***Conclusion.*** A longer duration of Px is predicted to lead to higher overall costs but increased life expectancy for CMV D+/R− mismatch Ltx patients. Px duration > 1 year for these patients may be economically reasonable.

***Disclosures.*** **C. J. Clancy**, Merck: Grant Investigator, Research grant; Astellas: Grant Investigator, Research grant. **M. H. Nguyen**, Merck: Grant Investigator, Research grant; Astellas: Grant Investigator, Research grant.

### 1572. Conjugate Pneumococcal Vaccination Reduces Invasive Pneumococcal Disease Post Haemotopoietic Stem Cell Transplant

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**Session:** 151. Viruses and Bacteria in Immunocompromised Patients
*Friday, October 5, 2018: 12:30 PM*

***Background.*** Immunosuppressed patients, especially haematopoietic stem cell transplant (HSCT) recipients, are particularly vulnerable to invasive pneumococcal disease (IPD). However, uptake of pneumococcal vaccination tends to be lower in the immunosuppressed, partly due to concerns of vaccine effectiveness. Our institution introduced protocolised 10- or 13-valent conjugate pneumococcal vaccination (PCV) to all allogeneic and autologous HSCT recipients in 2010 to replace routine 23-valent polysaccharide vaccine (PPV23).

***Methods.*** We conducted a retrospective single-centre observational study of all HSCT recipients from 2004 to 2015 to assess the impact of PCV introduction on IPD incidence. All HSCT recipients were reviewed for microbiological evidence of IPD following HSCT. The pre-2010 group of HSCT recipients who did not receive PCV, were compared with the post-2010 group of HSCT recipients who did receive PCV. Enrolment and compliance with the post-HSCT vaccination protocol was assessed.

***Results.*** Of the 917 HSCT screened for IPD, 14 episodes of IPD occurred in 12 patients between 2004 and 2016. Twelve episodes occurred in the pre-2010 group, 40% of serotyped isolates would have been covered by PCV. Two episodes occurred in the post-2010 group, neither isolate serotype was covered by PCV. There was >90% enrolment and vaccination protocol completion for surviving HSCT recipients. Overall IPD rate reduced significantly from 31.9/1,000 transplants pre-2010, to 3.7/1,000 transplants post-2010 group ($P < 0.05$). Specific reductions occurred in the autologous transplant group from 26.2 to 2.8/1,000 transplants ($P < 0.05$) and the allogeneic transplant group from 45.5 to 5.3/1,000 transplants ($P < 0.05$).

***Conclusion.*** Introduction of PCV resulted in a significant reduction in IPD among our high-risk cohort, demonstrating clinical effectiveness of PCV in HSCT recipients and confirming immunogenicity data. To our knowledge, this is the first study to demonstrate the clinical effectiveness of PCV in this group, highlighting the importance of this vaccination to prevent infectious complications following allogeneic and autologous HSCT. The clinical effectiveness of PCV vaccine is enhanced by the high quality of our post-HSCT vaccination program.

***Disclosures.*** **All authors:** No reported disclosures.

### 1573. Discrepancies Between Premortem and Postmortem Diagnoses of Infectious Diseases Found on Autopsy in Hematopoietic Cell Transplantation Recipients at a High-Volume Academic Transplant Center

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**Session:** 151. Viruses and Bacteria in Immunocompromised Patients
*Friday, October 5, 2018: 12:30 PM*

***Background.*** Hematopoietic cell transplantation (HCT) is a potentially curative treatment option for patients with hematologic malignancies and other diseases but carries a significant risk of infection-related morbidity and mortality. Many of these infections are difficult to diagnose and treat. It is not infrequent that HCT recipients die from infection despite extensive investigations and broad-spectrum antimicrobial therapy. Autopsy is the gold standard for establishing the cause of death but rates of performing autopsies are decreasing despite their immense value. We present the most recent case series of infectious diseases found on autopsy in HCT recipients at our high-volume academic transplant center.

***Methods.*** We retrospectively reviewed the medical charts and autopsy records of 131 HCT recipients who underwent autopsy between January 1, 2000 and December 31, 2016. The premortem clinical diagnoses as documented by the clinical teams were compared with autopsy findings. Discrepancies were identified and classified according to the Goldman Criteria (NEJM 1983; 308:1000–5).

***Results.*** A total of 4,072 patients received 4,395 transplants between January 1, 2000 and December 31, 2016. Of the 1,937 patients who died, 131 (7%) had an autopsy performed. Of these 131 patients, 24 (18%) patients had a total of 29 infections that were identified only postmortem; 4 (3%) patients had >1 such infection. Of these 29 infections, 15 (52%) were viral, 9 (31%) were fungal, 3 (10%) were bacterial, and 2 (7%) were parasitic; no mycobacterial infections were found. According to the Goldman Criteria, 22 (76%) had class I discrepancies ("major diagnoses for which detection before death would in all probability have led to a change in management that might have resulted in cure or prolonged survival"). Illustrative cases of each infection type will be presented to highlight the challenges of infection management in HCT.

***Conclusion.*** Autopsies of HCT recipients frequently identify clinically significant infections which were not suspected pre-mortem. Our study reinforces the educational value of the autopsy, which is underutilized but can be employed to help prevent future similar infectious complications and improve patient outcomes.

***Disclosures.*** **All authors:** No reported disclosures.

### 1574. Cancer Chemotherapy May Induce Acquisition of Antibiotic Resistance Genes in Antibiotic-Naïve Cancer Patients

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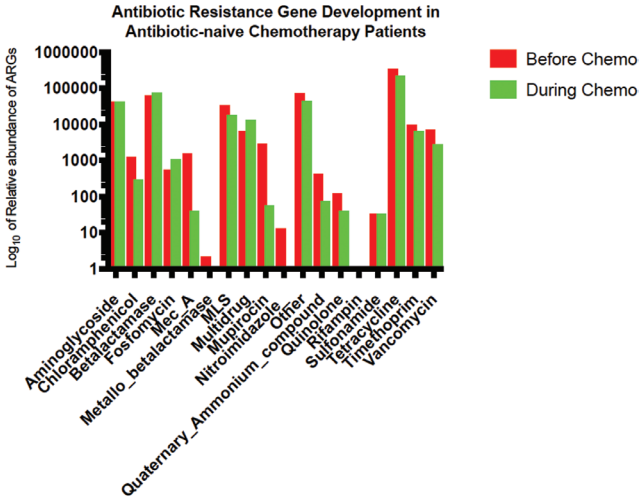
**Session:** 151. Viruses and Bacteria in Immunocompromised Patients
*Friday, October 5, 2018: 12:30 PM*

***Background.*** The human gut serves as a critical reservoir for bacteria and plasmids that encode antibiotic resistance genes (ARGs). Antibiotic exposure contributes to the acquisition of such ARGs; consequently efforts to curtail development of antibiotic resistance focus on minimizing exposure through antibiotic stewardship programs. Cancer chemotherapy (CC) drugs often possess potent antimicrobial properties; however, their contribution to the development of gut ARGs has not been well documented. We sought to evaluate the contribution of CC agents to the development of gut microbial ARGs using metagenomic sequencing.

***Methods.*** We collected stool samples pre- and post-initiation of chemotherapy in *antibiotic-naïve* patients receiving antineoplastic agents for cancer treatment. Antineoplastic agents included fludarabine, busulfan, cyclophosphomide, mesna and melphalan for induction chemotherapy or conditioning during stem cell transplantation. We performed metagenomic shotgun sequencing on these samples and compared the relative abundance of ARGs pre- and post- treatment initiation. Three thousand and twenty-one ARGs were categorized into 15 functional pharmaceutical classes (by agents used for patient care or environmental cleaning). For group comparisons *t*-test and/or two-way ANOVA was performed.




***Results.*** Seven patients provided pre- and post samples. Overall there was a trend toward reduction/eradication of ARGs in 10 of 15 of antibiotic resistance gene classes. For the rifampin class no ARGs were noted in either pre- or post-samples. For four of the ARG classes (aminoglycoside, β-lactamase, fosfomycin, multidrug efflux pumps), there was an acquisition or trend toward an increase in ARG abundance.

***Conclusion.*** Cancer chemotherapy agents may be contributory to the acquisition of aminoglycoside, β-lactamase, fosfomycin, multi-drug efflux pump resistance genes in cancer patients. Of note, these genes confer resistance to some of the most important therapeutic or environment cleaning compounds utilized during clinical care. Further studies are warranted and ongoing to confirm these findings and overcome sample size limitations.

***Disclosures.*** **S. Apewokin**, Viracor: Assay provision for research by viracor, Research support

### 1575. Clinical Validation of a Novel ELISpot-based *in vitro* Diagnostic Assay to Monitor CMV-Specific Cell-Mediated Immunity in SOT and HSCT Immunocompromised Patients

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