconazole DR 300mg daily[6]**<br>• Continue until no longer receiving immunosuppression<br>• If unable to tolerate PO, recommend Micafungin 50mg daily |
| **Antiviral** | **HSV/VZV: Valtrex 500mg PO q12hrs or Acyclovir 400mg q8hrs**<br>• Begin on admission and continue for 1 year post-transplant or until immunosuppression is discontinued (whichever is longer)<br>• Adjust dosage for CrCl <30<br>• If unable to tolerate PO: Acyclovir IV 250mg q12hrs<br>• **Valtrex 500mg PO q12hrs or Acyclovir 800mg q12hrs** if history of herpes zoster[7]<br>**CMV**:<br>• Recipient CMV IgG negative: Pre-emptive approach with weekly viral load screening<br>• Recipient CMV IgG positive: see Letermovir guidelines for risk stratification and specific recommendations |
| **Pneumocystis** | **Bactrim DS M/W/F or Bactrim SS daily[3]**<br>• Begin at time of engraftment and continue for 1 year and immunosuppression is discontinued<br>• Alternative if sulfa intolerant (2nd line agents): Atovaquone 1500mg daily, Dapsone 100mg daily (check for G6PD deficiency prior to initiating Dapsone therapy) |

# Antimicrobial Prophylaxis for Allogeneic and Autologous Hematopoietic Stem Cell Transplant Recipients

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| Autologous stem cell transplantation | |
|---|---|
| **Antibacterial** | **Levofloxacin PO 500mg daily*[1-4]**<br>• Begin on Day 0 (or sooner if ANC <500) and continue until ANC >500 on 2 consecutive samples or patient develops neutropenic fever<br>• Adjust dosage for CrCl <50 |
| **Antifungal** | **Fluconazole 200mg daily[3,4]**<br>• Begin Day 0 and continue to Day 30 post-transplant<br>• Adjust dosage for CrCl <30<br>• If prior history of mold infection, consider Posaconazole DR 300mg daily |
| **Antiviral** | **HSV/VZV: Valtrex 500mg PO q12hrs or Acyclovir 400mg q8hrs[3,4]**<br>• Begin on Day 0 and continue until 6-12 months post-transplant<br>• Adjust dosage for CrCl <30<br>• If unable to tolerate PO: Acyclovir IV 5mg/kg q12hrs (dosed by ideal body weight)<br>• **Valtrex 500mg PO q12hrs or Acyclovir 800mg q12hrs** if history of herpes zoster[7] |
| **Pneumocystis** | **Bactrim DS M/W/F or Bactrim SS daily** [3]<br>• Begin at Day 30 (if WBC/platelets recovered) and continue until 6 months post-transplant<br>• Adjust dosage for CrCl <30<br>• Alternative if sulfa intolerant (2nd line agents): Atovaquone 1500mg daily, Dapsone 100mg daily (check for G6PD deficiency prior to initiating Dapsone therapy) |

* If patient unable to tolerate fluoroquinolones, call Transplant ID or antibiotic stewardship for alternatives, such as 3rd generation cephalosporin


[1] Bucaneve G et al. Levofloxacin to prevent bacterial infection in patients with cancer and neutropenia. *New England Journal of Medicine* 2005; 353:977-87

[2] Gafter-Gvili A et al. Meta-analysis: antibiotic prophylaxis reduces mortality in neutropenic patients. *Annals of Internal Medicine*2005; 142:979-995

[3] Tomblyn M et al. Guidelines for preventing infectious complications among hematopoietic cell transplant recipients: A global perspective. *Biology of Blood and Bone Marrow Transplantation* 2009;15: 1143-1238

[4] Freifeld AG et al. Clinical practice guideline for the use of antimicrobial agents in neutropenic patients with cancer: 2010 update by the Infectious Diseases Society of America. *Clinical Infectious Diseases* 2011;52:e56-e93

[5] Marr KA et al. Prolonged fluconazole prophylaxis is associated with persistent protection against candidiasis-related death in allogeneic marrow transplant recipients: long-term follow up of a randomized placebo-controlled trial. *Blood* 2000;96:2055-61.

[6] Ulmann AJ et al. Posaconazole or fluconazole for prophylaxis in severe graft-versus-host disease. *New England Journal of Medicine* 2007;356:335-347.

7 Erard V et al. One-year acyclovir prophylaxis for preventing varicella-zoster virus disease after hematopoetic cell transplantation: no evidence of rebound varicella-zoster virus disease after drug discontinuation. *Blood* 2007:110;3071-3077


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