

Continuity of Care and Managing Transitions of Care in the Transplant Patient

Chelsea Sammons, Pharm.D.
Liver and VCA Transplant Clinical Pharmacy Specialist
The Hospital of the University of Pennsylvania
Philadelphia, Pennsylvania



1



Disclosures

- Consultant, Mallinckrodt Pharmaceuticals (ended 10/4/2021)

2

Learning Objectives

1. Describe the role of the pharmacist in obtaining an accurate medication, allergy and immunization history and the importance of proper medication reconciliation in solid organ transplant recipients at all stages of the transplant process.
2. Identify challenges in assessing readiness of a pediatric patient to transition to the adult transplant care team.
3. Evaluate the unique role of a pharmacist in the transition of solid organ transplant recipients between healthcare settings as it relates to medication error reduction, cost avoidance, and hospital readmission.
4. Summarize the common obstacles and potential solutions to proper medication adherence post-transplant including health literacy, cultural competence and language and sensory barriers.
5. Differentiate between various medication access resources in solid organ transplant recipients.

3

Medication, Allergy and Immunization History and Reconciliation

4

Medication History

- Current Medications
 - Prescription
 - Non-prescription
 - Herbal/homeopathic – including CBD and medical cannabis
 - Contraception devices
 - Facility-administered medications

Am J Health-Syst Pharm. 2015; 72:e39-51

5

Medication History

- Pertinent Past Medication Use to Specifically Consider
 - Immunosuppressive use
 - Anticoagulation/antiplatelet use
 - Pain medications
 - Anti-infective use
- Pertinent Past Surgical History
 - Bariatric procedures
 - Non-bariatric gastrointestinal surgeries
 - Tubal ligation and hysterectomy

Am J Health-Syst Pharm. 2015; 72:e39-51

6

Allergy History

- Allergy vs. Intolerance
- Penicillin
 - Penicillin skin testing programs
 - Cephalosporin cross-reactivity

7

Immunization History

- Important to obtain during evaluation phase
 - Allows time to administer needed vaccines pre-transplant
 - Live vaccines
 - Decrease efficacy of vaccines post transplant
 - Consider vaccination history of household contacts
- Important to maintain records throughout all transplant phases
- Pediatric vaccination consideration

Am J Transplant. 2013; 13(suppl 4):311-7.

8

Medication History vs. Medication Reconciliation

Medication History

- Complete and accurate listing of all prescription and non-prescription medications being taken by a patient at home, as they are taking them

Medication Reconciliation

- Comparison of the medication history to the currently ordered or intended medication orders, considering the patient situation
- Avoidance of errors:
 - Omission
 - Duplication
 - Dosing error
 - Drug interactions

AHRQ. Medication Reconciliation. 2019

9

Critical Time Points for Medication Reconciliation

- Evaluation for transplant procedure
 - Review pharmacologic contraindications for transplant
 - Optimize medications to mitigate interactions with immunosuppression
- Hospital admission for transplant procedure
 - Medications precluding safe transplantation
 - Critical medications to be resumed immediately following surgery
- Transfer from intensive care unit to the transplant floor
 - Pertinent home medications to resume for long-term management
- Transfer from floor status to outpatient setting
 - Non-critical prior to transplant medications
 - Consolidation of medication complexity

10

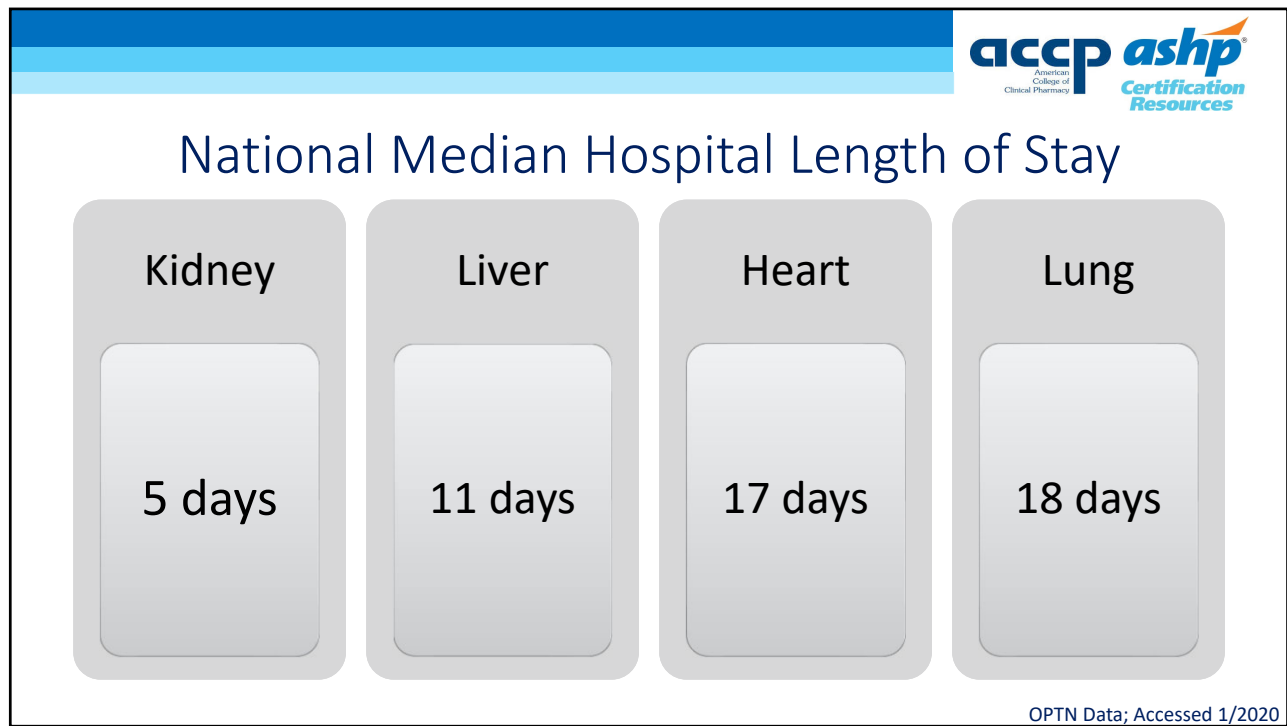
Critical Time Points for Medication Reconciliation

- Transfer from floor status to non-home facility
 - Facility formulary and familiarity with transplant medications
 - Plan for non-home facility to home transition
- Ambulatory visits
 - Non-transplant providers seen since last visit
 - Medication adherence/understanding of medication regimen
- Admission from ambulatory setting to the hospital
- Transition of care setting
 - From pediatric to adult care
 - From transplant to non-transplant primary care

11

Hospitalization to Ambulatory Transitions

12



13

Hospital Readmissions

- OPTN/UNOS does not uniformly track readmission rates
- Published readmission rates
 - 30-day readmissions: 30% – 50%
 - 90-day readmissions: 40 – 80%
 - Highest rates in lung transplant recipients
- Risk factors for readmission:
 - Age > 65 y
 - LOS > 5 days
 - African American
 - Obesity
 - Comorbidities
 - Post-operative complications

Am J Nephrol. 2018;48(4):235–241.
J Heart Lung Transplant. 2017;36(5):546–553.

accp ashp
American College of Clinical Pharmacy Certification Resources

14

Hospital Readmissions: Diagnoses

- Surgical complications
- Infection
- Rejection
- Electrolyte abnormalities
 - Hyperkalemia, hyperglycemia
- Coagulopathies
 - VTE
 - Surgical bleeding

15

Question 1:

Which of the following patients is at the highest risk for hospital readmission following index discharge?

- A. 26 yo F s/p uncomplicated living related kidney transplant 3 days ago
- B. 52 yo M s/p heart transplant 4 months ago complicated by renal failure and sent home on dialysis
- C. 67 yo M s/p uncomplicated liver transplant 15 days ago
- D. 77 yo M s/p lung transplant 2 months ago complicated by atrial fibrillation and sepsis requiring reintubation

16

Question 1:

Which of the following patients is at the highest risk for hospital readmission following index discharge?

- A. 26 yo F s/p uncomplicated living related kidney transplant 3 days ago
- B. 52 yo M s/p heart transplant 4 months ago complicated by renal failure and sent home on dialysis
- C. 67 yo M s/p uncomplicated liver transplant 15 days ago
- D. 77 yo M s/p lung transplant 2 months ago complicated by atrial fibrillation and sepsis requiring reintubation

17

Communicating Transitions of Care (ToC)

- Multidisciplinary team approach
 - Nurse coordinator
 - Inpatient and outpatient, if different for the patient
 - Transplant pharmacist
 - Inpatient and outpatient, if different for the patient
 - Surgeon/Physician
 - Social worker
 - Dietitian
 - Pertinent consultants
- The patient and his/her caregiver(s)!

18

Communicating ToC

- Pertinent Items at Hospital Discharge
 - Current medication list and plan for transition
 - Medication access plan (facility vs. patient supplied)
 - Home monitoring
 - Follow up visits
 - Transplant team and other consult services as needed
 - Follow up lab work
 - DME or home health needed
- The patient and his/her caregiver(s)!

19

Hospital Discharge: Errors

- Medication error rate of 40-70% among patients discharging from the hospital
 - Those likely to cause moderate to severe harm are estimated at 50%
 - Average of 2.2 errors/discharge
- Risk factors for discharge medication errors
 - Prolonged length of stay
 - Higher number of discharging prescriptions
 - No pharmacist review

Nephrol Ther. 2018;14(2):91–98.
Am J Transplant. 2013;13(3):796–801.
Med J Aust. 2017;206(1):36–39.
Int J Clin Pract. 2015;69(11):1268–1274

20

Transplant Hospital Discharge: Errors

- Flamme-Obry et al
 - 17.4 – 27.7% of discharges with at least one medication error in kidney transplant recipients
- Musgrave et al
 - 3.0 – 3.4 errors/patient discharge rate in abdominal transplant recipients
- In both studies, prospective pharmacy review led to identification and resolution of medication errors

Nephrol Ther. 2018;14(2):91–98.
Am J Transplant. 2013;13(3):796–801.

21

The Pharmacist and Hospital Discharge

- The Transplant Pharmacist: A Unique Specialty
 - Rotating inpatient/outpatient coverage
 - Both inpatient and ambulatory coverage for a service line
- Understanding of the needs and errors seen in each setting
 - Mitigation in day-to-day work of the most common or serious errors
- Continuity with a patient to build the patient-provider relationship
- In 2013, 28% of transplant pharmacists surveyed had both inpatient and ambulatory responsibilities

Am J Transplant. 2015;15(10):2683–2690.

22

Question 2:

Which of the following patients is at the highest risk for errors on their medication list?

- A. 26 yo F s/p living related kidney transplant 3 days ago, discharging on 5 medications without a pharmacist discharge medication review
- B. 52 yo M s/p heart transplant 2 months ago, discharging on 10 medications with a pharmacist discharge medication review
- C. 44 yo M s/p liver transplant 40 days ago, discharging on 15 medications without a pharmacist discharge medication review
- D. 28 yo F s/p lung transplant 2 months ago, discharging on 35 medications with a pharmacist discharge medication review

23

Question 2:

Which of the following patients is at the highest risk for errors on their medication list?

- A. 26 yo F s/p living related kidney transplant 3 days ago, discharging on 5 medications without a pharmacist discharge medication review
- B. 52 yo M s/p heart transplant 2 months ago, discharging on 10 medications with a pharmacist discharge medication review
- C. **44 yo M s/p liver transplant 40 days ago, discharging on 15 medications without a pharmacist discharge medication review**
- D. 28 yo F s/p lung transplant 2 months ago, discharging on 35 medications with a pharmacist discharge medication review

24

Pediatric to Adult Transitions of Care



25



Pediatric to Adult Transplant: Epidemiology

- ~1,700 pediatric solid organ transplant recipients each year

2019 Data	Kidney	Liver	Heart	Lung	Other
Age <1	0	155	133	4	8
Age 1 – 5	164	205	114	4	18
Age 6 – 10	156	89	80	5	17
Age 11-17	440	102	180	37	12
Total	760	551	507	50	55

OPTN Data Accessed 1/2020

26

Pediatric to Adult ToC Considerations

- Physical age
- Mental progression
- Social situation
- Parental/Guardian involvement
- Prior patient engagement
- Pediatric program policies vs. adult program policies

27

Pediatric to Adult: Readiness Assessment Tools

- Transplant knowledge
- Medication knowledge
- Medication adherence
- Risk-taking behaviors
- Self-advocacy
- Healthy living
- Reproductive health
- School/life goals
- Support systems
- Self-efficacy
- Health care costs

28

Pediatric to Adult: Transition Action Plan

- An action plan can be used to set individual goals for each domain assessed in the readiness tool and to guide educational interventions and counseling
- Sets specific activities to achieve goals
- Tracks teaching outcomes dates
- Can be a part of each visit documentation/plan
- Action plan for both patient care team and parents/guardians

29

Pediatric Transition: Key Elements

- Transition Medical Summary
 - Pertinent transplant and transplant-adjacent history
 - Immunosuppression history
 - Recent/important hospitalizations
 - Psychosocial issues
 - Adherence history
 - Insurance
- Pediatric care team
- Adult care team

30

Pediatric to Adult Transitions: Resources

- American Society of Transplant Pediatric Transition Portal
 - Transition toolkits
 - Transition templates by age range
 - Transition literature database
 - Brochures and tools
 - Pediatric to adult transition programs (non-transplant specific)
 - Transplant hospital-specific transition programs

31

Question 3: Which of the following patients currently under pediatric care is most appropriate to establish a transition action plan for?

- A. 10 year old M s/p liver transplant 1 month ago, at home with his parents
- B. 15 year old F s/p heart transplant 1 year ago who lives at home with her parents and takes advanced practice high school courses
- C. 17 year old M s/p kidney transplant 2 years ago, living in an a long term care facility
- D. 16 year old F s/p lung transplant 10 years ago, currently admitted for acute rejection due to non adherence

32

Question 3: Which of the following patients currently under pediatric care is most appropriate to establish a transition action plan for?

- A. 10 year old M s/p liver transplant 1 month ago, at home with his parents
- B. 15 year old F s/p heart transplant 1 year ago who lives at home with her parents and takes advanced practice high school courses
- C. 17 year old M s/p kidney transplant 2 years ago, living in an a long term care facility
- D. 16 year old F s/p lung transplant 10 years ago, currently admitted for acute rejection due to non adherence

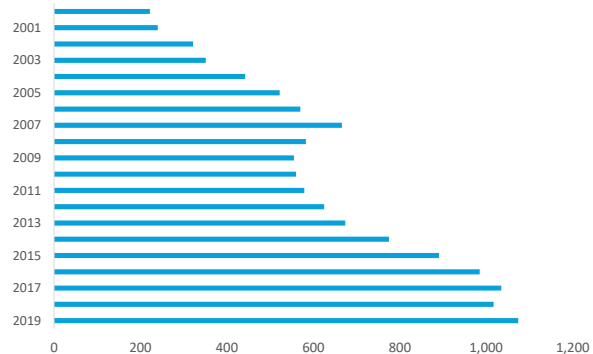
33

Co-Management of Solid Organ Transplant Recipients

34

Combined Organ Transplant Recipients

- Combined organ transplantation is increasing in frequency
 - Liver / Kidney (75%)
 - Hepatorenal syndrome
 - SCr in MELD
 - Heart / Kidney (20%)
 - Cardiorenal syndrome
 - Organ allocation policies
 - Multivisceral combinations (5%)



OPTN Data accessed 1/2020

35

Immunosuppressive Management of Combined Transplant Recipients

- Minimal data
- Non-renal organ team typically drives immunosuppression decisions
 - Immunosuppressive strategies similar to single organ without the renal allograft
- Reconciliation of post-transplant monitoring strategies / lab work frequency and primary RN coordinator needed to ensure appropriate communication between patient and team(s)

36

Shared Care – Non-Transplant Providers

- Establishment with Primary Care Provider (PCP) vs. continued PCP care with transplant program
 - Primary care may be provided by transplant program for 3 months – lifelong depending on program and organ group
- Non-transplant specialists
- Communication, communication, communication!
 - Integrated electronic medical records
 - Preferential establishment with transplant center-affiliated primary care and specialist providers

37

Medication Access

38

Health Insurance – Medication Coverage

- Commercial insurance
- Medicaid
- Medicare
 - B vs. D
 - Protected classification for Medicare Part D
 - B coverage of immunosuppression – Medicare payment for transplant
- Medicare Advantage
- Tricare

39

Common Medication Access Barriers

- Prior authorization
- Off label denials
- Formulary restrictions
- High tier / co-insurance plans
- Coverage gap

40

Medication Access – Solutions

- Patient assistance grant programs
- Manufacturer assistance programs
- Health-system supported centralized or imbedded medication access departments
- Charity care programs
- Time and expertise to navigate this system are critical for success

41

Specialty Pharmacies

- Criteria of a specialty medication
 - High cost
 - Prescribed for a complex medical condition
 - Requires additional education / counseling and support
 - Has unique storage or shipping requirements
 - Is not stocked at a majority of retail pharmacies

42

Specialty Pharmacies

- Onboarding / patient education
- Refill reminders
- Ongoing clinical assessments
- 3rd party accreditation
- Improved patient outcomes compared to standard retail pharmacies?

43

Integrated Specialty Pharmacies

- Health Systems with Specialty Pharmacies are on the rise
- Electronic medical record access and clear communication lines with the transplant program
- Integration of pharmacy dispensing and prescribing systems to avoid incorrect/old prescriptions from being dispensed

44

Specialty Pharmacy in Transplant: Outcomes

- 519 propensity matched kidney transplant recipients at a single center
 - 15% Lower transplant-related medical costs
 - 42% Lower overall healthcare costs
 - 87% vs. 82% medication possession ratio at 1 year

J Manag Care Pharm. 2013;19(1):26–41.

45

Question 4: BH is a 68 yo M s/p kidney transplant 2 months ago. He presents to clinic with concerns for the cost of his valganciclovir, which he says is now \$900 for a month supply. He also mentions he received notification he is in his Part D coverage gap. Which of the following medication access solutions is most appropriate?

- A. Provide BH with a copay card for brand name Valcyte® to reduce the cost
- B. Request that his pharmacy run the prescription through Medicare Part B as they paid for his transplant
- C. Seek free medication through the manufacturer assistance program for Valcyte®
- D. Send the prescription to a specialty pharmacy as the cost to the patient are consistently 10% cheaper than other retail pharmacies

46

Question 4: BH is a 68 yo M s/p kidney transplant 2 months ago. He presents to clinic with concerns for the cost of his valganciclovir, which he says is now \$900 for a month supply. He also mentions he received notification he is in his Part D coverage gap. Which of the following medication access solutions is most appropriate?

- A. Provide BH with a copay card for brand name Valcyte® to reduce the cost
- B. Request that his pharmacy run the prescription through Medicare Part B as they paid for his transplant
- C. **Seek free medication through the manufacturer assistance program for Valcyte®**
- D. Send the prescription to a specialty pharmacy as the cost to the patient are consistently 10% cheaper than other retail pharmacies

47

Patient-Specific Barriers and Solutions to Care

48

Medication Adherence

- Quantifying non-adherence in transplant is a challenge
 - Medication possession ratio
 - Proportion of days covered
 - Self reporting
 - Immunosuppressive Therapy Adherence Scale
 - Basel Assessment of Adherence with Immunosuppressive Medication Scale (BAASIS)
 - Direct observation
 - Electronic tracking
 - Blood level variability
- Non-Adherence is costly
 - World Health Organization (WHO) estimates \$15 – 100 million annually

49

Medication Non-Adherence: Incidence

- Meta analysis of 38 studies in adult kidney transplant recipients revealed a 28-52% incidence
- Single center lung transplant population revealed a 27.4% incidence (n=504)
 - Incidence increased as time elapsed from transplant

Transpl Int. 2005 Oct; 18(10):1121-33.
 Clin Transplant. 2018;32(4):e13214.

50

Medication Non-Adherence: Risk Factors

- Belaiche et al:
 - Age ≤ 50 years old, male, low social support, unemployment, low education, ≥ 3 months post transplant, living donor, ≥ 6 comorbidities, ≥ 5 drugs per day, ≥ 2 medication administration times per day, negative beliefs, negative behavior, depression and anxiety
- Patzer et al:
 - Fewer months since transplant
 - Limited literacy

Clin Transplant. 2016;30(10):1294–1305

Explore (NY). 2018;14(6):414–419.

Int J Clin Pharm. 2017;39(3):582–593.

51

Non-Adherence: Intentional vs. Unintentional

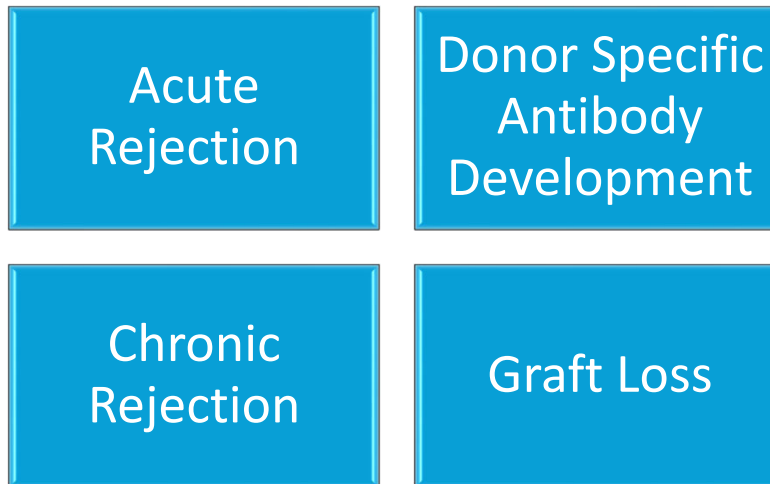
- Unintentional vs. intentional: 47.4% vs. 15.1%
- Risk factors:
 - Unintentional
 - Formal work
 - Living donor recipient
 - Intentional
 - Co-morbid burden
 - Patient evaluation of side effects
 - Perceived cost vs. benefit
 - Depression / Anxiety / Transplant-related stress

Int J Clin Pharm. 2018;40(5):1234–1241.

Transplant Proc. 2015 Nov; 47(9):2707–11.

52

Medication Non-Adherence: Outcomes



Transplantation. 2004 Mar 15; 77(5):769-76.

53

Adherence Tools

- Customized medication lists
 - Apps
 - Paper based lists
- Routine setting
 - Alarms
 - Unique/customized medication timing
- Education
- Behavioral interventions
 - Motivational interviewing
- Combination approaches
 - Individualized approaches and more intensive interventions had the highest effect in one meta-analysis

Syst Rev. 2017; 6: 236.

54

Health Literacy



55



Health Literacy: Assessment Tools

- “The degree to which individuals are able to acquire and understand the health information needed to make appropriate health decisions”
- ~1/3 of US adults with limited health literacy
 - Educational attainment not clear correlator for health literacy
- Health Literacy Assessment Tools
 - Brief Health Literacy Screen (BHLS)
 - Shortened test of Functional Health Literacy in Adults (s-TOHFLA)
 - Rapid Estimate of Adult Literacy in Medicine (REALM)

Health Resources & Services Administration [homepage on the Internet]. Available at www.hrsa.gov/about/organization/bureaus/ohe/health-literacy/index.html. Access May 19, 2022.

56

Risks for Limited Health Literacy

Risk Factor	Adjusted Odds Ratio
1 point increase on Charlson comorbidity index	1.12
Male sex	1.85
Frailty	1.85
Less than college education	2.87
Combined household income <\$35,000/year	3.44
Cognitive impairment	3.45

Am J Transplant. 2019;19:457–465

57

Strategies to Overcome Limited Health Literacy

- Universal approaches
 - Providing easily understandable instructions
 - Asking patients to describe how they are going to follow treatment instructions
 - Providing assistance in completing healthcare forms
 - Ongoing screening for limited health literacy

Patient Prefer Adherence. 2018; 12: 2325–2338.

58

Strategies to Overcome Limited Health Literacy

- Approaches for those with suspected low literacy
 - Teach Back methods
 - Open ended questions
 - Written materials in a 5th grade reading level
 - 3 – 5 information points at a time
 - Team-based approach – limit information variability

Patient Prefer Adherence. 2018; 12: 2325–2338.

59

Strategies to Overcome Limited Health Literacy

- Approaches for those with known low health literacy
 - Assigned/designated case worker
 - Flash cards
 - Graphics/illustrations
 - QR-barcoded medication bottles
 - Animated videos
 - Blister packed medications

Patient Prefer Adherence. 2018; 12: 2325–2338.

60

Electronic Resources for Limited Health Literacy

- Mobile health interventions
 - Electronic medication trays
 - Text message / email reminders
- “Talking Pill Bottles”

Patient Prefer Adherence. 2018; 12: 2325–2338.

61

Transplant Agnostic Approaches

- Agency for Healthcare Research and Quality (AHRQ) Health Literacy Universal Precautions Toolkit
- Health Literacy Tool Shed

62

Question 5: Which of the following transplant candidates is most likely to have limited health literacy?

- A. 72 year old male retired college professor with renal failure, early dementia, diabetes, and frailty
- B. 26 year old female who did not graduate from high school with renal failure, lupus, and depression
- C. 35 year old male with a high school diploma with renal failure and no other unrelated comorbidities
- D. 62 year old woman working as a secretary with renal failure, depression, and hypothyroidism

63

Question 5: Which of the following transplant candidates is most likely to have limited health literacy?

- A. 72 year old male retired college professor with renal failure, early dementia, diabetes, and frailty
- B. 26 year old female who did not graduate from high school with renal failure, lupus, and depression
- C. 35 year old male with a high school diploma with renal failure and no other unrelated comorbidities
- D. 62 year old woman working as a secretary with renal failure, depression, and hypothyroidism

64

Cultural Competence



65

Cultural Competence

- “Cultural competence is the ability to **effectively operate** in different cultural contexts and **altering practices** to reach different cultural groups.”
 - Awareness of one’s own cultural worldview
 - Attitude towards cultural differences
 - Knowledge of different cultural practices and worldview
 - Cross-cultural skills
- Disparities contribute to poor health outcomes in underserved/under-recognized populations
 - LGBTQIA+, racial and ethnic minorities, religious minorities

<https://npin.cdc.gov/pages/cultural-competence>

66

Cultural Competence in Transplant

- Most data / research in racial and ethnic disparities
 - Historically disproportionate care, referral for transplant, and donation rates among Hispanic and African-American patients
- Limited LGBTQIA+ information

American Journal of Transplantation 2010; 10: 2701–2707

67

Strategies to Improve Cultural Competence

- Staff cultural competency training/education
- Bicultural and bilingual staff
- Community liaisons
- Minority-focused clinics
- Interpreters available by phone or in person
- Translated written education materials

American Journal of Transplantation 2010; 10: 2701–2707

68

Strategies to Improve Cultural Competence

- Bicultural and bilingual staff are more valuable than translators
- Prioritize educational discussions in native language over translated written material
- National survey of living donor kidney transplant programs found limited use of preferred modalities
 - 43% bicultural staff
 - 33% cultural competency training
 - 16% community liaisons

69

Question 6: Which of the following resources would be most beneficial for a new kidney transplant program hoping to open in a predominantly Hispanic community?

- A. Spanish interpreter telephone line
- B. All pre-transplant and post-transplant educational materials translated to Spanish
- C. Identification of a bilingual and biethnic nurse coordinator
- D. Dedicated Spanish interpreter for face to face visits

70

Question 6: Which of the following resources would be most beneficial for a new kidney transplant program hoping to open in a predominantly Hispanic community?

- A. Spanish interpreter telephone line
- B. All pre-transplant and post-transplant educational materials translated in to Spanish
- C. Identification of a bilingual and biethnic nurse coordinator
- D. Dedicated Spanish interpreter for face to face visits

71

Humanistic Factors in Transplant: Quality of Life and End of Life Care

72

Quality of Life in Transplant

- “Health-related quality of life (HRQOL) is an individual’s or a group’s perceived physical and mental health over time”
- CDC HRQOL–14 "Healthy Days Measure"

<https://www.cdc.gov/hrqol/index.htm>

73

Quality of Life in Transplant

- Disproportionate assessment of health-related quality of life (HRQOL) in pediatric transplant as compared to adult transplant recipients
- Generally, HRQOL is highest in those with limited psychosocial comorbidities, health comorbidities, and with functional grafts

74

End of Life and Palliative Care

- Palliative Care per the WHO
 - “An approach that improves the quality of life of patients and their families facing the problems associated with life- threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.”
- Palliative care traditionally focused on cancer care
 - Improved quality of life
 - Reduced depression
 - Improved satisfaction with care
 - Reduced use of chemotherapy near end of life
 - Improved survival

75

Palliative Care in Transplant

- Limited utilization of palliative care in non-cancer end stage diseases: 69% vs. 14%
- Much current literature focuses on palliative care integration within the pre-transplant time period/assessment

76

Barriers to Palliative Care in Transplant

- Fluctuating decline pre-transplant
- Unrealistic expectations for survival
- Unwillingness from patients/caregivers and providers to consider palliative care
- Fear of abandonment by transplant team
- Lack of access to palliative care
- Seemingly contradictory goals of transplant and palliative care

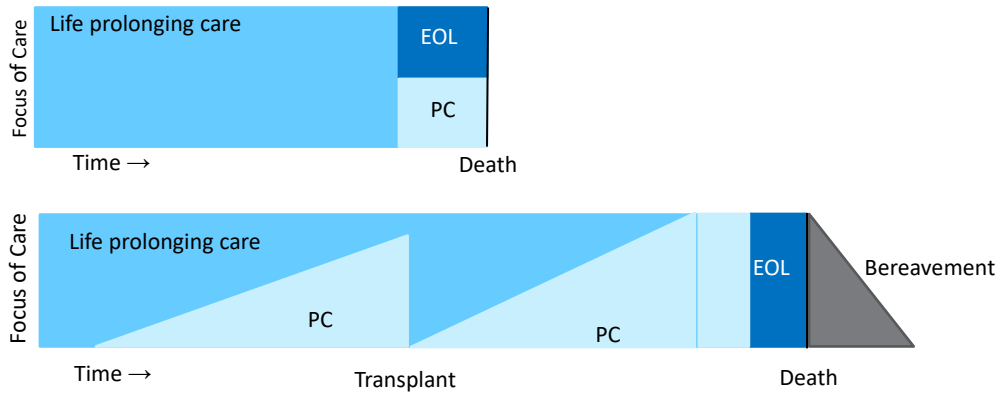
77

Palliative Care and End of Life

"Packing two bags for the journey"

78

Suggested Approach to Palliative Care in Transplant



EOL – End of Life
PC – Palliative Care

Adapted from: Am J Transplant. 2017;17:3008–3019.

79

Common Barriers to Care

80

Non-English Preferred Language

- 21.6% of all US residents speak a language other than English at home
 - More likely to be > 50% in states that border Mexico
- In America's 5 largest cities, ~50% speak a language other than English at home
 - New York City
 - Los Angeles
 - Chicago
 - Houston
 - Phoenix

U.S. Census Data 2016

81

Non-English Speakers

Languages Spoken at Home

- Spanish: 41.5 million
- Mandarin: 3.5 million
- Tagalog: 1.8 million
- Vietnamese: 1.5 million
- Arabic: 1.3 million
- French: 1.2 million
- Korean: 1.1 million

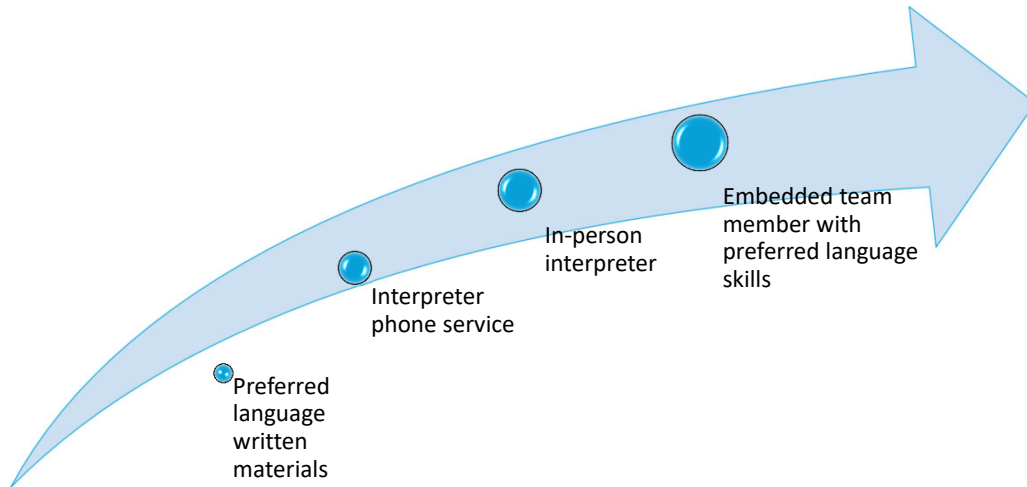
Impact

- Less than 38% reported that they speak English less than well
- 45% of non-English speakers were born in the US
- Nevada, Georgia, and North Carolina have seen the largest growth in non-English speakers since 1980 (800-1088% growth)

U.S. Census Data 2016

82

Non-English Preferred Language: Solutions



83

Visual Impairment

- Congenital
- Traumatic
- Age related
 - Macular degeneration
 - Cataracts
 - Glaucoma
- Diabetic retinopathy

84

Strategies for Vision Impairment

- Enlarged written materials
- Color coded medication lists / medication bottles
- Intensive verbal education
- Screen/text readers
- Text to audio translators / apps
- Braille tools

85

Hearing Impairment

- Age-related hearing loss
- Excessive noise exposure
- Injury
- Ototoxic medications
- Infectious hearing loss

86

Hearing Impairment Educational Tools

- Hearing aids
- Audio to text apps / phones
- Video chat technology (for lip reading)
- TDD/TYY
- Cochlear implants
- Sign language

87

Question 7: Which of the following patients would most benefit from alternative educational tools?

- A. 30 year old s/p lung transplant with minor hearing loss secondary to chronic aminoglycoside exposure
- B. 72 year old s/p kidney transplant with moderate hearing loss secondary to age
- C. 15 year old s/p kidney transplant with complete congenital hearing loss, capable of reading lips
- D. 45 year old s/p liver transplant with new-onset near complete hearing loss of unknown etiology

88

Question 7: Which of the following patients would most benefit from alternative educational tools?

- A. 30 year old s/p lung transplant with minor hearing loss secondary to chronic aminoglycoside exposure
- B. 72 year old s/p kidney transplant with moderate hearing loss secondary to age
- C. 15 year old s/p kidney transplant with complete congenital hearing loss, capable of reading lips
- D. 45 year old s/p liver transplant with new-onset near complete hearing loss of unknown etiology

89

Key Takeaways

- Complete and accurate medication lists are critical as transplant recipients move through various phases of care
- Hospital readmission is common following transplant, and a critical time point for potential medication errors
- The multidisciplinary team is critical for managing transitions in and out of the hospital and across various points of care after transplant
- Medication access following transplant is complicated, with many opportunities for lapse in coverage necessitating access solutions
- Many barriers to optimal care post-transplant exist including literacy, cultural, language, and sensory impairments

90

Continuity of Care and Managing Transitions of Care in the Transplant Patient

Chelsea Sammons, Pharm.D.
Liver and VCA Transplant Clinical Pharmacy Specialist
The Hospital of the University of Pennsylvania
Philadelphia, Pennsylvania



91



References

- Belaiche S, Decaudin B, Dharancy S, et al. Factors relevant to medication non-adherence in kidney transplant: a systematic review. *Int J Clin Pharm* 2017;39(3):582-593.
- Belda-Rustarazo S, Cantero-Hinojosa J, Salmeron-Garcia A, et al. Medication reconciliation at admission and discharge: an analysis of prevalence and associated risk factors. *Int J Clin Pract* 2015;69(11):1268-74.
- Butler J, Roderick P, Mullee M, et al. Frequency and impact of nonadherence to immunosuppressants after renal transplantation: a systematic review. *Transplantation* 2004;77(5):769-76.
- Centers for Disease Control and Prevention [homepage on the Internet]. Cultural Competence in Health and Human Services. Available at <https://npi.cdc.gov/pages/cultural-competence>. Accessed April 7, 2022.
- Centers for Disease Control and Prevention [homepage on the Internet]. Health-Related Quality of Life. Available at <https://www.cdc.gov/hrqol/index.htm>. Accessed April 7, 2022.
- Chisholm-Burns MA, Spivey CA, Pickett LR, et al. Health literacy in solid-organ transplantation: a model to improve understanding. *Patient Prefer Adherence* 2018;12::2325-2338.
- Danziger-Isakov L, Kumar D; AST Infectious Disease Community of Practice. Vaccination in solid organ transplantation. *Am J Transplant* 2013;13(4):311-7.
- Denhaerynck K, Dobbels F, Cleemput I, et al. Prevalence, consequences, and determinants of nonadherence in adult renal transplant patients: a literature review. *Transpl Int* 2005;18(10):1121-33.
- Drick N, Seeliger B, Fuge J, et al. Self-reported non-adherence to immunosuppressive medication in adult lung transplant recipients – a single-center cross-sectional study. *Clin Transplant* 2018;32(4):e13214.
- Flamme-Oby F, Belaiche S, Hazzan M et al. Clinical pharmacist and medication reconciliation in kidney transplantation. *Nephrol Ther* 2018;14(2):91-98.

92

References

- Gordon EJ, Caicedo JC, Ladner DP, et al. Transplant center provision of education and culturally and linguistically competent care: a national study. *Am J Transplant* 2010;10(12):2701-7.
- Griva K, Neo HLM, Vathsala A. Unintentional and intentional non-adherence to immunosuppressive medications in renal transplant recipients. *Int J Clin Pharm* 2018;40(5):1234-1241
- Haugen CE, King EA, Bae S, et al. Early hospital readmission in older and younger kidney transplant recipients. *Am J Nephrol* 2018;48(4):235-241.
- Lee SY, Chu SH, Huh KH. Low adherence to immunosuppressants is associated with symptom experience among kidney transplant recipients. *Transplant Proc* 2015;47(9):2707-11.
- Markell MS, Terebelo S. Complementary medicine use, symptom burden and non-adherence in kidney transplant recipients. *Explore (NY)* 2018;14(6):414-419.
- Mathes T, Grobpietsch K, Neugebauer EA, et al. Interventions to increase adherence in patients taking immunosuppressive drugs after kidney transplantation: a systematic review of controlled trials. *Syst Rev* 2017;6(1):236
- Musgrave CR, Pilch NA, Taber DJ, et al. Improving transplant patient safety through pharmacist discharge medication reconciliation. *Am J Transplant* 2013;13(3):796-801.
- Osho AA, Castleberry AW, Yerokun BA, et al. Clinical predictors and outcome implications of early readmission in lung transplant recipients. *J Heart Lung Transplant* 2017;36(5):546-553
- Patzer R, Serper M, Reese P, et al. Medication understanding, non-adherence, and clinical outcomes among adult kidney transplant recipients. *Clin Transplant* 2016;30(10):1294-1305
- Taber DJ, Pilch NA, Trofe-Clark J et al. A national survey assessing the current workforce of transplant pharmacists across accredited U.S. solid organ transplant programs. *Am J Transplant* 2015;15(1):2683-2690.

93

References

- Tong EY, Roman CP, Mitra B, et al. Reducing medication errors in hospital discharge summaries: a randomized controlled trial. *Med J Aust* 2017;206(1):36-39.
- Tschida S, Aslam S, Khan T, et al. Managing specialty medication services through a specialty pharmacy program: the case of oral renal transplant immunosuppressant medications. *J Manag Care Pharm* 2013;19(1):26-41.
- Warsame F, Haugen CE, Ying H, et al. Limited health literacy and adverse outcomes among kidney transplant candidates. *Am J Transpl* 2019;19(2):457-465.
- Wentlandt K, Weiss A, O'Connor E, et al. Palliative and end of life care in solid organ transplantation. *Am J Transplant* 2017;17(12):3008-3019.

94