Prevention of Infection Table of Evidence: Recommended for Practice—Transplantation				
Study	**Intervention**	**Sample and Design**	**Findings**	**Limitations**
Adherence to general infection control recommendations				
CDC, 2011	Infection prevention for outpatient settings	Guideline	Minimum recommendations for safe care	–
Freifeld et al., 2011 (IDSA)	Antimicrobial agents in neutropenic patients with cancer	Guideline	Comprehensive guideline to guide clinicians in the care of patients with chemotherapy-induced neutropenia and in the management of FN	–
O'Grady et al., 2011 (HICPAC)	Prevention of IV catheter-related infections	Guideline	Recommendations regarding education and training of staff, selection of catheters and sites, hand hygiene, use of maximal sterile barrier precautions for insertion, and other recommendations for the management of IV catheters and system components.	–
Antibiotic prophylaxis in at-risk patients				
Eleutherakis-Papaiakovou et al., 2010	Antibiotic prophylaxis	RCT of 157 patients with various diagnoses	71.3% of patients receiving prophylactic antibiotics developed neutropenic fever compared with 91.2% of those receiving supportive care ($p < 0.001$)	Risk of bias; sample demographics not provided
Freifeld et al., 2011 (IDSA)	Antibiotic prophylaxis	Guideline	Recommended for high-risk neutropenic patients (expect to have ANC 100 or greater for greater than 7 days); not recommended for low-risk patients	Moderate level of evidence
Garnica et al., 2013	Comparison of patients receiving quinolone prophylaxis to historic controls	Retrospective matched control study of 220 patients with hematologic malignancy or undergoing HCT	With quinolones, shorter periods of neutropenia ($p = 0.02$), less hospitalization ($p = 0.002$), fewer febrile episodes ($p < 0.001$), decreased mucositis ($p = 0.003$), and decreased bacteremia ($p = 0.04$); quinolone-resistant enterobacteria noted in quinolone	Cohorts at different times; lack of control blood sample data

			group and others hospitalized at the same time	
Hafez et al., 2015	Prophylactic fluoroquinolone	Prospective cohort with historic controls with 96 patients undergoing HCT	Patients who received levofloxacin had longer duration of fever-free days ($p < 0.001$). The duration of empiric antibiotic use was lower in those receiving levofloxacin prophylaxis ($p < 0.001$).	Small sample; risk of bias
Kruger et al., 2005	Antimicrobial prophylaxis for patients in an allogeneic BMT setting	Guideline	Specific recommendations with strong evidence to include in nursing practice	–
NCCN, 2016	Prevention of cancer-related infections	Guideline	Recommends consideration of prophylaxis in intermediate- and high-risk patients	–
Schlesinger et al., 2009	Infection control interventions for patients after chemotherapy	Systematic review and meta-analysis of 40 studies	Prophylactic antibiotic use was the most significant preventive strategy. Air quality control and barrier isolation did not show an independent contribution, and their use should be reserved for patients at highest risk of infection.	–
Tomblyn et al., 2009 (CDC)	Prevention of infection complications among recipients of HCT	Guideline	Specific interventions for prevention of infection among recipients of HCT is a complex field, and healthcare providers who work with these patients need to be aware of current knowledge.	–
Antifungal prophylaxis in at-risk patients				
Bochennek, 2015	Micafungin prophylaxis	Retrospective cohort of 21 pediatric patients with a hematologic malignancy intolerant to azoles	No fungal infections; no discontinuation because of adverse events	Sample size; design
Bow et al., 2015	Antifungal prophylaxis	Systematic review and meta-analysis of 5 studies with 2,147 patients	Voriconazole was the agent most likely to reduce incidence of overall probably or proven invasive fungal infection. Mold-active agents voriconazole,	Small number of studies included

			itraconazole, and posaconazole were overall more likely to be effective than fluconazole as primary antifungal prophylaxis.	
Chaftari et al, 2012	Posaconazole versus amphotericin B	RCT of 40 patients with hematologic malignancy	Amphotericin B weekly may not be appropriate antifungal prophylaxis in allogeneic transplant due to potential nephrotoxicity, although it could be used in less complex patients. Oral posaconazole was shown to be safer than weekly amphotericin.	Small sample; risk of bias
Cordonnier et al., 2010	Voriconazole for fungal prophylaxis	RCT of 45 adult patients with hematologic disease undergoing HCT	Voriconazole is safe and effective in the prevention of newly developing or recurring invasive fungal infection in patients undergoing HCT	Small sample
Dahlen et al., 2016	Antifungal prophylaxis	Retrospective cohort of 328 patients with hematologic malignancy	Posaconazole for primary antifungal prophylaxis was more effective than fluconazole.	Risk of bias
Doring et al., 2012	Antifungal prophylaxis	Retrospective cohort of 120 pediatric patients with hematologic malignancies	Compared caspofungin with liposomal amphotericin B. Both agents showed efficacy with no proven invasive fungal infections noted in either group.	Risk of bias; findings not generalizable
Doring et al., 2014	Antifungal prophylaxis	Retrospective cohort of 150 patients with various diagnoses	No significant differences between itraconazole, voriconazole and posaconazole in fungal infections or adverse events	Risk of bias
Ethier et al., 2012	Mold-active compared to fluconazole prophylaxis	Systematic review and meta-analysis of 20 studies with 5,725 patients	Mold-active prophylaxis compared to fluconazole significantly reduced the risk of invasive fungal infections (RR = 0.71, p = 0.03). Mold-active prophylaxis decreased the risk of aspergillus infection (RR = 0.53) and mortality (RR = 0.67). Use of mold-active	Design of included studies not well described; adverse events not described

			agents was associated with more adverse events.	
Fleming et al., 2014	Antifungal prophylaxis in patients with hematologic malignancies	Guideline	Provides information regarding risk factors for consideration in determining the specific type of prophylactic agent to be used and provides comprehensive information regarding metabolism of individual antifungals	–
Freifeld et al., 2011 (IDSA)	Use of antimicrobial agents in neutropenic patients	Guideline	Comprehensive guide to clinicians for the care of patients with chemotherapy-induced neutropenia in the management of FN	Low-level evidence
Gimenia et al., 2014	Antifungal prophylaxis	Guideline	Defined risk factors for patients to be considered high-risk in early, late and very late phases post-transplantation. Provides guidance regarding antifungal prophylaxis in each phase.	–
Gonzalez et al., 2008	Fungal prophylaxis in patients with AML undergoing BMT with GVHD and MDS	Expert opinion	Posaconazole recommended as primary antifungal prophylaxis; preventive treatment in these patients is not recommended.	–
Groll et al., 2014	Diagnosis, prevention, and treatment of invasive fungal disease	Guideline	Guidance provided for pediatric patients, but additional research is needed in epidemiology and surveillance of resistance, imaging and molecular diagnostics, exposure of antifungal agents in prophylaxis and treatment and safety of antifungal drugs in the pediatric population	Lack of evidence for some recommendations
Hiramatsu et al., 2008	Antifungal prophylaxis	RCT of 104 patients with hematologic malignancies	Compared micafungin to fluconazole; treatment success was comparable in both arms; neither drug has significant side effects.	Not powered to measure success rate differences

Johansen & Gotzsche, 2002	Amphotericin B versus fluconazole	Cochrane review of 17 RCTs with 3,798 patients	No significant difference was found between fluconazole and amphotericin B with regard to mortality, invasive fungal infection, colonization, use of rescue therapy, or dropouts.	–
Kanda et al., 2000	Oral fluconazole prophylaxis	Meta-analysis of 16 RCTs with 3,734 patients	Prophylactic fluconazole was not effective in reducing fungal-related death in non-BMT patients (but was effective in recipients of BMT) and did not reduce systemic fungal infections in non-BMT recipients (but was effective in recipients of BMT).	–
Kim et al., 2011	Itraconazole prophylaxis	RCT of 55 patients undergoing autologous transplantation	Compared prophylaxis and empirical treatment groups and found no cases of invasive fungal infections in either group. Duration of fever was significantly shorter in the prophylaxis group.	Sample
Kruger et al., 2005	Antimicrobial prophylaxis	Guideline	Specific recommendations with strong evidence for care in the time surrounding HCT	–
Maschmeyer et al., 2009	Diagnosis and antimicrobial therapy of lung infiltrates	Guideline	Specific preemptive therapy with voriconazole or liposomal amphotericin B in neutropenic patients can improve outcomes. Neutropenic patients who have respiratory failure-related lung infiltrates have better outcomes if transferred to ICU for care.	–
NCCN, 2017	Prevention and treatment of cancer-related infections	Guideline	Consideration of antifungal prophylaxis until resolution of neutropenia in those at intermediate risk (7–10 days) and for anticipated mucositis	Limited search information
Oren et al., 2006	Antifungal prophylaxis	RCT of 195 patients undergoing HCT	Itraconazole was not found to be more effective than fluconazole in	Risk of bias

			preventing invasive fungal infections in neutropenic patients.	
Peterson et al., 2013	Antifungal prophylaxis	Retrospective cohort of 200 patients with AML or MDS	Findings support the routine use of antifungal prophylaxis in high-risk patients.	Risk of bias; definition of high risk was not specifically described.
Ping et al., 2013	Azoles for antifungal prophylaxis	Systematic review and meta-analysis of 4 studies with 2,267 patients with hematologic malignancies	Second-generation azoles appear to be superior to first-generation azoles with regard to prevention of invasive fungal infections without increasing risk of adverse events.	Small number of studies reviewed
Rizzo et al., 2006	Screening and preventive practices after HCT	Guideline	Recommendations include pneumocystis carinii pneumonia prophylaxis for 6 months and immunization with inactivated vaccines beginning at 1 year post-transplantation and annually thereafter.	Lack of source documentation for recommendations
Robenshtok et al., 2007	Antifungal prophylaxis in patients with cancer	Systematic review of 64 RCTs in patients receiving chemotherapy or allogeneic transplantation	Antifungal prophylaxis significantly decreased risk for mortality. Risk reduction was greater with combined antifungal and antibacterial prophylaxis.	Strongest evidence in HCT and acute leukemia during induction; insufficient evidence in other patients with acute leukemia
Science et al., 2014	Primary antifungal prophylaxis for pediatric patients with cancer or patients undergoing HCT	Guideline	Recommend primary antifungal prophylaxis in at-risk children; the reference identifies specific doses recommended.	Some studies reviewed did not include pediatric patients.
Styczynski et al., 2008	Prevention of infection in pediatric and adult patients undergoing HCT	Guideline	Recommendations on antimicrobial prophylaxis type, indication, and when to begin and end therapy; recommendations for vaccinations after transplantation	–
Tomblyn et al., 2009 (CDC)	Prevention of infection among recipients of HCT	Guideline	Specific interventions for prevention of infection among recipients of HCT; evidence in this area continues to evolve.	Some recommendations were based on expert opinion.

Vehreschild et al., 2009	Antifungal prophylaxis	Observational study of 77 patients with hematologic malignancies	No differences were found in efficacy between caspofungin and itraconazole. No conclusions could be drawn.	Sample; risk of bias
Vehreschild et al., 2014	Antifungal prophylaxis	Retrospective study of 212 patients undergoing HCT	Compared posaconazole with micafungin; number of possible invasive fungal infections in the group receiving micafungin bridging was significantly lower; no difference in overall survival between groups.	–
Wingard et al., 2010	Antifungal prophylaxis	RCT of 600 patients with hematologic malignancies	No fungal infection–related outcomes between patients receiving fluconazole or voriconazole	Risk of bias
Zhao et al., 2016	Azoles for prophylaxis	Meta-analysis of 21 studies	All azoles were effective; itraconazole was least effective, and posaconazole was most cost effective.	Limited to AML and HCT without GVHD
Ziakas et al., 2010	Antifungal prophylaxis	Meta-analysis of 25 studies in 3,979 patients (transplantation and non-transplantation)	Prophylaxis associated with significant reduction in proven fungal infections, fungal-related mortality, reduced risk for candida infections, and decreased need for antifungal therapy ($p = 0.05$) (OR = 0.28–0.63); reduced risk in HCT only	Analysis showed multicenter and double-blind designs were moderators of findings in mortality and proven infections.
Antiviral prophylaxis for select at-risk patients				
Cheuk et al., 2011	Vaccines for prophylaxis of viral infection	Cochrane review of 8 RCTs with 643 patients with hematologic malignancies	Inactivated varicella zoster vaccine might reduce zoster severity in adult recipients of HCT, as well as respiratory infections and hospitalizations.	Low quality of evidence
Freifeld et al., 2011 (IDSA)	Antimicrobial agents in neutropenic patients	Guideline	Comprehensive guideline for clinicians in the care of patients with chemotherapy-induced neutropenia	–

Glenny et al., 2009	Interventions for the prevention or treatment (or both) of herpes simplex virus	Meta-analysis of 17 studies	Antivirals were more effective than placebo (RR = 0.11)	Small effect size
NCCN, 2016	Prevention of infection	Guideline	Consideration of antiviral prophylaxis in high-risk patients	No reported quality evaluation of literature included
Paul et al., 2016	Hepatitis B prophylaxis	Meta-analysis of 26 studies with 2,079 patients	OR for reactivation without prophylaxis was 0.12 ($p = 0.05$; 95% CI [0.6, 0.22]).	High heterogeneity and small effect size
Tang et al., 2015	Prophylaxis and preemptive antiviral treatment	Meta-analysis of 6 studies with 430 patients	Early preemptive/prophylactic lamivudine superior in reducing hepatitis B virus recurrence (OR = 0.13, $p < 0.0001$) and chemotherapy disruption (OR = 0.37, $p < 0.0001$)	Few studies
Sandherr et al., 2015	Antiviral prophylaxis	Guideline	Recommends influenza vaccination; does not recommend other routine prophylaxis	No search results provided; no study quality evaluation
Catheter care bundle for prevention of CLABSI				
Bundy et al., 2014	Multisite collaborative with implementation of a catheter care bundle	Cohort time series of 28 units	28% reduction in CLABSI after implementation ($p = 0.05$)	Design; bundle audit reliability not examined
Choi et al., 2013	Staff education and implementation of hand hygiene, dressing change frequency, tubing change, and skin cleaning with chlorhexidine	Historic comparison of 130 pediatric patients	CLABSI rates declined in general and HCT groups ($p < 0.04$); 90% self-reported compliance with bundle	–
O'Grady et al., 2011	All aspects of catheter care	Guideline	Bundling individual recommendations is recommended.	–
Rinke et al., 2012	Care bundle use based on CDC guidelines	Observational historic comparison of 30 cases with pediatric patients during 14,059 days with central line catheters	Second year of intervention showed 64% decline in CLABSI rate (not significant)	Sample size
Schiffer et al., 2013	Evidence-based guideline for central venous catheter care for patients with cancer	Guideline of 105 RCTs and 25 meta-analyses	Recommend hand hygiene, barrier precautions for insertion, chlorhexidine skin antisepsis, and avoiding use of femoral line	–

Secola et al., 2012	Catheter care bundles in pediatric patients	Systematic review of 24 studies with 8,862 patients	Concluded that implementation of central venous catheter care bundles is effective.	–
Wolf et al., 2008	Central venous catheter–related infections	Guideline	Recommendations include adherence to hygiene principles with inserting central venous catheters and employing standardized aseptic placement, using subclavian vein versus internal jugular vein, and using catheters impregnated with antiseptics like chlorhexidine/silver sulfadiazine or antibiotics, as well as nurse and MD education and ultrasound guidance for insertion.	No conflict of interest concerns were addressed.
Chlorhexidine skin preparation				
Lai et al., 2016	Skin antisepsis for catheter care	Meta-analysis of 12 studies with 2,011 patients	Chlorhexidine lowered risk of catheter-related bloodstream infections (RR = 0.64, p = 0.05) and was associated with less colonization (RR = 0.08, p = 0.0003).	Mostly studies with high risk of bias
O'Grady et al., 2011	Prevention of central venous catheter infections	Guideline	Recommends skin preparation prior to insertion and with dressing changes of chlorhexidine and alcohol; notes that no comparison was made between chlorhexidine/alcohol versus povidone iodine (unresolved issue at that time)	–
Pages et al., 2016	Chlorhexidine plus alcohol versus povidone iodine skin disinfection with catheter care	Prospective cohort multisite trial of 3,207 patients with cancer and other diseases	Decreased risk of catheter-related infection with chlorhexidine (p = 0.037); no significant difference overall in CLABSI; one site switched from povidone to chlorhexidine (risk lower with chlorhexidine; p = 0.005, HR = 0.31)	No information on other aspects of catheter care and insertion; reports on catheter-related infection and CLABSI with unclear differentiation

Schiffer et al., 2013	Central venous catheter care	Guideline	Chlorhexidine skin antisepsis recommended for insertion	–
Yamamoto et al., 2014	Chlorhexidine plus ethanol versus povidone iodine skin preparation prior to central venous catheter insertion and with central venous catheter care	RCT of 84 patients with hematologic cancers	Higher CLABSI rate and skin colonization with povidone iodine ($p < 0.05$)	High attrition in povidone group; higher percentage in povidone group had inguinal central venous catheter insertion; no subgroup analysis
CSFs and biosimilars for at-risk patients				
Castagna et al., 2010	Pegfilgrastim versus filgrastim	RCT of 77 patients with various malignancies	The use of a single fixed dose of pegfilgrastim was not inferior to the use of daily filgrastim. No significant differences were found in measured outcomes between the two groups, and no differences were found in treatment side effects.	Sample size; risk of bias
CDC, 2000	Prevention of opportunistic infections	Guideline	Comprehensive resource with extensive recommendations and identification of the evidence classification of each recommendation	–
Cioch et al., 2014	Biosimilar G-CSF compared to originator G-CSF	Prospective observational study of 46 patients with a hematologic malignancy	No significant difference between the biosimilar and originator G-CSF group with respect to duration of therapy and the frequency of occurrence of the most common adverse events	Sample size; risk of bias
Crawford et al., 2010 (European Society for Medical Oncology)	Hematopoietic growth factors	Guideline	Outlines indications or the use of hematopoietic growth factors as primary prophylaxis and situations for the use of growth factors in standard therapy	No process was provided for how the guideline was developed.
Freifeld et al., 2011 (IDSA)	CSFs	Guideline	Recommended when anticipated risk of febrile events is 20% or greater	Does not differentiate primary and secondary prophylaxis

Kahl et al., 2012	Early versus late administration of pegfilgrastim	Phase 2 study of 53 patients receiving autologous HCT	No differences between groups in early versus late administration, time to platelet engraftment, incidence of FN, duration of IV antibiotics, or transfusion requirements	–
NCCN, 2017	Myeloid growth factors	Guideline	CSF recommended for greater than 20% risk FN and those with prior neutropenic events	Mainly consensus recommendations
Rifkin et al., 2010	Pegfilgrastim versus filgrastim	Randomized phase 2 study of 92 patients with non-Hodgkin lymphoma	In the post-transplantation setting pegfilgrastim is preferred over filgrastim based on faster neutrophil recovery, less patient discomfort, and comparable cost.	Small sample
Sebban et al., 2012	Pegfilgrastim versus filgrastim	RCT of 150 patients with lymphoma or multiple myeloma	Patients on pegfilgrastim had a shorter duration of ANC less than 1 g/l, fewer days with fever, shorter hospital stay, and fewer days of antibiotic therapy.	Risk of bias
Trifilio et al., 2015	Filgrastim versus Tbo-filgrastim	Retrospective cohort of 182 patients with multiple myeloma	Significant difference was found in the post-transplantation infection complication with the use of Tbo-filgrastim–treated patients ($p < 0.0185$).	Risk of bias; measurement/methods not well described
Wan et al., 2015	GM-CSF	Randomized three-group trial of 183 patients undergoing allogeneic HCT	GM-CSF was more effective than G-CSF in the prevention of infection, fungal disease, and infection-related mortality at 100 days in patients undergoing allogeneic HCT.	Risk of bias
Wang et al., 2015	G-CSF prophylaxis	Systematic review and meta-analysis of 27 studies with 6,037 patients	Primary prophylaxis using all formulations were significantly better than placebo to prevent FN.	–
Wannesson et al., 2011	Pegfilgrastim to accelerate neutrophil engraftment	Phase 2 study of 80 patients undergoing HCT	Pegfilgrastim group had a significantly shorter median time to neutrophil engraftment than the filgrastim group ($p < 0.001$), shorter median duration of	Small sample; risk of bias

			neutropenia (p = 0.001), shorter median duration of IV antibiotic therapy (p = 0.0007), and shorter median hospitalization duration (p = 0.0184)	
Contact precautions for resistant organisms				
Almyroudis et al., 2016	Discontinuation of routine VRE surveillance and contact precautions	Prospective, nonrandomized cohort of 2,319 patients with hematologic malignancies	No difference between groups for VRE, MRSA, and C. difficile infections	Study design
Kawamura et al., 2013	Strict enforcement of contact precautions and surveillance	Descriptive cohort of 1,000 patients with MRSA	Reduction in MRSA colonization and infections (p < 0.001)	Study design
Montecalvo et al., 1999	Surveillance and contact isolation procedures	Descriptive study of 469 patients on an adult oncology unit	Incidence of VRE reduced by about 50%.	–
Ohmagarai et al., 2014	Contact precautions implemented for targeted drug-resistant organisms	Cohort of 1.3 million inpatient days	Rates of multidrug resistant organisms increased after intervention may be because of increased detection.	Study design
Shaik et al., 2002	Initiation of surveillance and monitored isolation practice	Descriptive study of 1 cancer center	Incidence of VRE reduced by 50%.	–
Srinivasian et al., 2002	Gown and gloves versus gloves only	Descriptive study of 315 patients in an intensive care unit	Reports only prevalence	–
Environmental interventions				
Freifeld et al., 2011 (IDSA)	Guidelines for neutropenic patients	Guideline	Environmental recommendations; HCT in private room (others not necessary); HEPA filtration and air exchanges for allogeneic HCT; no protective gear; routine barrier precautions for body fluid contact	–
Stoll et al., 2013	Compared a protective environment (high-efficiency particulate filters, positive air pressure, well-sealed rooms and infection control routines) to outcomes in patients prior to these standards	Descriptive cohort of 371 patients with hematologic malignancies undergoing HCT	The protective environment was associated with reduced FN (p = 0.009), overall and 30-day mortality (p = 0.002), and prevalence of fungal infections (p = 0.04).	Design; no information regarding hand hygiene or use of protective gear
Hand hygiene with alcohol sanitizer				
O'Grady et al., 2011 (HICPAC)	Prevention of intravascular catheter-related infections	Guideline	Extensive recommendations regarding the education and training of staff, selection of	–

			catheters and sites, use of specific equipment, hand hygiene, use of maximal sterile barrier precautions for insertion, skin preparation, use of standard dressing regimens, and other recommendations.	
Influenza vaccination				
Flowers et al., 2013	Prophylaxis in adults with neutropenia	Systematic review of 43 studies	Recommends annual influenza vaccination	Limited evidence
Freifeld et al., 2011 (IDSA)	Guidelines	Guideline	Recommends annual influenza vaccination; optimal timing not established	–
Kruger et al., 2005	Recommendations in allogeneic HCT	Guideline	Multiple vaccination and prophylaxis guidelines	–
Ljungman et al., 2005	Recommendations for HCT survivors	Guideline	Multiple vaccination guidelines	–
NCCN, 2016	Prevention of infection	Guideline	Recommends influenza vaccination 2 weeks prior to chemotherapy and annually	Limited evidence review
Ring et al., 2002	Influenza vaccination	Systematic review of 11 studies	Mainly reports seroconversion rates; suggests timing of vaccination may be critical	–
Rizzo et al., 2006	Guidelines for prevention of infection with HCT	Guideline	Influenza vaccination recommended	Consensus
Sandherr et al., 2015	Antiviral prophylaxis	Guideline	Influenza vaccination recommended	Consensus-based
Pneumococcal and meningococcal vaccination				
Freifeld et al., 2011 (IDSA)	Antimicrobial agents for chemotherapy-induced fever and neutropenia	Guideline	Comprehensive guideline for the care of patients with chemotherapy-induced neutropenia and the management of FN	–
Kruger et al., 2005 (German Society of Haematology and Oncology)	Antimicrobial prophylaxis for patients in an allogeneic BMT setting	Guideline	Specific recommendations with strong evidence	–

Ljungman et al., 2005	Vaccination for patients receiving HCT	Guideline	Concise summary for providers when considering the vaccination needs of patients receiving HCT	–
NCCN, 2011	Prevention and treatment of infection	Guideline	Comprehensive references to assess patient risk of infection and expert recommendations regarding interventions aimed at the prevention and treatment of infection in patients with cancer	Most recommendations were consensus-based.
Rizzo et al., 2006	Screening and preventive practices for long-term survivors after HCT	Expert opinion	Guidelines for prevention of infection are described, including recommendations for many other aspects of post-transplantation care.	–
Tomblyn et al., 2009 (CDC)	Prevention of infection for patients receiving HCT	Guideline	Specific interventions for prevention of infection among recipients of HCT	–
Patient–caregiver education behaviors to avoid opportunistic infections				
Kruger et al., 2005	Antimicrobial prophylaxis for allogeneic BMT	Guideline	Specific recommendations with strong evidence to include in practice guidelines with recommendations for and against practice	–
Ljungman et al., 2005	Vaccination of recipients of HCT	Guideline	Concise summary for providers to use when considering the vaccination needs of recipients of HCT	–
Tomblyn et al., 2009 (CDC)	Preventing infectious complications among recipients of HCT	Guideline	Recommendations for vaccination were described to prevent infection among recipients of HCT.	–

AML—acute myeloid leukemia; ANC—absolute neutrophil count; BMT—bone marrow transplantation; CDC—Centers for Disease Control and Prevention; CI—confidence interval; CLABSI—central line–associated bloodstream infection; CSF—colony-stimulating factor; FN—febrile neutropenia; G-CSF—granulocyte–colony–stimulating factor; GM-CSF—granulocyte macrophage–colony-stimulating factor; GVHD—graft-versus-host disease; HCT—hematopoietic cell transplantation; HICPAC—Healthcare Infection Control Practices Advisory Committee; HR—hazard ratio; ICU—intensive care unit; IDSA—Infectious Diseases Society of America; MD—medical doctor; MDS—myelodysplastic syndrome; MRSA—methicillin-resistant Staphylococcus aureus; NCCN—National Comprehensive Cancer Network; OR—odds ratio; RCT—randomized, controlled trial; RR—relative risk; VRE—vancomycin-resistant enterococci