METRO CONNECT

THE DIAGNOSTIC NEWSLETTER FOR CLINICIANS

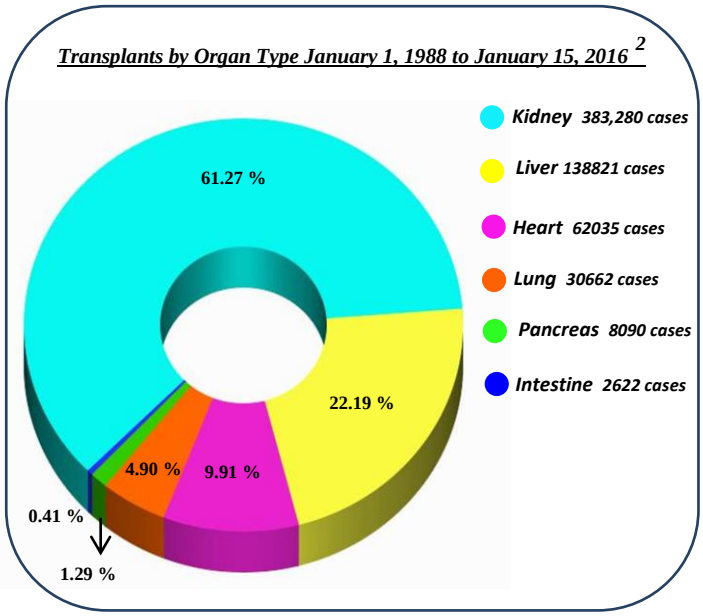
JANUARY-2016

TRANSPLANT RELATED INFECTIONS

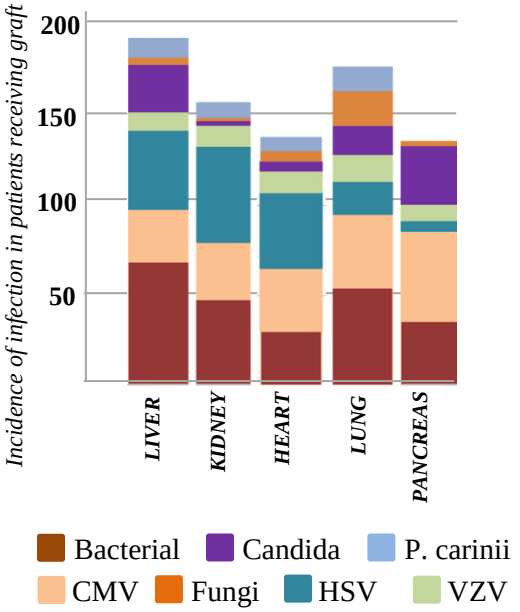
INTRODUCTION

- Solid Organ Transplantation (SOT) provides therapeutic option for many end-stage diseases[1].
- Post-organ transplantation, Quality of life and survival rates have significantly improved owing to advances in surgical techniques, immunosuppressive therapy and medical management.
- Infections are the second most serious concerns (*after allograft rejection*) in post-transplant related complications.
- Post-transplant recipients should be screened for[3];
  - Blood-borne pathogens (*HIV, HBV, HCV*)
  - Antibiotic resistant TB *bacilli*, *MRSA* and *VRE*.
  - *C.difficile* associated diarrhoea (CDAD)
  - Systemic mycoses: C*occidiodomycosis*
    Histoplasmosis

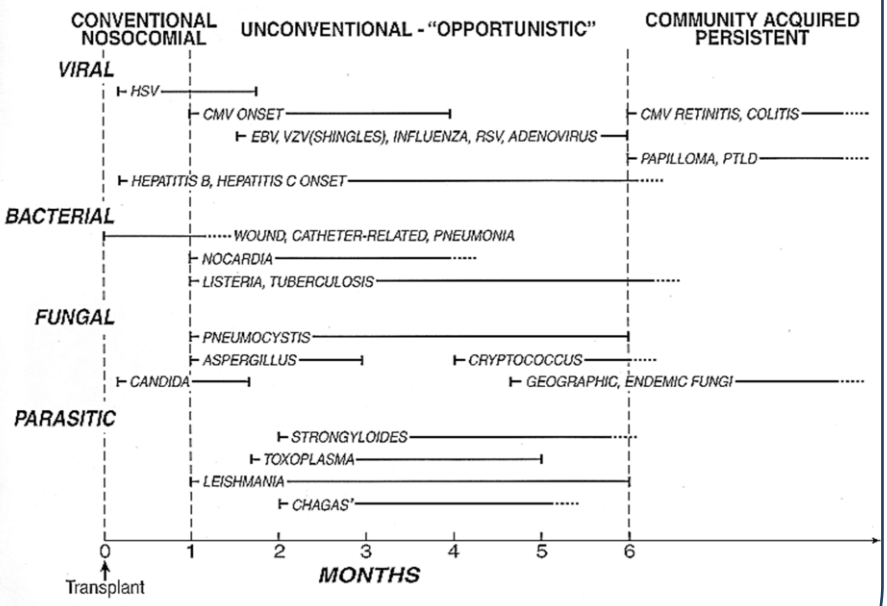
Transplants by Organ Type January 1, 1988 to January 15, 2016 [2]



Types of infection in graft types



Time frames of Transplant related infections



- *Influenced by surgical factors (0-1 month)*
- *Level of immunosuppression (1 – 6 months)*
- *Environmental exposures (> 6 months)*

An initiative by:

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The febrile solid organ transplantation (SOT) recipient presents one of the most challenging diagnostic and management situations facing clinicians. Diagnoses and evaluations must be accurately & rapidly performed.

Guidelines (2006) of American Society of Transplantation[4] recommended diagnostic evaluation in patients having;

A. Fever without localizing findings	• Urinalysis and urine culture • Blood cultures • CMV PCR • QuantiFERON testing using IFN assays for purified protein derivative • PCR & antigen detection kits for *RSV*, *rotavirus*, *influenza A* & *adenovirus*
B. Pulmonary infiltrates (Alveolar pattern)	• QuantiFERON testing using interferon gamma assays for Purified protein derivative (PPD) • Blood cultures • Sputum Gram stain and culture • Urine *Legionella* and pneumococcal antigens • Sputum acid-fast bacillus (AFB) smear and culture. • Urine *Histoplasma* antigen
C. Pulmonary infiltrates (Interstitial pattern)	• CMV PCR • *Coccidioides* serology • Bronchoalveolar lavage (BAL) fluid for bacterial, viral, fungal and AFB stains and cultures; • Direct fluorescent antibody (DFA) and culture for *Legionella* and *P. jiroveci*; • CMV PCR; cytology; modified AFB smear and culture for *Nocardia*
D. Diarrhea	• Stool testing for WBC and cultures for enteric [*Salmonella*, *Shigella*, *Campylobacter*] pathogens. • Enzyme immunoassay [EIA] of stool specimens for *C. difficile* testing. • Three separate stool specimens for ova and parasites • CMV PCR (blood) • If stool studies unrevealing and diarrhoea persists, endoscopic evaluation warranted (with mucosal biopsy); immune-histochemical staining for CMV recommended.
E. CNS symptoms	• Serology for cryptococcal antigen • PCR for *HSV*,*CMV*, *EBV*, *WNV* and *arboviral* testing

Tests offered by Metropolis India Healthcare

1. CMV DNA detection by Real time PCR (plasma, urine, blood, CSF, saliva)	*5. Febrile neutropenia panel by PCR (17 bacteria, 03 DNA viruses)*
2. HSV DNA detection by Real time PCR (Blister fluid, CSF, Ulcer Swab)	*6. Hepatitis B virus DNA detection by PCR (liver tissue, CSF, serum & plasma)*
3. Adenovirus DNA detection by PCR (Nasal, eye & Oral swab, respiratory fluid)	*7. Hepatitis B virus DNA detection by PCR (serum & plasma)*
4. BK virus DNA detection by PCR (urine)	

References: 1."Infections in Solid-Organ Transplant Recipients", Clinical Microbiology Reviews (1997)
2 https://www.unos.org/data/
3.Post-transplant infections: An ounce of prevention Indian J Nephrol. 2010 Oct; 20(4): 171–178. V. Jha
4. Am J Transplant. 2006 Feb;6(2):262-74. Humar A, Michaels M; AST ID Working Group on Infectious Disease Monitoring.

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