

# North Bristol NHS Trust Renal Transplant Telephone Clinic Quality improvement project

Final Report – September 2017

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## Executive summary

- From August 2016 to July 2017, 19 teleclinics were held involving 168 kidney transplant patients. On average, 11 patients were seen in each tele-clinic.
- The tele-clinics were introduced to improve patient experience, reduce productivity losses and limit the negative environmental impact of the travel required for face-to-face clinics.
- In collaboration with West of England Academic Health Science Network, we designed and ran a quality improvement project to introduce the clinics and measure their impact.
- Two over-arching 'Plan, Do, Study, Act' (PDSA) cycles were followed, with mini-PDSA cycles contained within:
  - PDSA1: Close management of tele-clinic process
  - PDSA: Embedding tele-clinic process in routine service
- 47.6% of the kidney transplant patients approached agreed to take part in tele-clinics.
- 2.9% of patients did not attend their tele-clinic appointment compared to the 6.9% baseline for face-to-face appointments.
- On average, 84.4% of blood test results were visible on the trust IT system for the tele-clinics and 74.8% were correctly carried out. However, at the end of the QIP, 90.9% were visible and the same percentage was correctly carried out. This is lower than the baseline for face-to-face clinics (96.5%). Improving both blood test quality and visibility was a major focus of activity during the project.
- Average consultation time for tele-clinics was 10.3 minutes.
- 97.9% of respondents were satisfied overall with their tele-clinic. 71.1% gave the highest rating of '6' to this question.
- The tele-clinic saved 3,527 miles of motorised travel in total. This equates to a saving of 1,035kgCO<sub>2</sub>.
- The project has shown that tele-clinics for kidney transplant patients at North Bristol NHS Trust are deliverable, safe and well received by patients.
- The importance of addressing blood test errors and primary care engagement were shown to be crucial factors. The project delivered modest financial savings, though the true financial picture has been hard to capture. For the work to embed tele-clinics to progress, addressing these issues will be essential.

## 1. Background and problem identification

- 1.1. Chronic kidney disease (CKD) is a common condition mainly affecting those over 65. One in 10 people in England live with chronic kidney disease (CKD)<sup>1</sup>. In the UK, 31,000 people have had a functioning kidney transplant. Patients with CKD stages 3 to 5 and those who have had kidney transplants need regular specialist monitoring<sup>2</sup>. In the NHS in England, this is routinely done at face-to-face appointments in renal centres. There are 52 renal centres in England with each drawing patients from large geographical areas. Patients require appointments at approximately 3-4 monthly intervals, although this varies depending on their individual disease severity. The service for kidney transplant patients is a specialised service commissioned by NHS England and the CKD service is commissioned by local Clinical Commissioning Groups (CCGs).
- 1.2. The number of people with CKD and a functioning kidney transplant is increasing, placing heavier demands on renal services, and particularly on outpatient capacity. This will require increased funding at a time when the NHS is working under unprecedented financial constraints. Furthermore, healthcare organisations have a duty to deliver improvements in quality and convenience of service, and reduce CO2 emissions. For these reasons, there is an increasing focus on delivering care closer to home<sup>3</sup>.
- 1.3. North Bristol NHS Trust Renal Unit covers an area extending to a radius of up to 50 miles for CKD patients and 80 miles for kidney transplant patients. Therefore, some patients have to travel large distances to attend appointments with associated costs both in terms of travel and productivity losses, such as time off work or leisure activities as well as environmental impacts. A significant proportion of these patients, who have stable kidney disease but need continued specialist monitoring, could potentially be managed through telephone consultations (known as 'teleclinics').
- 1.4. In 2013, the Chronic Kidney Disease Health Integration Team (CKD HIT)<sup>4</sup> agreed to pursue teleclinics as a priority work-stream. This cross-organisational team felt that this was an area where patient experience could be improved and cost savings for the local system could be made. This was based on patient experience reports to the renal unit commenting about difficulties with travel and parking for follow-up appointments. A survey of 96 renal transplant patients suggested that 59% of

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<sup>1</sup> UK Renal Registry. Think Kidneys. 2016. <https://www.thinkkidneys.nhs.uk/ckd/>

<sup>2</sup> National Institute for Health and Care Excellence. NICE Guidelines [CG182] Chronic kidney disease in adults: assessment and management, 2014.

<sup>3</sup> NHS England. Next steps on the NHS Five Year Forward View. 2017.

<https://www.england.nhs.uk/wp-content/uploads/2017/03/NEXT-STEPS-ON-THE-NHS-FIVE-YEAR-FORWARD-VIEW.pdf>

<sup>4</sup> Chronic Kidney Disease Health Integration Team [www.bristolhealthpartners.org.uk/health-integration-teams/chronic-kidney-disease-hit/](http://www.bristolhealthpartners.org.uk/health-integration-teams/chronic-kidney-disease-hit/)

patients would consider taking up the option of a telephone clinic appointment. We undertook a detailed qualitative interview of 11 patients from a pilot tele-clinic in Dec 2014 with the support of AHSN to get patient feedback and inform us of the teleclinic service model. The general consensus was that the telephone consultations were a good idea *as an addition* to regular face-to-face appointments. Most of the patients suggested that they would be happy to have every other appointment on the phone but would not want all their appointments replaced in this way. It was felt that they liked the reassurance of being physically 'seen' by a consultant. Our current model of alternating tele-clinic appointments with face-to-face appointments was based on this feedback.

## 2. Background research

- 2.1. There is currently no good evidence to support the safety and acceptability of tele-clinics for patients with CKD or renal transplant patients. Before proceeding with tele-clinics, we conducted several searches to identify potentially relevant studies.
- 2.2. We conducted systematic searches to identify studies of teleclinics in kidney patients and found two non-comparative evaluations. A report of three years' experience from one UK centre that uses a teleclinic for kidney transplant recipients concluded that if implemented appropriately the use of teleclinics for the follow-up of renal transplant recipients is safe, and confers environmental benefits<sup>5</sup>. However, no formal evaluation of this service has been conducted. A systematic review of the use of telehealth in nephrology concluded that although telehealth applications (not restricted to teleclinics) are currently being used successfully in the management of patients with CKD, compared to other chronic disease areas, the development of telehealth applications appears underutilised and under-researched<sup>6</sup>.

## 3. The intervention

- 3.1. Following agreement from NHS England, we piloted tele-clinics for renal transplant patients between August 2016 and July 2017. It was not possible to secure support to pilot tele-clinics with CKD patients from local CCGs.

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<sup>5</sup> Connor A, Mortimer F, Higgins R. The follow-up of renal transplant recipients by telephone consultation: three years experience from a single UK renal unit. *Clinical medicine (London, England)*. 2011 Jun;11(3):242-6. PubMed PMID: 21902076.

<sup>6</sup> Blinkhorn TM. Telehealth in nephrology health care: a review. *Renal Society of Australasia Journal* 2012;8(3):132-39.

- 3.2. The teleclinic intervention was designed at a collaborative workshop with patients, GPs, clinical and administrative staff from Bristol renal unit and was hosted by WEAHNS. The approach was approved by the senior medical team at the Renal Unit at NBT. We then formed a quality improvement project team to guide the project
- 3.3. The tele-clinic intervention was designed to have the following main features:
- Patients judged suitable for teleclinics by their specialist kidney doctors would be offered a telephone clinic appointment during which their symptoms, blood test results and blood pressure measurements would be discussed and advice given. Patient eligibility criteria were developed and consensus reached amongst Renal Consultants in North Bristol NHS trust (**Appendix A**). For this pilot, we selected stable kidney transplant recipients who are less likely to require physical examination or close monitoring in secondary care more frequently than every 3-4 months.
  - The telephone clinic would be offered to patients on an alternating basis with their face to face appointment based on feedback received from the qualitative interview from a pilot clinic as described above.
  - Patients were given the choice to opt-in during routine face-to-face clinic appointments if they were comfortable with the idea of tele-clinics. We created an electronic flag on our renal IT system to identify those opted to do and those who have refused the offer and the reasons for not taking up the offer. Those who chose to do tele-clinics were booked in to a tele-clinic as the next follow up appointment.
  - These patients would be sent an appointment invitation letter with instructions to get blood tests done ahead of the tele-clinic and encouraged to measure Blood Pressure (BP) either at home (self- monitoring through automated BP devices) or at their GP practice. After several deliberations with the laboratory teams and primary care partners, it was agreed that a blood test form with instructions on what blood samples and what tubes the blood samples need to be sent in would be incorporated in the appointment letter (**Appendix B** shows the final version following PDSA) that goes out from the central booking team and the trust bookings IT system 'Lorenzo'. Some of these blood tests were standard for all patients and they were preselected on the form. As different patients are on different immunosuppression medications for their kidney transplant, measurements of immunosuppression drug level were not preselected but required patients and the phlebotomists at GP practice to select them at the time of sampling. We also created a unique location code 'NBTRT' to inform the labs that the samples originated in primary care in relation to tele-clinics undertaken by NBT.
  - We agreed a Standard Operating Procedure (**Appendix C**) with all 7 pathology labs in the region (NBT, UHB, RUH, Taunton, Yeovil, Weston, Gloucester) so

that results from samples with this location code are forwarded to NBT renal team rather than to GPs to ensure that these results are adequately acted upon and to reduce additional workload for GPs in dealing with any abnormal results. The clinical laboratory systems in NBT, UHB, RUH, Weston are electronically linked to the renal IT system and results were automatically downloaded. Those in Yeovil, Taunton and Gloucester were not electronically linked and therefore reliant on paper copies of results to be forwarded to Renal unit to be manually entered by the renal administration team.

- 3.4. Initially, the telephone clinics were delivered by one consultant. By the end of the project, six consultants were delivering tele-clinics. We created promotional materials, alongside patient information leaflets that were reviewed by patient contributors and the Renal Unit's patient information lead.

## 4. Baseline measurement

- 4.1. Through completing a driver diagram (see **Appendix D**), it was clear that the availability of blood tests would be critical to the success of the project (and a significant departure from standard process which would need to be monitored). Therefore, we collected information from four face-to-face clinics to ascertain the baseline percentage of correct blood test results available (96.5%).
- 4.2. In part, the project aimed to reduce the number of patients not attending their face-to-face clinics by offering a more convenient option. Therefore, in the period August to October 2016 for Wednesday morning face to face clinics, we analysed the number of DNAs as recorded through our patient information system (6.9% of patients did not attend).
- 4.3. The driver diagram also sought the benefit of increased efficiency for the Trust. We anticipated that although tele-clinic consultation may require less time due to lack of need for physical examination, this could be balanced out by the lack of visual cues necessitating more in depth questioning and prolonged consultation time during a tele-clinic. Therefore, we collected the average length of consultation time for tele-clinics, excluding the time taken to review the case notes and do additional follow up actions such as prescribing immunosuppression medication through home delivery system. The allocated time for face-to-face clinics slot currently is 15 minutes.
- 4.4. In the absence of data for early cycles of the project, we reviewed whether it would be possible to create baseline information on patient satisfaction for face-to-face clinics. After exploring options, we identified that it was not possible to collect comparable information on patient satisfaction. However, prior to initiating the project, we identified both that tele-clinics would be supported by patients (survey of

96 renal patients suggested that 59% of patients would consider taking up the option) and that face-to-face appointments attracted significant complaints each month about parking and the outpatient environment.

## 5. Process mapping

5.1. As noted above, in collaboration with WEAHSN, we held a multidisciplinary workshop in December 2015 with patients, Renal consultant colleagues, renal administrative team, Central outpatients booking team, GP partners, transplant nurse specialists, Quality improvement experts from AHSN to map the process for tele-phone clinics. The output of this exercise is included below:

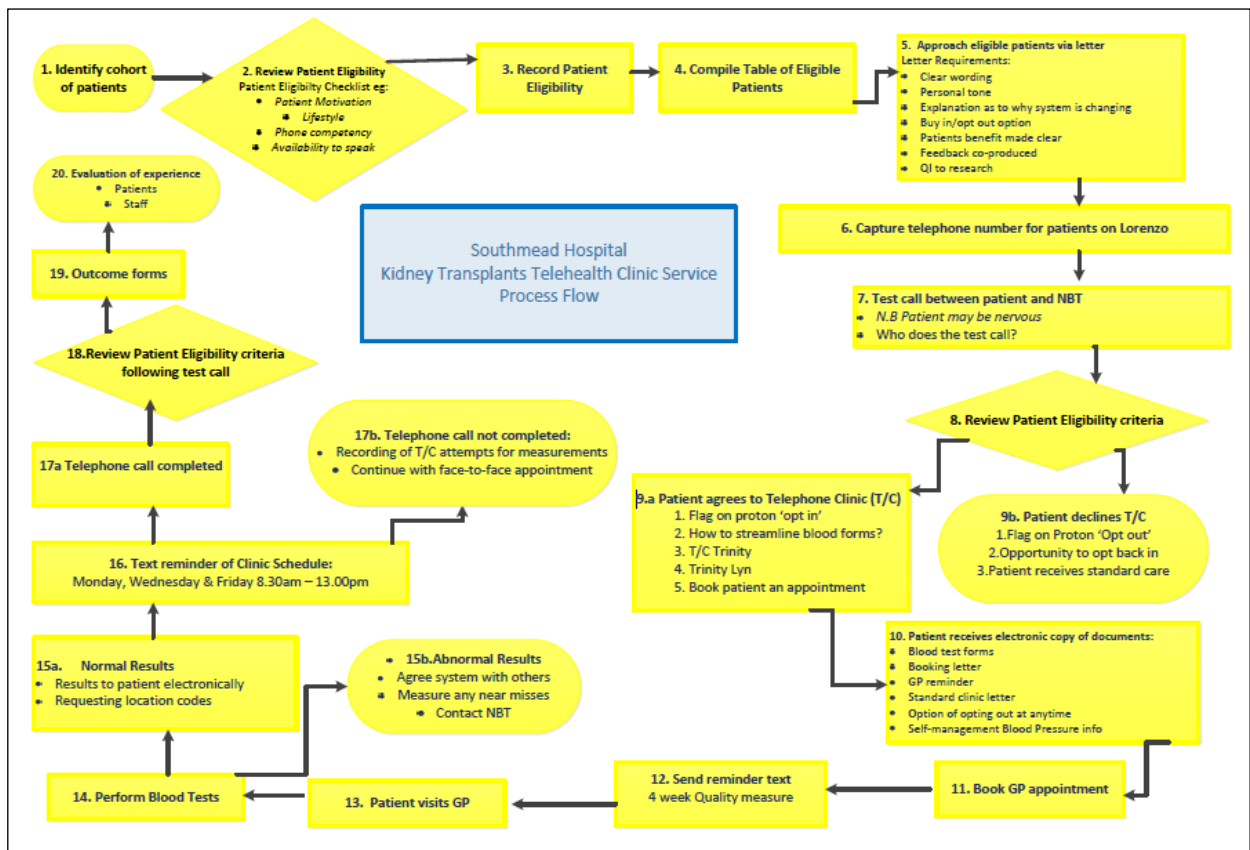


Figure 1: Process map for kidney transplant tele-clinics

## 6. PDSA cycle summary

6.1. This project had two over-arching PDSA cycles, with 'mini-PDSAs' contained within.

### PDSA cycle 1: Close management of tele-clinic process

As patients had the choice of opting in for the teleclinics, it was difficult to predict the demand for the service. We, therefore, decided to set up the clinic as and when required depending on the demand. Patients were added on to the waiting list on the patients booking system and a clinic was created as required. Between August 2016

and December 2016, our first cycle tested close management of these processes required to deliver tele-clinics. This cycle had the following features:

- Appointment bookings carried out by Renal Access co-ordinator.
- Specialist Transplant Nurse having regular engagement with patients to ensure that they had conducted blood tests and blood pressure monitoring.
- One consultant undertaking the tele-clinic at a frequency of one a month
- Mini-PDSA cycles on amendments to appointment letter process and text instructions to GP practices.
- Close liaison with local biomedical laboratories regarding blood tests to ensure results were forwarded appropriately to the renal unit.

### **PDSA2: Embedding tele-clinic process**

Between January 2017 and July 2017, our second cycle tested a more distributed model of managing tele-clinic processes. Main changes included:

- Additional consultants conducting telephone clinics. Second consultant consulted teleclinics January 2017 until March 2017 and additional 4 consultants joined in from April 2017.
- Frequency of clinics increased to 2 per month.
- Bookings done by NBT Outpatients Central bookings team.
- Medical secretaries reviewing visibility of blood test results two days before tele-clinic.

Based on findings from PDSA1, it was necessary to retain the following features:

- Mini-PDSA cycles on amendments to appointment letter and instructions to GP practices.
- Close liaison with local biomedical laboratories regarding blood tests.

6.2. To test the impact of these changes, and the overall effectiveness of the intervention, the project had the following measures:

<b>Measure</b>	<b>Detail</b>
<b>Process</b>	
Eligible patients that refused	Percentage of patients that were recorded eligible, approached but refused (and reasons why)
Percentage of patients that DNA	Baseline – Percentage of patients that DNA for face-to-face
	Score – Percentage of patients that DNA for tele clinic



Blood test quality	Baseline – Percentage of correct blood test results for face-to-face
	Score – Percentage of correct blood test results for tele clinics
Blood test visibility	Baseline - Percentage of blood test results available for face-to-face
	Score - Percentage of blood test results visible for tele-clinics either in renal IT system or NBT laboratory system
Average minutes per consultation and percentage complete in 15 mins	Baseline – Allocated time for face-to-face consultations
	Score – Consultant times length of tele clinic consultations ( only time spent on the phone)
<b>Outcome</b>	
Patient experience	Average overall satisfaction about tele clinic
Miles saved by patients	Average miles normally travelled to face-to-face
CO <sub>2</sub> emissions	Miles travelled combined with transport used
<b>Balancing</b>	
Number of unplanned admissions	Percentage of patients requiring urgent admission within one-month tele-clinic. This would potentially measure the safety of tele-clinics and any clinical deterioration that was not picked up during the tele-clinic consultation
Cost of service	Total cost per clinic (reduced tariff balanced by number of DNAs). We negotiated with specialist commissioners a £30 less tariff for tele-clinics compared to face to face clinics
Inappropriate and incorrect patients booked into tele-clinic	Number of inappropriate patients not eligible for tele-clinics booked into tele-clinics

Figure 2: Description of quality improvement project measures

## 7. Findings

### 7.1. Patients signing up to tele-clinics

7.1.1. In total, we initially approached 389 eligible kidney transplant patients. Of these, 185 (47.56%) agreed to take part. The most frequent reasons given for declining to take part were: preferring face-to-face interaction and not having issues with accessing the hospital for face-to-face appointments. Figure 3 summarises our analysis of the reasons why the remaining 52.4 % patients declined signing up to tele-clinics.

Reason for not participating	Number	Percentage
Prefer face-to-face interaction	76	19.5%
No response	66	16.9%
Accessing hospital is not an issue	48	12.3%
Unsure that could arrange blood tests	7	1.8%
GP refused to do blood tests	6	1.5%
Unsure that could arrange blood pressure readings	1	0.3%

Figure 3: Summary of reasons that patients declined to take part in tele-clinic pilot

## 7.2. Percentage of patients that did not attend

7.2.1. During the pilot, 2.9% of patients did not attend their tele-clinic appointment (n = 6). The chart below summarises the DNA rate for each tele-clinic. All reasons for DNAs were investigated. All were explained by individual factors (for example, patient that regularly DNA face-to-face clinics, also DNA tele-clinic) rather than being linked to any features of the intervention or the changes introduced and tested through PDSA cycles.

7.2.2. For face-to-face clinics, 6.9% of patients did not attend their appointment. Therefore, the pilot suggests that tele-clinics may reduce DNA rates.

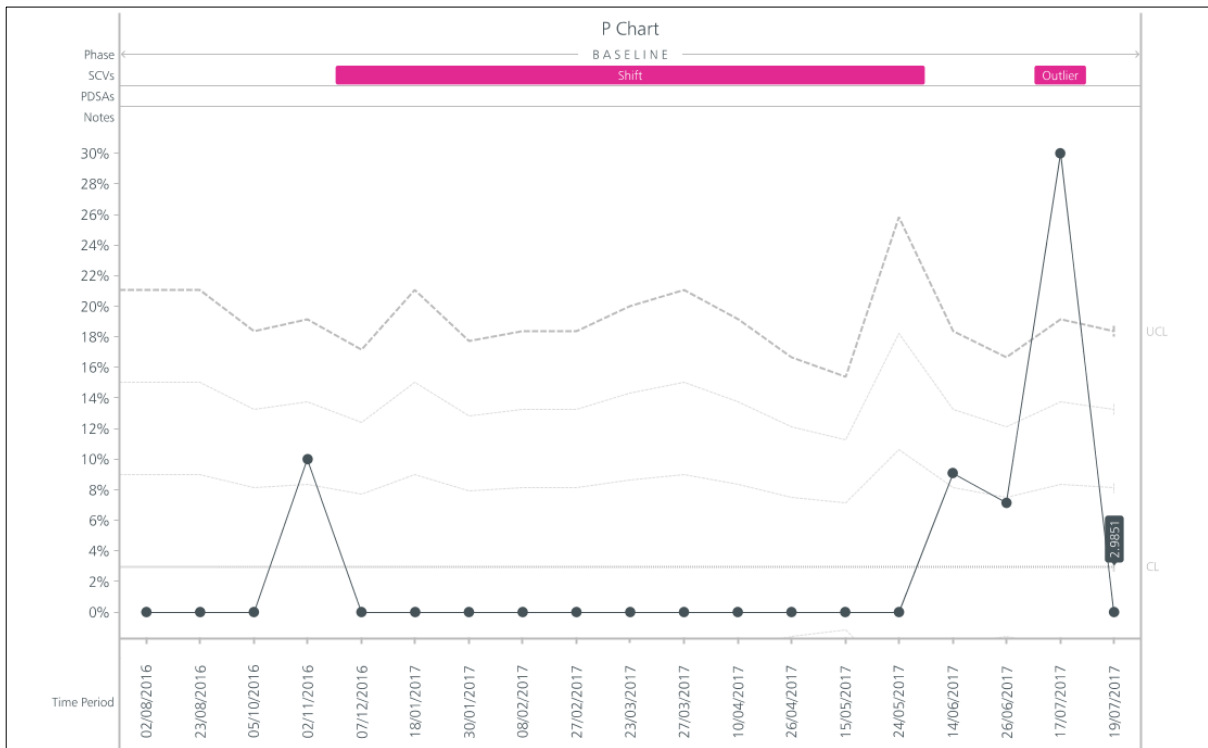


Figure 4: Percentage of patients taking part in tele-clinics that did not attend their appointment

### 7.3. Blood test quality

7.3.1. Throughout the pilot we measured how many patients' blood test results had been produced correctly. Our criterion for a 'correct' result was one that included all tests including immunosuppression drug levels requested.

7.3.2. As the blood test results were conducted in primary care (rather than being done at Southmead Hospital), there was reliance on both the patient and the professional taking the blood test to follow the instructions in the appointment letter. As this was new for primary care professionals and patients, the project team conducted several PDSA cycles to improve the instructions and therefore increase the quality of blood test results:

Mini-PDSA description	Blood test quality (average percent conducted correctly in PDSA period)
Mini-PDSA1: Sending the appointment letter with <2weeks notice to arrange blood tests (19 July 2016 > 2 August 2016)	25%
Mini-PDSA2:	90.5%

<p>increasing the notice to 4 weeks (2 August 2016 &gt; 5 October 2016)</p>	
<p>Mini-PDSA3: Amendments to the appointment letter to make it clearer what the patient needed to request and the levels to be taken. Patient feedback also suggested that patients found the number of blood pressure readings requested were too many. Based on this the requirement for BP readings were reduced. (12 October 2016&gt; 2 November 2016)</p>	90%
<p>Mini-PDSA4: Declines in blood test availability below the control limit prompted further changes to the appointment letter. These changes included: noting that it was essential for the form to be used and kept safe by the patient and improved checkbox layout. This coincided with the clinics rolled out to other consultants and the booking process was managed by the central booking team. The transplant nurse specialist also ceased to individually call patients to ensure that the correct blood tests were done. Patient feedback and liaison with local laboratories clarified that this was due to blood test forms being filled out incorrectly. (18 January 2017 &gt; 8 February 2017)</p>	64.5%
<p>Mini-PDSA5: Amendments in mini-PDSA4 did not yield sufficient improvements to blood test quality. Therefore, the appointment letter changed to take a different approach – with very clear ‘step-by-step’ instructions for both patients and primary care staff.  The initial impact of this change was unclear. Blood test quality went above and below control limit for the first six tele-clinics. The final four tele-clinics all saw quality levels above the control limit. (9 February 2017 &gt; 19 July 2017)</p>	84.5%

Figure 5: Summary of mini-PDSAs to improve blood test quality

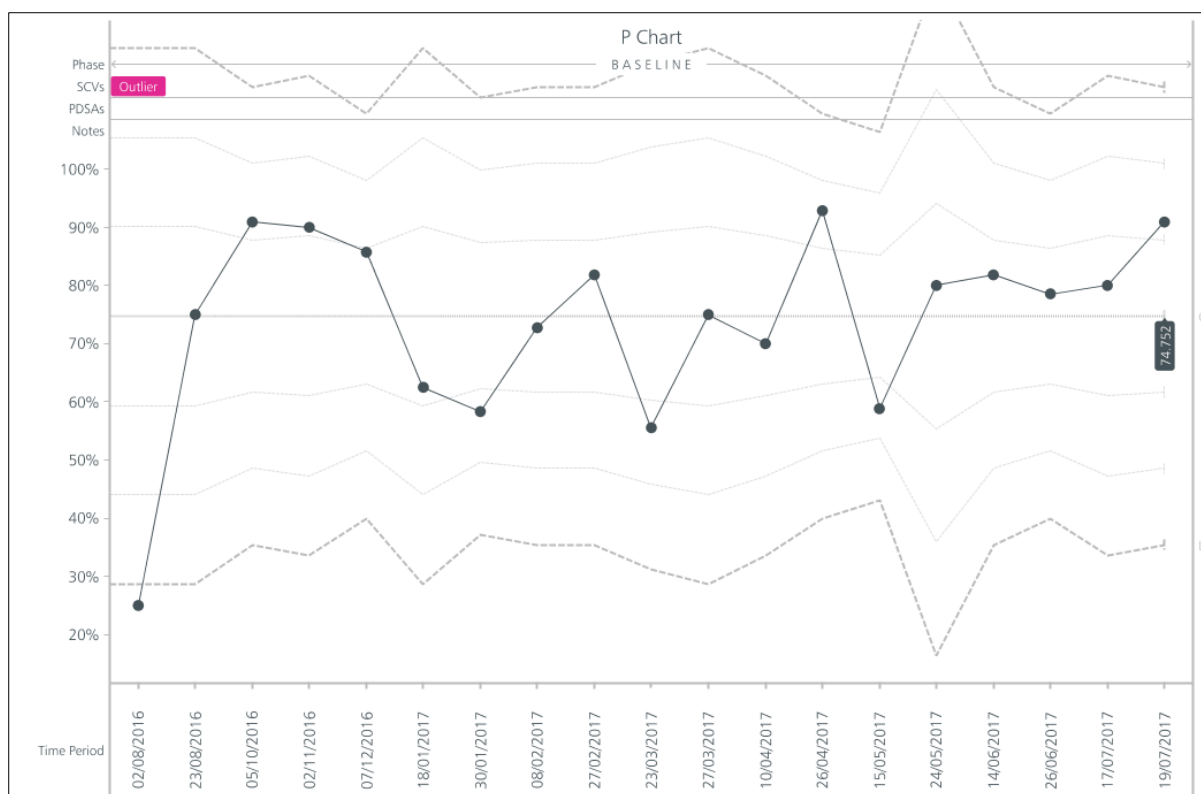


Figure 6: Blood test quality (percentage of correct results conducted for each telephone clinic)

7.3.3. During the pilot, overall 74.8% of blood tests were produced correctly. The blood test quality in the final PDSA cycle ended up at 90.9%. However, this is lower than the figure for face-to-face clinics (96.5%). Unlike the face-to-face clinic, where blood tests are done by few trained renal phlebotomists, blood tests are undertaken by multiple staff members within several GP practices. We acknowledged the inherent limitations in this model and accepted that the blood test quality for tele-clinics is unlikely to match with the figures for face-to-face clinic results. The results that were often missed or incorrectly done were the immunosuppression drug levels. A missing single immunosuppression drug level does not adversely affect clinical decision making as we mostly rely on trends in immunosuppression drug levels to adjust dosing. Follow up of these patients with missing results in subsequent face-to-face clinics did not identify any adverse events relating to incorrect results.

#### 7.4. Blood test visibility

7.4.1. For the tele-clinics to be viable, it was essential for consultants to be able to see the blood test results before and during the consultation. This relied on biomedical laboratories around the region being sufficiently well linked to North Bristol NHS Trust's systems for results from samples sent by GP practices to appear in time for the tele-clinic. A result was defined as 'visible' if it was

available through the Renal IT system or the Trust Clinical Laboratory system. The clinician could still access results that were not visible on the renal IT system by calling the local laboratories. However, this required additional time spent during the tele-clinic chasing the results. In the final mini-PDSA cycle, we introduced an additional step whereby, the renal secretarial team check 48 hours prior to the tele-clinic to ensure that all results are visible on the renal IT system and if required contact the local laboratories that were not electronically linked to get the results.

7.4.2. At the start of the project, results from all laboratories in NBT, UHB, RUH and Weston were accessible. Towards the end of the QIP in July 2017, we were able to get the remaining laboratories in Taunton, Yeovil, electronically connected and results were automatically downloaded on to the renal IT system. Gloucester is not still electronically linked and rely on paper copies of results to be sent to us. Throughout the project, follow-up with laboratories was required to chase results that were not visible.

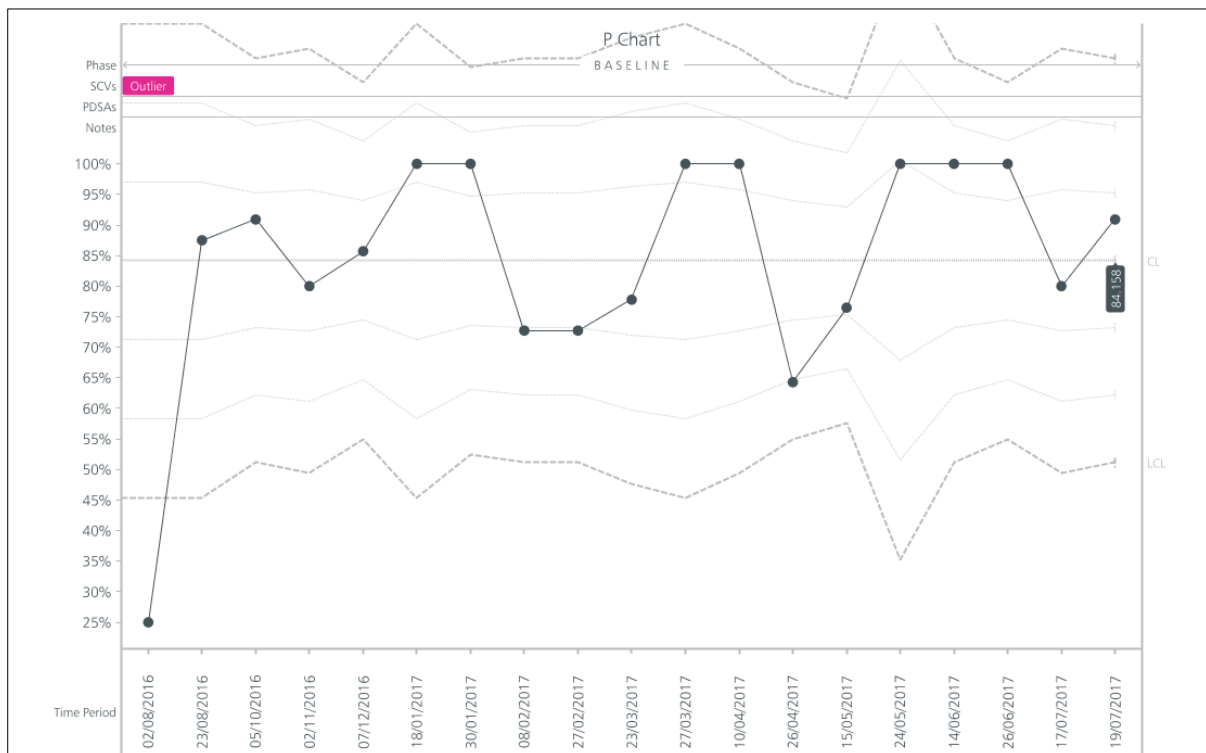


Figure 7: Percentage of blood tests results visible for tele-clinics

7.4.3. The main reasons for results not being visible were:

- Blood test forms ( with location code NBTRT) not accompanying the samples sent by GP practices.

- Instead locally generated labels used by primary care staff on blood samples and therefore results forwarded back to GPs and not to renal unit.
- Lack of awareness of protocol for processing results accompanied by blood test from with NBTRT location code among all laboratory staff.

7.4.4. On average, 84.4% of blood test results were visible for the tele-clinics.

## **7.5. Length of tele-clinics**

7.5.1. A standard face-to-face clinic allocated time is 15 minutes. We anticipated that although tele-clinic consultation may require less time due to lack of need for physical examination, this could be balanced out by the lack of visual cues necessitating more in depth questioning and prolonged consultation time during a tele-clinic. The chart below gives the average call length for each session. Across all tele-clinics, the average call length was 10.3 minutes. The figures from January 2017 are an average for all consultants who have done the tele-clinic. This included only time spent on the phone to a patient and excluded time spent on additional duties such as reviewing case notes, chasing blood test results that are not visible on the renal IT system or prescribing immunosuppression medications. There is a trend towards reduced length of consultation time over the course of the QIP. This could be due to the fact that clinicians becoming more familiar with the conduct of the tele-clinic. We also had developed a standard tele-clinic template to facilitate the consultation process (**Appendix E**).

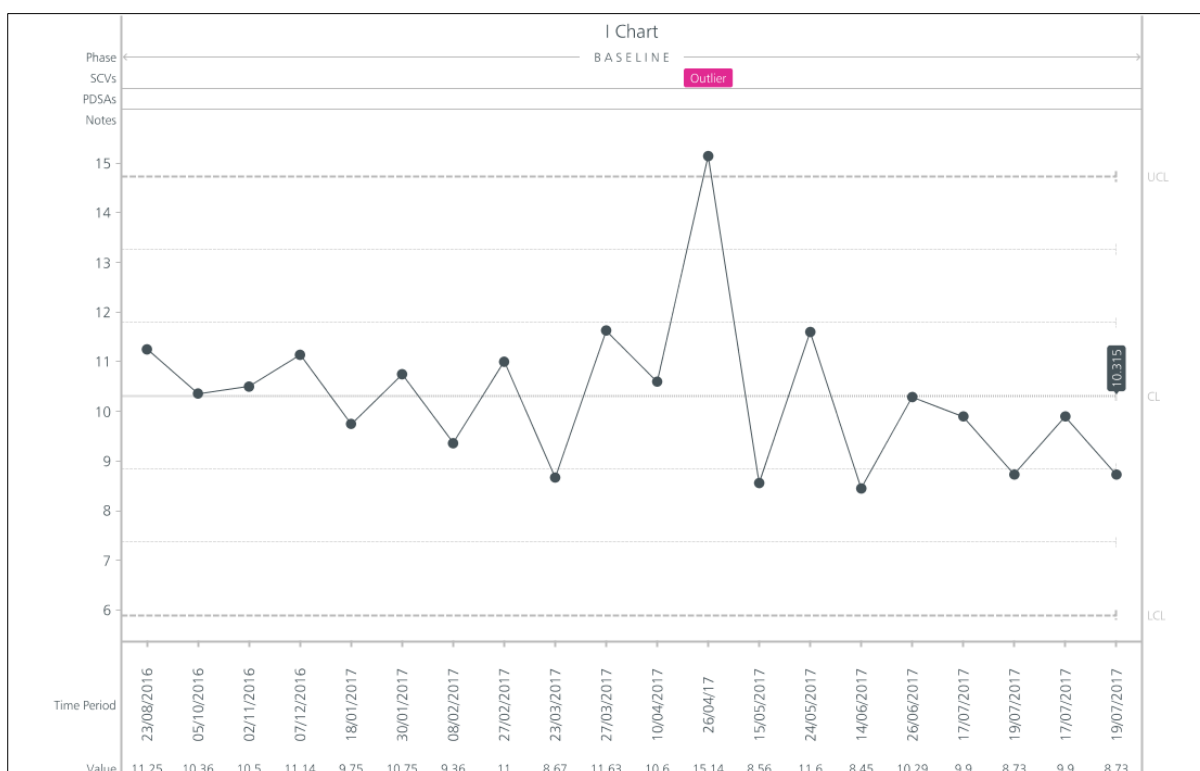


Figure 8: Average length of telephone call

## 7.6. Patient experience

7.6.1. There were 97 responses to the patient satisfaction survey (57.7% response rate). Surveys were sent by post and through the Survey Monkey website. A summary of findings is presented in the table below. A rating of '6' is the highest level of satisfaction, '1' is the lowest. '0' was chosen by a small number of patients when a statement wasn't relevant (for example, if they hadn't been able to arrange a blood test). The full report of patient experience findings can be found at **Appendix F**.

	Percentage of respondents by rating						
	6	5	4	3	2	1	0
Patient information sheet	64.9%	25.8%	6.2%	2.1%	0.0%	0.0%	0.0%
Information in advance -blood pressure & test	53.6%	27.8%	11.3%	5.2%	0.0%	0.0%	2.1%
Ease - blood test	53.6%	20.6%	15.5%	6.2%	2.1%	0.0%	1.0%
Ease - blood pressure	73.2%	10.3%	8.2%	3.1%	0.0%	0.0%	1.0%
Overall satisfaction	71.1%	20.6%	6.2%	1.0%	0.0%	1.0%	0.0%
Would you recommend?	77.3%	16.5%	3.1%	2.1%	0.0%	0.0%	0.0%

Figure 9: Summary of patient ratings of tele-clinics



7.6.2. 97.9% of respondents were satisfied overall with their tele-clinic. 71.1% gave the highest rating of '6' to this question. Positive comments about the experience focused on the quality of the conversation itself and the convenience of conducting by phone. More negative comments tended to focus on what might be lost through telephone interaction rather than face-to-face sessions, or specific comments about challenges in arranging blood tests.

7.6.3. 96.9% of respondents indicated that they were satisfied with the patient information sheet. Suggested improvements included a more tabular presentation and more tailored blood pressure monitoring chart which were incorporated.

7.6.4. Nearly 90% of respondents indicated that they found it easy to arrange blood tests in advance of their tele-clinic. Difficulties with arranging blood tests included: arranging a GP appointment in time and GP practice reluctance to conduct tests.

7.6.5. 91.7% of respondents found it easy to take blood pressure readings. This was largely due to many respondents having these monitors at home. Those that found it more difficult suggested that this was due to having to take more readings than required for face-to-face clinics.

7.6.6. There was a slim majority (52.6%) of respondents that were willing to take part in video consultations.

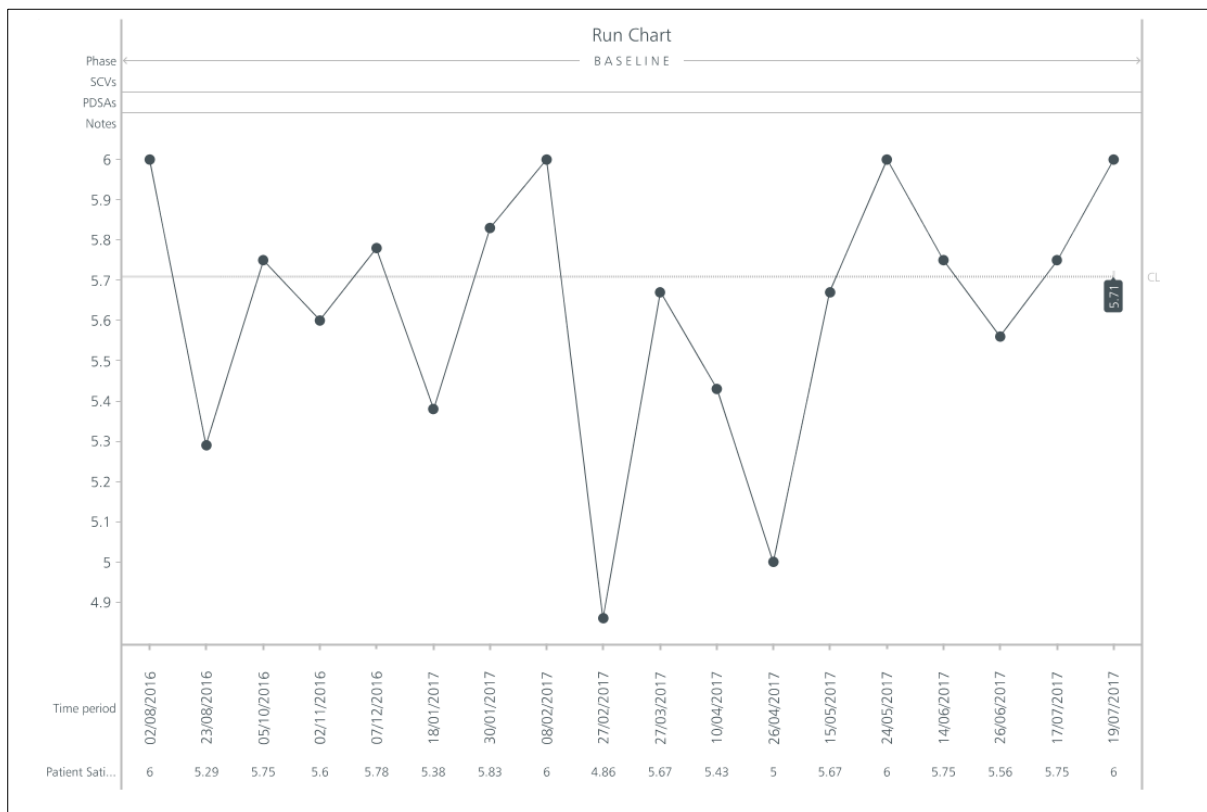


Figure 10: Average overall satisfaction score for each tele-clinic

## **7.7. Estimated reduction in CO<sub>2</sub> emissions**

7.7.1. The average distance normally travelled by patients to their face-to-face appointments was 36.4 miles. The tele-clinic saved 3,527 miles of motorised travel in total.

7.7.2. This equates to a saving of 1035kgCO<sub>2</sub><sup>7</sup>. This was calculated using the National Energy Federation's Carbon Calculator. It is an estimated figure based on the miles travelled by different transport mode and the carbon associated.

## **7.8. Patients requiring urgent follow-up within one-month tele-clinic**

7.8.1. This measure was in place to ensure the safety of the tele-clinics. There were no unplanned admissions for the patients taking part in the tele-clinics.

## **7.9. Cost of service**

7.9.1. The tariff for transplant tele-clinics was £188, this is £30 less than the standard face-to-face rate of £218. The service provided an immediate saving to commissioners of £6,060<sup>8</sup>.

7.9.2. Generating a definitive cost saving for the tele-clinic project has proved challenging due to the way that activity and costs are recorded in secondary care. Isolating the total specific costs for a face-to-face clinic versus a tele-clinic has not been possible. This would be a valuable area for future research.

## **7.10. Inappropriate and incorrect patients booked into tele-clinic**

7.10.1. We have been testing whether patients have been booked into tele-clinics who do not meet the eligibility criteria. When first booked into tele-clinics, all patients met the criteria for being an 'appropriate' patient.

7.10.2. In total 3 inappropriate patients were booked into the tele-clinics.

- One patient had developed dementia so was no longer eligible.
- One patient had been seen for a face-to-face clinic the week before.
- One was a patient that regularly DNAs face-to-face clinic appointments and did not pick up their phone call.

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<sup>7</sup> National Energy Federation [www.carbon-calculator.org.uk](http://www.carbon-calculator.org.uk)

7.10.3. There were two booking errors made in PDSA2 when the responsibility for bookings transferred to the central team. As noted above, one patient had been booked into a tele-clinic when they had very recently had a face-to-face clinic. Another was sent two appointment letters, one for a tele-clinic and one for a face-to-face clinic.

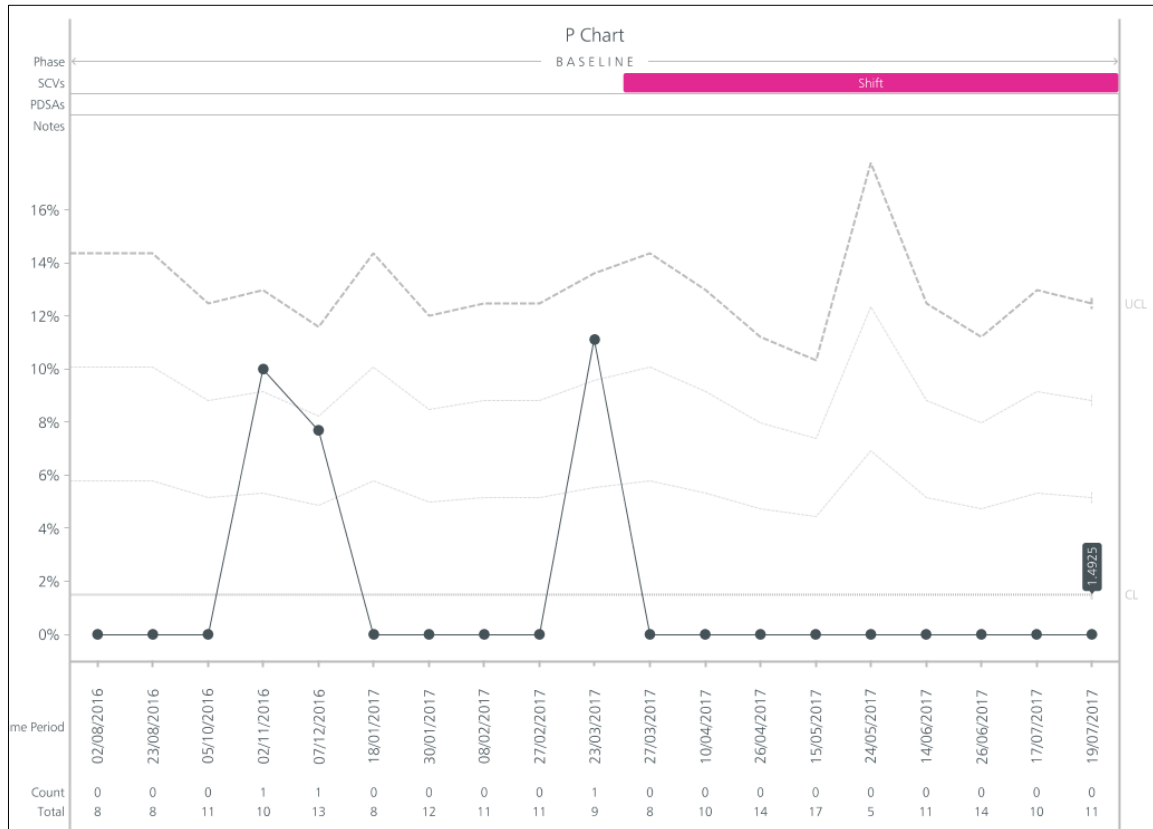


Figure 11: Percentage of inappropriate patients booked in to tele-clinics

## 8. Lessons and limitations

### 8.1. Primary care engagement

8.1.1. The success of the tele-clinics relied heavily on primary care's willingness to conduct blood tests without a formal agreement for these costs to be reimbursed. Due to the small volume of patients per practice needing this service, it was possible to sustain this for the pilot. However, six GP practices decided not to support the pilot due to the lack of reimbursement. While efforts were made to explain the purpose and benefits of the pilot, there could have been earlier engagement with Local Medical Committees. We have not been able to engage with CCGs and GP practices due to STP reconfiguration and other competing priorities for the CCGs. Addressing this issue will be essential for the service to become embedded and sustainable long term. Due to some

GP practices refusing to do blood tests, this has created some inequity in access to tele-clinic service.

## **8.2. Interest in tele-clinics**

8.2.1. We anticipated higher demand for tele-clinics (59%) than observed for this project (47.56%). This figure, gathered through this project, draws on a larger number of patients and can be used for more accurate planning of future tele-clinic services. We have also identified the reasons for patients declining tele-clinics. This gives a platform for future attempts to recruit suitable patients to tele-clinics.

## **8.3. Financial benefits**

8.3.1. While we have been able to identify several financial and efficiency benefits arising from the project, we have not been able to produce a definitive picture of the cost of tele-clinics versus face-to-face clinics. Collaboration with health economists, potentially through the CLAHRC West<sup>9</sup> might help to address this gap.

## **8.4. Blood test errors**

8.4.1. Close liaison with regional labs was essential to ensure patients' blood tests were visible and high quality. After every tele-clinic, follow-up was required. It was not possible to record the time taken to conduct these activities. While this added resource requirements, it also yielded improved systems linkage and processes. This benefited not only tele-clinics, but also improved wider results reporting for transplant patients at a faster pace than might have otherwise been the case.

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<sup>9</sup> Collaboration for Leadership in Applied Health Research and Care West: <https://clahrc-west.nihr.ac.uk/>

## 9. Conclusion

- 9.1. Using tele-clinics for kidney transplant patients at North Bristol NHS Trust has been shown to be deliverable, safe and well received by patients. This project has created a worthwhile, replicable model for introducing tele-clinics.
- 9.2. The importance of addressing blood test errors and primary care engagement were shown to be crucial factors. The project delivered modest financial savings, though the true financial picture has been hard to capture. For the work to embed tele-clinics to progress, addressing these issues will be essential.

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**Appendix A: Telephone clinic eligibility criteria for kidney transplant patients**

>1 year post-transplant?	
No rejection episodes in last 6 months?	
No new immunosuppressive drugs in the last 6 months	
Rate of decline in eGFR $<5\text{ml}/\text{min}/1.73\text{m}^2/\text{year}$	
Patient agrees to alternating telephone and face-to-face clinic appointments?	
No other issues that could affect tele-consult ( eg: hearing, patient motivation, lifestyle)	
Check preferred contact telephone numbers available on proton	

**If yes to all 7 criteria, choose TELEPHONE CLINIC as next appointment**

## Appendix C: Standard Operating Procedure for tele-clinic blood tests

### Renal Telephone Clinic : Summary of Laboratory aspects

- NBT Renal team to start quality improvement scheme 1/7/16. This will be audited and patient satisfaction will be reviewed.

- Patient selection for Renal telephone clinic by using agreed criteria

>1 year post-transplant?	
No rejection episodes in last 6 months?	
No new immunosuppressive drugs in the last 6 months	
Rate of decline in eGFR <5ml/min/1.73m <sup>2</sup> /year	
Patient agrees to alternating telephone and face-to-face clinic appointments?	
No hearing difficulties or learning difficulties that could affect tele-consult	
Check preferred contact telephone numbers available on proton	

- Patient consents to being seen in renal telephone clinic

- When the patient's clinic appointment is due the NBT appointments booking clerk will send out a letter alerting the patient that this is a telephone appointment and to the date and time. Attached to this letter will be instructions for the patients GP (or phlebotomy service) and a tear off paper request form to send with the bloods.

- Bloods arrive at local laboratory. Specimen reception to enter requestor as "Generic Renal Consultants NBT" and location code to NBTRT.

- Local laboratories to set up process to either send bloods to NBT for processing or proceed with testing but generate a paper report to be sent to:

Bev O'Dwyer  
Renal Office  
Gate 10, Level 6  
Brunel Building  
Southmead  
Bristol  
BS10 5NB  
(Tel: 01174147697 or Fax: 01174149463)

- Any samples for tacrolimus/sirolimus/ciclosporin to be sent to NBT blood sciences for processing. Samples are stable so that if bloods are taken on Friday they can be kept in the fridge over the weekend and sent on Monday.

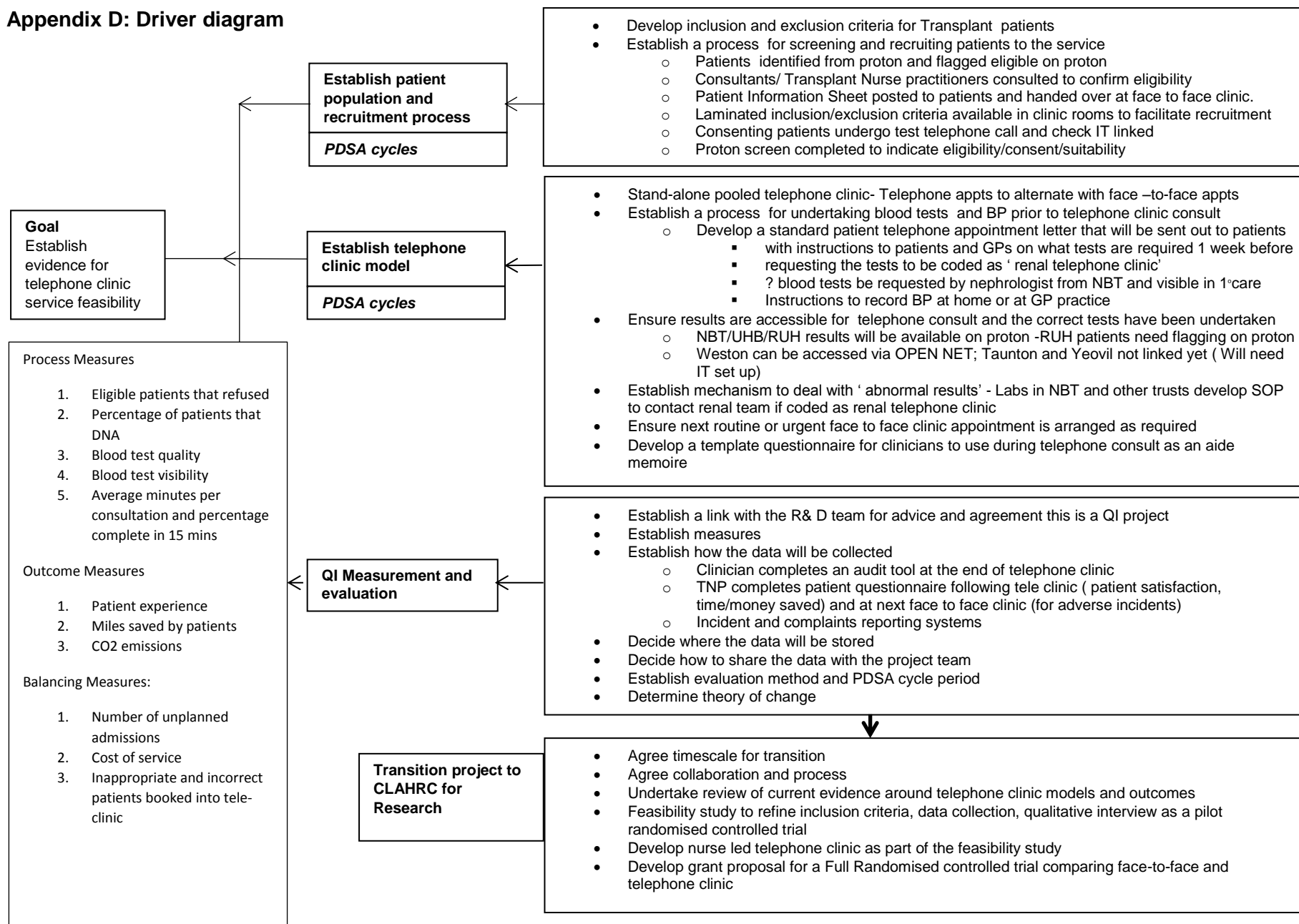
Send to:  
Severn pathology

Blood sciences building  
North Bristol NHS Trust  
Southmead Hospital  
Bristol  
BS10 5NB

- Any abnormal results that fulfil the individual labs telephoning criteria to be phoned to NBT Renal team. Contact via switchboard on 0117 9505050 and ask for the renal registrar (direct on call mobile number 07710388857) between 0800-0000 and the Renal Consultant between 0000-0800.



## Appendix D: Driver diagram





**Appendix E: Standard tele-clinic template for consultants**

# **Kidney transplant telephone clinic consultation checklist**

Symptoms review

Issues since last review

Involvement from other specialties

Bloods review- if not available then organise

BP and weight review and record in notes

Medication review

Medication supply including CISS Script if needed

Any questions?

Is an early face-to-face clinic required?

In your opinion was this patient suitable for tele-consult? If not state reasons

Follow-up appointment (should have alternating telephone and face-to-face clinic, therefore specify this on outcome form) ..... weeks/months

## Appendix F: Patient experience report

### Introduction

As part of the quality improvement project to introduce telephone clinics for kidney transplant patients, a patient satisfaction survey was circulated after each clinic took place. Results were monitored throughout the project to ensure feedback could be addressed.

Of the 168 individual patients that took part in the telephone clinic quality improvement project, 97 provided feedback. This represents a 57.8% return rate. 56.7% of respondents replied through the web survey and 43.3% by post.

The report that follows summarises the findings from these survey responses. The survey questions are included at **Annex A**.

### Headlines

- **97.9%** of respondents were **satisfied overall** with their teleclinic. 71.1% gave the highest rating of '6' to this question. Positive comments about the experience focused on the quality of the conversation itself and the convenience of conducting by phone. More negative comments tended to focus on what might be lost through telephone interaction rather than face-to-face sessions, or specific comments about challenges in arranging blood tests.
- **96.9%** of patients would recommend the teleclinic format to other patients with their condition.
- **96.9%** of respondents indicated that they were **satisfied** with the **patient information sheet**. Suggested improvements included a more tabular presentation and more tailored blood pressure monitoring chart.
- **89.7%** of respondents indicated that they found it **easy to arrange blood tests** in advance of their teleclinic. Difficulties with arranging blood tests included: arranging a GP appointment in time and GP practice reluctance to conduct tests.
- **91.7%** of respondents found it **easy to take blood pressure readings**. This was largely due to many respondents having these monitors at home. Those that found it more difficult suggested that this was due to having to take more readings than required for face-to-face clinics.
- **52.6%** of respondents would be willing to take part in **video consultations**. Comments from those who would not be willing to take part or those that were unsure were largely due to not having access to or practice with facilities, or not seeing the benefit.
- The **average distance** normally travelled by these patients was **36.4 miles**. The teleclinic saved 3,527 miles of motorised travel in total.
- The **average time saved** for patients was **2 hours**.

### Information provided in advance

Patients were asked to comment on the quality of the patient information sheet received about the telephone clinic service and the quality of information about recording blood pressure and doing blood tests.

	Very satisfied			Very dissatisfied			
	Rating 6	Rating 5	Rating 4	Rating 3	Rating 2	Rating 1	Rating 0
Patient information sheet	64.9%	25.8%	6.2%	2.1%	0.0%	0.0%	0.0%
Information in advance -blood pressure & test	53.6%	27.8%	11.3%	5.2%	0.0%	0.0%	2.1%

Comments about the information sheet included:

*“Clearly explained everything that I needed to have prepared prior to the visit”*

*“It was very comprehensive”*

*“Everything was set out very clearly and made it easy to understand.”*

*“If you are making reference to the letter I received, it was very basic and not what I would describe as a "information sheet". I considered my telecon with [Specialist Transplant Nurse] of greater benefit, awarding that at least a 5”*

Suggested improvements to the information sheet:

*“A more tabular presentation, at least summarising the main points, may be a possible improvement.”*

Comments on the information about blood tests

*“As the form was designed for patients with high blood pressure it probably asked for too many tests to be undertaken. although it is better than the snapshot that is taken when attending outpatients.”*

*“Chart for recording bp could have been clearer. Could these results be recorded straight into patient view, so the clinicians would have the details before the consultation.”*

*“Looked a bit confusing and daunting (the long list of recording spaces)”*

*“Easy to do”*

## Ease of blood tests and blood pressure readings

Patients were asked about their experience of arranging blood tests and blood pressure readings.

	Very easy			Very difficult			
	Rating 6	Rating 5	Rating 4	Rating 3	Rating 2	Rating 1	Rating 0
Ease - blood test	53.6%	20.6%	15.5%	6.2%	2.1%	0.0%	1.0%
Ease - blood pressure	73.2%	10.3%	8.2%	3.1%	0.0%	0.0%	1.0%

Comments about blood test:

*“Had blood test prior to telephone consultation, everything all went fine”*

*“I don't think that my surgery has faced this type of request before - this morning it appeared that there was still one test result missing. I am sure it will be easier in the future.”*

*“My appointment letter arrived late so it was quite a rush to get sorted”*

*“Never got blood test done at GP as working find it hard to find a good time”*

*“Appointments at my GP are never easy to get”*

*“They were a bit suspicious but went along with it anyway”*

*“Nurse wasn't too pleased with doing all & sending off”*

*“Comments from surgery regarding the abbreviations used for the bloods required. Due to this being a very rural practice I am the only transplant patient they have had and dealt with. So although 'you' know what this means a bit of explanation for the GP's would be helpful.”*

*“For my GP surgery, timing is all-important. I was fortunate on this occasion. They only book appointments up to 4 weeks in advance and at about the two week point, they can have no places left!”*

Comments about blood pressure:

*“I already had a blood pressure monitor at home.”*

*“Readings asked for over the top, when going to clinic there was only one reading taken!”*

*“Immediate Walk-In facility available as well as a nurse supervised weekly session.”*

*“We happen to have a monitor at home and I had already been recording them for some time”*

## Overall satisfaction & recommending the service to others

Patients were invited to consider their overall satisfaction with the telephone clinic.

	Very satisfied			Very dissatisfied		
	Rating 6	Rating 5	Rating 4	Rating 3	Rating 2	Rating 1
Overall satisfaction	71.1%	20.6%	6.2%	1.0%	0.0%	1.0%

Comments about the overall experience:

*“No different to talking face-to-face. The main advantage for me was it was all very relaxed, no tiredness from travelling and time saved not travelling.”*

*“It was so much better than putting aside a whole morning to go to Southmead Hospital. I felt I was able to discuss any problems and listen to [name of doctor]’s advice .”*

*“It is a good idea but feel more reassured attending an outpatient clinic”*

*“My main concern is that I don’t think that I had met the Doctor conducting the clinic before. While he had my hospital notes I did not feel that he had the familiarity with me and my conditions.”*

*“It seemed to be a longer time to talk than when you go into the hospital. I think it was because you can be more prepared whilst you are at home.”*

*“The only downside was that the blood results were not available for neither the renal team nor myself to see or analyse”*

*“Actually spoke to consultant that is rare normally. I had to go to Southmead to give blood as there was issue with GP bloods but that at S'mead so just bad luck, they were latter corrected. All else went fine.”*

	Yes, I would definitely recommend			No, I would definitely not recommend		
	Rating 6	Rating 5	Rating 4	Rating 3	Rating 2	Rating 1
Would you recommend the telephone consultation to someone else with your kind of renal condition?	77.3%	16.5%	3.1%	2.1%	0.0%	0.0%

Comments about whether patients would recommend:

*“Yes, I thought it went very well in fact better than I expected. As long as the standards are the same as this first appointment I would recommend it.”*

*“this depends on their confidence in managing their condition, and their familiarity with their drug regime”*

*“Anyone that’s stable like myself I found it ok. Would have been an issue if I did not drive to get bloods done.”*

*“Yes - but only if they lived a long way away. I much prefer the face to face interaction - it always feels a little more reassuring. It is also easier in the sense of not having to organise a separate appointment for blood”*

*“Yes but only if stable for some time”*

## Video consultations

Willingness to take part in video consultation	
Yes	52.6%
No	23.7%
Not sure	23.7%

Comments about video consultations:

*“I have not got a computer”*

*“Yes but not sure why this would be needed. I prefer telephone or come into clinic.”*

*“Never really used skype”*

*“I believe this could be the better option. I have Skye facilities but not in use. I feel a use of this would overcome my greatest concerns expressed in 5 above. (\*My biggest concern is the loss of other judgement through sight and sound of a patients well being)”*

*“I use Skype for work and find it invasive on a one-to-one basis. I'm not sure what added value it would give to the consultation”*

## Distance travelled and time saved

The average distance normally travelled to and from the hospital was 36.4 miles. The longest distance reported was 140 miles and the shortest was 1 mile.

Mode of transport	
Car	82.5%
Hospital transport	4.1%
Public transport	8.2%
Walking/cycling	2.1%

Saved 1035kgCO<sub>2</sub><sup>10</sup> - or about 3,527 miles of motorised travel.

The average time saved was 2 hours. The largest amount of time saved was 7.5 hours. 260 hours and 15 minutes total were saved for patients by the tele-clinics.

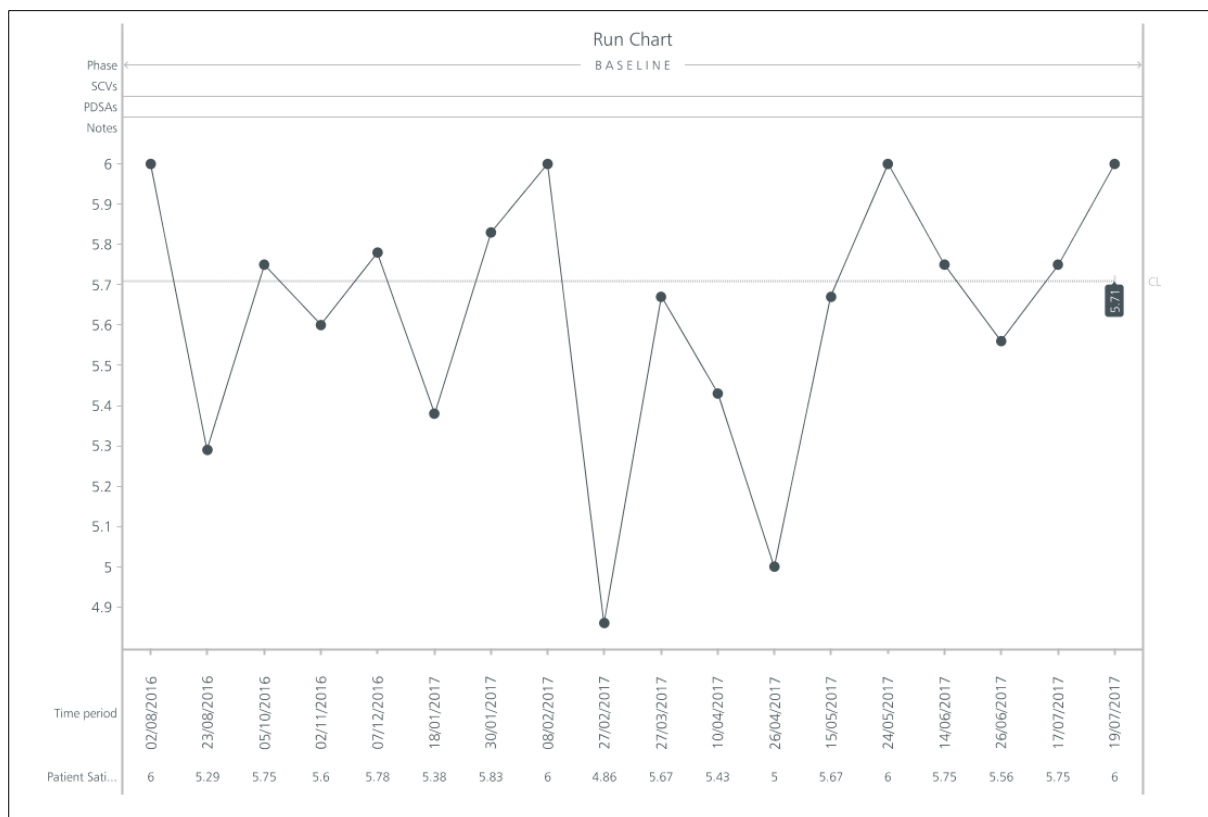
<sup>10</sup> National Energy Federation [www.carbon-calculator.org.uk](http://www.carbon-calculator.org.uk)



## Employment status

Employment status	
Employed	24.7%
Self-employed	11.3%
Out of work and looking for work	2%
Out of work but not currently looking for work	5.2%
A student	0%
Retired	33%
Other	6.2%

## Variation by clinic



The chart above describes the average overall satisfaction rating for each teleclinics (NB no data were returned for 23 March 2017 clinic). The lowest rating was 4.86 on 27 February 2017. Caution should be applied when interpreting these results due to the small sample sizes. There does not appear to be any significant variation in overall satisfaction by clinician.