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Title:
Monitoring Transformation: Minimizing Financial Costs associated with Surveillance Protocol for HCV+ Kidney Transplant Recipients

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PLAN

Background/Aim: Waiting times for deceased donor kidneys currently exceed 5 to 7 years in many parts of the United States, yet more than 500 high quality kidneys from deceased donors with Hepatitis C Virus (HCV) infection are discarded annually. Direct acting antiviral agents (DAA), which are associated with high cure-rates, have created the potential to substantially increase the number of kidney transplants by making HCV infected kidneys available to HCV negative candidates on the waiting list.

Objective (Goal):
To increase the opportunity for transplant and implement a surveillance workflow for timely monitoring for treatment and minimized cost of HCV treatments in renal transplant recipients who receive a HCV+ kidney.

DO

Methods: In November 2018, a multidisciplinary team was assembled to identify challenges and barriers to correctly execute a surveillance protocol for HCV+ donor kidney recipients. The team first created a current-state process flow map to detail the required patient care tasks then developed a future-state process map with modifications that addressed communication deficiencies, embedded procedural checkpoints, and increased accountability. The team next established a process to measure protocol compliance for HCV+ kidney transplant recipients. Additionally the team designed a comprehensive process to facilitate/expedite insurance clearance and coverage of any treatments, which minimized any costs incurred for such treatments. Changes were implemented on a rolling basis to support patient safety & outcomes.

Opportunities & Tests of Change	Outcome
Financial Screening & HCV+ Consenting	Screening protocol and script for patient education developed; Patient lists for financial clearance were prioritized by wait list time; 100% of patients consented are financially screened for coverage prior to listing. Plan for cost coverage determined prior active listing.
Specialty pharmacy dedicated staff hours to expedite insurance authorization process.	Pre-transplant financial clearance processing time decreased from an average of 20 days to 3 days. Post conversion authorization time averages 9.5 days.
OTTR Admit Note, Ambulatory Patient Alert & Transition of Care Note	Standardized communication of transplant type, serologies performed & activation testing protocol
Financial Resources Confirmed and Implemented	Amendments to several insurance contracts executed to add per-diem reimbursement for any costs incurred for inpatient dosing of anti-viral agents. Education of team on patient assistance programs and application processes. Collaborative agreement made with specialty pharmacy for timely dosing.
Creation of OTTR Action Macros for Serology Tracking	Plot future testing dates & notify post-transplant clinic for actionable items
Lag-Time between the date of specimen collection and result.	Reduced frequency of testing post-operatively. Redesign genotype testing workflow to new lab provider.
Coordination of testing with routine post-transplant follow-up schedule	Improved compliance in testing, reduced number of blood draws, reduction of cost in maintenance testing and monthly specimens realized, due to reduced wait list time for transplanted recipients.
Covid 19 Impact on Outpatient Follow-up	Implementation of Telehealth and Mobile Labs
Creation of Data Visualization Tool	Viewable compliance panel with patient & cohort level information, facilitate proactive monitoring of compliance with workflows and evaluation of patient outcomes

STUDY

Results: Between 11/1/2018 and 7/31/2020, we accepted 55 kidneys from donors that were identified as HCV+. This resulted in 55 transplants, or a 9% volume increase (55/591 total transplants) that would not have been performed, had we not implemented this treatment and screening protocol. Our facility did not incur any costs associated with the provision of antiviral agents, nor did we incur any direct costs for increased length of stay. The following data summarizes our experience with these HCV+ kidneys:

Data Summary HCV + to HCV - Transplants 2018 - 2020 YTD	7/31/2020**
Total Cases	**55**
Have not converted	12
Subtotal	**43**
Converted, insufficient virus to run genotype	3
Subtotal	**40**
Time in Days	
Transplant to Seroconversion†	6
Seroconversion to Genotyping°	5
Genotyping to Insurance Authorization¥	10
Costs incurred by Hospital for Antiviral agents	
Inpatient	$0
Outpatient	$0
Length of Stay	
Avg LOS for HCV+ kidney transplant recipients	5.0 days
Avg LOS for HCV- kidney transplant recipients	6.0 days
Genotype	
3	13
1a	22
Antiviral	
Mavyret	30
Harvoni	3
Epclusa	2
Time in Weeks	
First Viral Load Negative after DAA start	6.7

†Seroconversion is date of specimen collection
° Genotyping is date resulted
¥ Insurance authorization date as per scanned correspondence

Conclusion:
Our goal was to increase the opportunity for transplant and implement a surveillance workflow with data visualization for timely monitoring for treatment of HCV in renal transplant recipients who received a HCV + kidney. We achieved cost savings and compliance by carefully examining the current process state, identifying weak areas in the process, overcoming obstacles, such as the need for genotyping for insurance authorization, and integrating concrete solutions into the standard workflow. Introducing checks & balances, clear communication tools and a systematic auditing process was essential to our success. We have further learned that these fundamental aspects of process improvement and cost savings/avoidance are applicable to a wide variety of clinical processes.

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