Supplemental Materials

Table 1 – Ethics committee and services covered

Ethics committee	Approval number	Services covered
Sydney Local Health District CRGH Human Research Ethics Committee (HREC)	HREC/16/CRGH/76	Austin Health; Cairns Hospital; Concord Hospital; Eastern Health; Flinders Medical Centre; Geelong Hospital (Barwon Health); Gold Coast Hospital and Health Service; John Hunter Hospital; Liverpool Hospital; Mackay Hospital; Monash Health; Sunshine Coast University Hospital and Health Service; Nepean Hospital; Prince of Wales Hospital; Metro South Hospital and Health Service (including Princess Alexandria Hospital, Redlands and Logan Hospital); Rockhampton; Royal Adelaide Hospital; Royal Brisbane Hospital; Royal Melbourne Hospital; Royal North Shore Hospital; Royal Prince Alfred Hospital; St George Hospital; St Vincent's Hospital, Melbourne; Tamworth Hospital; The Alfred Hospital; Toowoomba Hospital; Western Health;

		Western Sydney Local Health District (including Westmead, Auburn and Blacktown Hospitals); Wollongong Hospital.
Central Australia HREC	HREC-16-420	Alice Springs Hospital
HREC of the Northern Territory Department of Health and Menzies School of Health Research	HREC/2016-2660	Royal Darwin Hospital
Royal Perth Hospital HREC	HREC 2016-154	Armadale Health Service, Fiona Stanley Hospital, Sir Charles Gairdner Hospital
The University of Tasmania HREC	H0015890	Royal Hobart Hospital
Mater Misericordiae Ltd HREC	HREC/17/MHS/99	Mater Hospital, Brisbane
Australian Capital Territory Health HREC	HREC/17/MHS/99	The Canberra Hospital and Health Service

Table 2 – Allocation schedule

Allocation schedule	**Number of services**	**Mean number of catheters**
Treatment/Treatment/Treatment	12	78.7
Control/Treatment/Treatment	12	79.7
Control/Control/Treatment	13	86.7

REDUCCTION CASE REPORT FORM

Site Number: I__I__I__I

Subject Number: I__I__I__I__I__I__I

Demographic data*		
1.	Has the patient been given the REDUCCTION participant information sheet and not opted out of the study?	I__I Yes I__I No (No data entry allowed unless yes elected in Q1) I__I N/A (For waiver of consent sites only)
2.	Patient details	First name: ……. Middle: ……. Last name: ……. MRN: …….
3.	Date of birth DD/MM/YYYY	|__|__| / |__|__| / |__|__|__|__| Country of birth: I__I Australia I__I New Zealand I__I Other- please specify: …….. If in Australia- State of residence: I__I NSW I__I ACT I__I VIC I__I QLD I__I SA I__I WA I__I NT
4.	Gender	I__I Male I__I Female I__I Other

5.	Patient race	I__I Asian- (including Chinese, Indian, Malay, Filipino, Vietnamese, Indonesian) I__I Caucasian I__I Indigenous Australian (including Aboriginal & Torres Strait Islander) I__I Maori I__I Pacific islander (including Tongan, Samoan and Cook Islander) I__I Other (specify) I__I Medical records do not indicate patient race

REDUCCTION CASE REPORT FORM

Site Number: I__I__I__I

Subject Number: I__I__I__I__I__I__I

Medical History*		
1.	Does the patient have Diabetes *(defined as requiring dietary treatment, oral hypoglycaemic medication and/or insulin)*?	I__I Yes (Diet controlled) I__I Yes Medication controlled I__I No
2.	Is the patient on any immunosuppressant medication? * *(I.e: oral prednisone, cyclosporine, tacrolimus, azathioprine, hydroxychloroquine* *We will provide detailed list in the data dictionary etc)*	I__I Yes I__I No

REDUCCTION CASE REPORT FORM

Site Number: I__I__I__I

Subject Number: I__I__I__I__I__I__I

Pre-Intervention form

Catheter Insertion			
1.	Is this a new catheter insertion?*	I__I Yes- new catheter I__I No- re-wire	
2.	Date catheter Inserted* (DD/MM/YYYY)	|__|__| / |__|__| / |__|__|__|__| ALERT: *If the date of line insertion is within 48 hours of previous catheter removal proceed to Q3. If not within 48 hours, go to Q4.* I__I Not known	
3.	Date renal unit assumed care of patient* (DD/MM/YYYY)	|__|__| / |__|__| / |__|__|__|__| *To default to date in Q3*	
4.	Is this catheter a replacement for the previous catheter that was removed on DD/MM/YYYY *(pre-populated with catheter removal date)*	I__I Yes I__I No	
5.	Catheter insertion site*	I__I Left side of body I__I Right side of body	
6.	Vein of insertion*	I__I Subclavian I__I Internal Jugular I__I Femoral I__I Other: specify …….	
7.	Catheter Type*	I__I Tunnelled (proceed to Q7) I__I Non-tunnelled (proceed to Q10)	
8.	Catheter Brand	I__I Baxter	*Types of tunnelled catheter produced by this brand- TBC*
		I__I Gambro	

		I__I Medcomp	
		I__I Arrow	
		I__I Bard	
		I__I Palindrome	
		I__I Tesio	
		I__I Other: specify ……	
		I__I Not known	
9.	Blood flow rate (ml/min) *Maximum blood flow rate achieved on first dialysis*	I__I <200 I__I 200-240 I__I 250-299 I__I 301-349	I__I 350-399 I__I 400+ I__I Not known
10.	Hospital location of catheter insertion*	I__I Operating theatre I__I Radiology I__I ICU I__I Renal Ward/ Dialysis unit I__I Emergency Department I__I Other	
11.	Who inserted the catheter?*	I__I Renal Unit staff I__I Interventional Radiology I__I ICU staff I__I Anaesthetics I__I Surgical staff I__I Other	

REDUCCTION CASE REPORT FORM

Site Number: I__I__I__I

Subject Number: I__I__I__I__I__I__I

12.	Reason for dialysis requiring central venous access*	I__I Acute Kidney Injury (proceed to Q16 /form complete) I__I Commencement of maintenance dialysis without functioning access (proceed to Q13) I__I Transfer from Peritoneal Dialysis (temporary or permanent) (proceed to Q15 /form complete) I__I Fistula thrombosis (proceed to Q16 /form complete) I__I Fistula infection (proceed to Q16 /form complete) I__I Graft thrombosis (proceed to Q16 /form complete) I__I Graft infection (proceed to Q16 /form complete) I__I Other: specify …….	
13.	For commencement of dialysis without functioning access patients only (2nd option in Q12)*	What is the patients relationship to a Renal Service (includes other Renal services outside of study site)	I__I New to any service (initial presentation within last 3 months) I__I New to any service (initial presentation within last 3-6 months) I__I Known to a renal service (patient seen within last 6 months) I__I Known to a renal service, lost to follow up (not seen within last 6 months) I__I Known to a renal service but has repeatedly refused access creation (within last 6 months)
14.	For commencement of dialysis without functioning access patients only (2nd option in Q12)*	Has the patient undergone attempts at access creation (including for peritoneal dialysis) prior to catheter insertion?	I__I Yes (proceed to Q15) I__I No (form complete) Proceed to Q16/form complete
15.	(To be answered only if Q14=yes)	How many attempts?	I__I once I__I twice or more

REDUCCTION CASE REPORT FORM

Site Number: I__I__I__I

Subject Number: I__I__I__I__I__I__I

Ongoing Interventions (within catheter period)*		
1.	Has the patient undergone any dialysis access related procedures (surgical or otherwise) within the life of this catheter?	I__I Yes I__I No (proceed to Q4/ form complete)
2.	Date of procedure DD/MM/YYYY	|__|__| / |__|__| / |__|__|__|__|
3	Procedure type	I__I Re-suturing of catheter I__I Thrombolysis to restore catheter patency (not as regular lock) I__I Creation of new AV fistula I__I Creation of new AV Graft I__I Insertion of new PD catheter I__I Revision of existing AV fistula or AV Graft I__I Thrombectomy +/- Angioplasty to a AV Fistula or AV Graft I__I Other: specify ……

Infectious Events*		
1.	Have there been any catheter related infectious events during the life of this catheter?	I__I Yes I__I No (If no proceed to Q10)
2.	Date of catheter related infection onset	|__|__| / |__|__| / |__|__|__|__|

3.	*Type of catheter related infection?* *If suspected please provide infectious event details to TGI* *More than one option can be elected*	I__I Proven catheter related bacteraemia I__I Suspected catheter related bacteraemia (pending TGI adjudication) I__I Suspected catheter related bacteraemia (TGI adjudication confirmed) I__I Tunnel related I__I Exit site infection I__I Other: specify……..	
4.	Were blood cultures taken within 7 days of the infectious event?	I__I Yes (proceed to Q5) I__I No (If no proceed to Question 9)	
5.		5a. Date blood cultures taken within 7 days of the onset of infectious event *(if more than one culture was taken, then record either the positive result or the one closest in time to the onset of the infectious event)*	|__|__| / |__|__| / |__|__|__|__|
		5b. Blood culture result	I__I culture positive I__I culture negative (proceed to Q6)
		5c. Type of Organism cultured	I__I Staph aureus I__I Staph epidermidis I__I Escherichia coli I__I Klebsiella pneumonia I__I MRSA (sensitive or resistant) I__I other: specify……..
6.	Was the catheter tip sent for culture analysis?	I__I Yes (proceed to Q7) I__I No, tip was not sent (proceed to Q8) I__I No, catheter was not removed (proceed to Q8) *Additional question triggered in catheter removal page (Q2)*	

REDUCCTION CASE REPORT FORM

Site Number: I__I__I__I

Subject Number: I__I__I__I__I__I__I

7.		7a. Date of catheter tip analysis	|__|__| / |__|__| / |__I__|__|__|
		7b. Analysis result	I__I culture positive I__I culture negative (proceed to Q8)
		7c. Type of Organism cultured	I__I Staph aureus I__I Staph epidermidis I__I Escherichia coli I__I Klebsiella pneumonia I__I MRSA (sensitive or resistant) I__I other: specify……..
8.	Were any swabs from the insertion site analysed? *(Report results for the swabs closest to the time of the infectious event)*	I__I Yes (proceed to Q9) I__I No (proceed to Q10)	
9.		9a. Date of swab analysis	|__|__| / |__|__| / |__I__|__|__|
		9b. Analysis result	I__I culture positive I__I culture negative (proceed to Question 10)
		9c. Type of Organism cultured	I__I Staph aureus I__I Staph epidermidis I__I Escherichia coli I__I Klebsiella pneumonia I__I MRSA (sensitive or resistant) I__I other: specify……..

REDUCCTION CASE REPORT FORM

Site Number: I__I__I__I

Subject Number: I__I__I__I__I__I__I

REDUCCTION CASE REPORT FORM

Site Number: I__I__I__I

Subject Number: I__I__I__I__I__I__I

Catheter removal*		
1.	Has the participant's catheter been removed? *Choose yes if it has been removed or is no longer under the care of the renal unit e.g. transferred to a non-REDUCCTION site*	I__I Yes (proceed to Q4) I__I No (proceed to Q2/3)
2.	Why was the catheter not removed? *To be answered only if Infection form specifies that infectious event has occurred.*	I__I No options for replacement of catheter I__I Good response to antibiotic treatment I__I Poor peripheral access I__I Other: specify……..
3.	Is there an intent to create non-catheter dialysis access in this patient?	I__I Yes (Form complete. Further follow up to be triggered in 2 weeks) I__I No (Form complete. Further follow up to be triggered in 4 weeks)
4.	Date catheter removed	|__|__| / |__|__| / |__|__|__|__|
5.	What was the primary reason for this catheter's removal	I__I No Longer Required I__I Poor flow I__I Extruded cuff I__I Local infection I__I Proven sepsis I__I Suspected sepsis I__I Changed catheter site/type to reduce complication risk I__I Patient discharge from our service I__I Patient death with catheter in-situ (Link to death page) I__I Patient transferred to non-REDUCCTION renal unit I__I Other: specify …….
6.	Was the catheter replaced?	I__I Yes (if yes, link to new catheter insertion form) I__I No

7.	What was the primary reason that this catheter was not replaced?	I__I Recovery of Renal Function I__I Functional Haemodialysis access (AVF or AVG) I__I Functional Peritoneal dialysis access I__I Withdrew from treatment I__I Transplant I__I Death (proceed to death page) I__I Other: specify …….

REDUCCTION CASE REPORT FORM

Site Number: I__I__I__I

Subject Number: I__I__I__I__I__I__I

Participant Outcome (death)			
1.	Date of death*	|__|__| / |__|__| / |__|__|__|__|	
2.	Cause of death	I__I Cardiovascular (proceed to Q4/ form complete) I__I Infection (If elected proceed to Q3). I__I Cancer (proceed to Q4/ form complete) I__I Other: specify …… (proceed to Q4/ form complete)	
3.	(Only to be answered if Q3= Infection)	Did the caring physician deem infection from the catheter as the cause of death?	I__I Yes I__I No
4.	Date of data entry	|__|__| / |__|__| / |__|__|__|__|	
5.	Data completed by	……	

Adverse Events		
1.	Has the participant experienced any adverse events (which are viewed as probably related to the study intervention)?*	I__I Yes I__I No (form complete)
2.	Date of adverse event onset	|__|__| / |__|__| / |__|__|__|__|
3.	Event type	I__I Allergy/Skin reaction I__I Catheter damage I__I Resistant organisms I__I Other: specify ……
4	Describe event	……
5.	Event outcome	I__I Ongoing (skip to Q7. Re-triggered until Q5 outcome resolved). I__I Resolved I__I Resolved with sequelae
6.	Date of event resolution	|__|__| / |__|__| / |__|__|__|__|
7.	Date of data entry	|__|__| / |__|__| / |__|__|__|__|

REDUCCTION CASE REPORT FORM

Site Number: I__I__I__I

Subject Number: I__I__I__I__I__I__I

Catheter removal*		
1.	Has the patient's catheter been removed?	I_1_I Yes (proceed to Q3) I_2_I No, patient discharged from our service: (proceed to Q2) I__I Will complete later
2.	Is the patient being discharged to another participating REDUCCTION Renal unit? More information: If you are unsure whether the unit is part of the REDUCCTION study, please refer to the REDUCCTION Site Directory or contact the study team for advice.	Date of transfer: |__|__| / |__|__| / |__I__|__|__| I_1_I Yes I_2_I No Site name: ……..(both options must complete free text entry)
3.	Date catheter removed	|__|__| / |__|__| / |__I__|__|__| I__I Will complete later
4.	Please specify the last dressing type used on this catheter prior to removal	I__I Semi-permeable, transparent dressing I__I Chlorhexidine impregnated patch I__I Chlorhexidine impregnated sponge I__I Alternative dressing (semi-permeable dressing not suitable for patient) |__| No dressing
5.	Was an antimicrobial locking solution used when this catheter was last accessed prior to its removal?	I__I Yes, anti-microbial citrate based lock I__I Yes, anti-microbial taurolidine based lock I__I Yes, anti-bacterial locking solutions (e.g. Gentamicin) I__I No |__| Will complete later

6.	What was the primary reason for the removal of this catheter?	I_1_I No Longer Required I_2_I Poor flow I_3_I Extruded cuff I_4_I Local infection I_5_I Confirmed sepsis I_6_I Possible sepsis I_7_I Changed catheter site/type to reduce complication risk I_8_I Patient discharge from our service I_9_I Patient death with catheter in-situ (Link to death page Q1 + skip Removals Q6 and 7) I_11_I Other: specify…….
7.	Was the catheter replaced?	I_1_I Yes (go to question 7) I_2_I No (go to question 8)
8.	Was this catheter re-wired?	I_1_I Yes (link to new catheter insertion page) I_2_I No (link to new catheter insertion page)
9.	What was the primary reason that this catheter was *not* replaced?	I_1_I Recovery of renal function I_2_I Functional Haemodialysis access (AVF or AVG) I_3_I Functional Peritoneal dialysis access I_4_I Withdrew from treatment I_5_I Transplant I_6_I Death (proceed to death page) I_7_I Other: specify ……. I_8_I Will complete later

REDUCCTION CASE REPORT FORM

Site Number: I__I__I__I

Subject Number: I__I__I__I__I__I__I

Post-Intervention Additional Questions

Catheter Insertion		
1.	Type of antiseptic solution used during insertion	I__I ≥2% chlorhexidine with 70% alcohol I__I povidone-iodine I__I 70% alcohol I__I Other: specify ……. |__| Not known |__| Will complete later
2.	Was an ultrasound device used TO GUIDE catheter insertion?	I__I Yes I__I No |__| Not known |__| Will complete later
3.	Type of dressing used at insertion	I__I Semi-permeable, transparent dressing I__I Chlorhexidine impregnated patch I__I Chlorhexidine impregnated sponge I__I Alternative dressing (semi-permeable dressing not suitable for patient) |__| No dressing |__| Will complete later
4.	Will an antimicrobial locking solution be used on this catheter?	I__I Yes, anti-microbial citrate based lock I__I Yes, anti-microbial taurolidine based lock I__I Yes, anti-bacterial locking solutions (e.g. Gentamicin) I__I No |__| Will complete later
18.	Was the patient given the REDUCCTION catheter care sheet within 24 hours of catheter insertion?	I__I Yes I__I NoI__I NA (NZ sites only) If no, Please provide reason:……

REDUCCTION CASE REPORT FORM

Site Number: I__I__I__I

Subject Number: I__I__I__I__I__I__I

Catheter Maintenance (To pop up when a catheter has been active for more than 28 days		
1.	Type of catheter dressing currently utilised on this catheter	I__I Semi-permeable, transparent dressing I__I Chlorhexidine impregnated patch I__I Chlorhexidine impregnated sponge I__I Alternative dressing (semi-permeable dressing not suitable for patient) |__| No dressing
2.	Is an antimicrobial locking solution currently being used on this catheter?	I__I Yes, anti-microbial citrate based lock I__I Yes, anti-microbial taurolidine based lock I__I Yes, anti-bacterial locking solutions (e.g. Gentamicin) I__I No |__| Will complete later
3.	What plan is in place at 28 days for future dialysis access?	I__I Expecting recovery of renal function (and no need for permanent access) I__I Expecting to use existing dialysis access after recovery/maturation I__I Surgery for permanent access creation is planned I__I Planned for permanent dialysis catheter use I__I No current plan I__I Other: specify:……

Catheter removal*		
1.	Please specify the last dressing type used on this catheter prior to removal	I__I Semi-permeable, transparent dressing I__I Chlorhexidine impregnated patch I__I Chlorhexidine impregnated sponge I__I Alternative dressing (semi-permeable dressing not suitable for patient) |__| No dressing

2.	Was an antimicrobial locking solution used when this catheter was last accessed prior to its removal?	I__I Yes, anti-microbial citrate based lock I__I Yes, anti-microbial taurolidine based lock I__I Yes, anti-bacterial locking solutions (e.g. Gentamicin) I__I No |__| Will complete later

Adverse Events		
1.	Date of adverse event onset	|__|__| / |__|__| / |__I__|__|__|
2.	Event type	I_1_I Allergy/Skin reaction I_2_I Catheter damage I_3_I Resistant organisms I_4_I Other: specify……
3.	Describe event	……
4.	Event outcome	I_1_I Ongoing (skip to Q7. Page not complete until options 2 or 3 elected) I_2_I Resolved I_3_I Resolved with sequelae
5..	Date of event resolution	|__|__| / |__|__| / |__I__|__|__|
6.	Does the Investigator believe that this adverse event was reasonably related to a component of the REDUCCTION study Intervention?	I_1_I Yes I_2_I No If yes, specify which component: ……