

### **Project Title**

Rapid Assessment and treatment of Poor functioning Indwelling Dialysis catheters:  
Shortened Time to Point of discharge (RAPID-STOP)

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### **Organisation(s) Involved**

National University Health System

### **Project Category**

Process Improvement, Care Redesign

### **Keywords**

Process Improvement, Care Redesign, Process Redesign, Clinical Improvement, Streamlining of Workflow, Dialysis Centre, Access to Care, Care Delivery, Nephrology, Reduce Hospitalisation Days, Reduce Wait Time, Reduce Emergency Department Visits, Reduce Readmission Rate, Cost Savings, National University Health System, Tunnelled Dialysis Catheter Dysfunction, Protocol Revision, New Clinical Protocol, Inpatient Dialysis Centre Virtual Ward

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# Rapid Assessment and treatment of Poor functioning Indwelling Dialysis catheters: Shortened Time to Point of discharge (RAPID-STOP)

## Introduction

Tunnelled dialysis catheter (TDC) dysfunction contributes to a significant number of unplanned Nephrology admissions, which have led to prolonged hospitalisations (mean 9.8 days in 2015) and healthcare costs.

## Aims

To streamline the workflow for tunnelled dialysis catheter unblocking.

To reduce mean hospitalisation days, Emergency Department (ED) visits and readmission rate.

To reduce healthcare costs associated with TDC dysfunction.

## Methodology

Problems	Interventions
<ul style="list-style-type: none"> <li>Late referral from Community Dialysis Centres (DCs).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Direct referral from DCs to vascular coordinator and case reviewed by Interventional Nephrologist.</li> <li>➤ New protocol written - direct admission to Day Surgery Ward for same day TDC unblocking or exchange.</li> </ul>
<ul style="list-style-type: none"> <li>Long wait times at ED for admission or Inpatient Dialysis Centre (IDC) slots.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Creation of <b>IDC virtual ward (NWEDI)</b>.</li> <li>➤ New protocol written for admission via ED to IDC.</li> <li>➤ Tunneled catheter exchange by Interventional Nephrologist.</li> </ul>
<ul style="list-style-type: none"> <li>Recurrent TDC dysfunction.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Catheter thrombolytic protocol was revised - for catheter exchange ± fibrin sheath disruption if urokinase was used within the past one month.</li> </ul>

## Results

Project implementation: Nov 2016 - April 2017

Outcome	Before Project	After Project
ED Visits and Admissions due to TDC dysfunction	100%	42%
15-day Readmission Rate due to TDC dysfunction	50%	22%
Mean Hospitalisation Days due to TDC dysfunction	9.8 days	3.9 days

**60% reduction in mean hospitalization days**

98 cases of TDC dysfunction (16.3/month) between Nov 2016 – April 2017.

Estimated cost savings per annum (due to reduction in mean hospitalisation days): SGD1446 (per bed day saved) x 5.9 days x [16.3 admissions x 12] = SGD 1.67 million.

**Estimated cost savings: SGD 1.67 million per annum**

## Conclusion

Using TDC dysfunction as an example, development and use of virtual ward, and streamlined system processes have improved patient care delivery significantly with reduction of healthcare costs. These concepts should be applied to other common presentations in public institutions.