Understanding barriers and outcomes of unspecified (non-directed altruistic) kidney donation from both professional's and patient's perspectives: research protocol for a national multicentre mixed-methods prospective cohort study

Gare, Rebecca; Gogalniceanu, Petrut; Maple, Hannah; Burnapp, Lisa; Clarke, Alexis; Williams, Lynsey; Norton, Sam; Chilcot, Joseph; Gibbs, Paul; Mitchell, Annie; McCrone, Paul; Draper, Heather; Mamode, Nizam

Published in:
BMJ Open

DOI:
10.1136/bmjopen-2017-015971

Publication date:
2017

BMJ Open

Understanding barriers and outcomes of unspecified (non-directed altruistic) kidney donation from both professional's and patient's perspectives: research protocol for a national multicentre mixed-methods prospective cohort study

Rebecca Gare,[1] Petrut Gogalniceanu,[1] Hannah Maple,[1] Lisa Burnapp,[1,2] Alexis Clarke,[3] Lynsey Williams,[3] Sam Norton,[4] Joseph Chilcot,[4] Paul Gibbs,[5] Annie Mitchell,[3] Paul McCrone,[4] Heather Draper,[6] Nizam Mamode[1]

To cite: Gare R, Gogalniceanu P, Maple H, *et al*. Understanding barriers and outcomes of unspecified (non-directed altruistic) kidney donation from both professional's and patient's perspectives: research protocol for a national multicentre mixed-methods prospective cohort study. *BMJ Open* 2017;**7**:e015971. doi:10.1136/bmjopen-2017-015971

► Prepublication history and additional material are available. To view these files please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2017-015971).

Received 19 January 2017
Revised 28 June 2017
Accepted 5 July 2017

For numbered affiliations see end of article.

Correspondence to
Professor Nizam Mamode;
nizam.mamode@gstt.nhs.uk

ABSTRACT

Introduction Living donation accounts for over one-third of all kidney transplants taking place in the UK.[1] The concept of anonymously donating a kidney to a stranger (non-directed altruistic or unspecified kidney donation (UKD)) remains uncomfortable for some clinicians, principally due to concerns about the motivations and long-term physical and psychological outcomes in this donor group.

Aims The research programme aims to provide a comprehensive assessment of the unspecified donor programme in the UK. It aims to identify reasons for variations in practice across centres, explore outcomes for donors and ascertain barriers and facilitators to UKD, as well as assess the economic implications of unspecified donation.

Methods The research programme will adopt a mixed-methods approach to assessing UKD nationally using focus groups, interviews and questionnaires. Two study populations will be investigated. The first will include transplant professionals involved in unspecified kidney donation. The second will include a 5-year prospective cohort of individuals who present to any of the 23 UK transplant centres as a potential unspecified living kidney donor. Physical and psychological outcomes will be followed up to 1 year following donation or withdrawal from the donation process. A matched sample of specified donors (those donating to someone they know) will be recruited as a control group. Further qualitative work consisting of interviews will be performed on a purposive sample of unspecified donors from both groups (those who do and do not donate).

Dissemination The findings will be reported to NHS Blood and Transplant and the British Transplant Society with a view to developing national guidelines and a protocol for the management of those presenting for unspecified donation.

Strengths and limitations of this study

- This is a prospective, mixed-methods study using both qualitative and quantitative methods to answer complex questions regarding barriers to service delivery.
- This is a widely multi-professional study drawing experiences from a variety of fields (surgery, medicine, psychology, psychiatry, ethics, NHS Blood and Transplant).
- This study will assist in the development of national guidelines and a protocol in conjunction with NHS Blood and Transplant and the British Transplant Society.
- The study method will capture resource utilisation by unspecified donors providing a novel understanding of the economic implications of the unspecified donation process.
- There is a risk of not capturing individuals who are disengaged/disappointed in the process of unspecified kidney donation.
- The study relies on a large number of individuals participating and is based on the assumption that unspecified donation rates with continue to occur at the same rates as prior years.
- This study relies on the referrals of donors from coordinators across the country, and we may not be able to capture every enquiry or expression of interest.

Trial registration number ISRCTN23895878, Pre-results.

INTRODUCTION

Live donor kidney transplant recipients have the best outcomes in terms of survival and

function post-transplantation. Currently, over one-third of all kidney transplants taking place in the UK are from living donors. A growing subset of living donors consists of individuals who choose to donate a kidney to someone that they have not previously met. These are called 'unspecified kidney donors' (UKDs) or 'non-directed altruistic' donors. Over 500 unspecified donations have taken place in the UK since the practice was introduced in 2006 and it currently accounts for approximately 11% of living donations per year.[1]

Recipients of living donor kidneys are provided with a long-lasting, high-quality organ that is usually sufficient to avoid dialysis for an extended period of time.[2] Organs from UKDs can provide this opportunity for those without a living donor, some of whom would have a low chance of receiving a deceased donor organ from the waiting list due to sensitisation. Additionally, UKD's organs can be further used by introducing them into the National Kidney Sharing Scheme. This involves kidney exchanges between pairs of donor and recipients who cannot otherwise proceed due to immunological incompatibility. A kidney from a UKD can be used to convert these exchanges into a 'chain' primed by the UKD (figure 1). In this way, the UKD donates to the first recipient, whose donor then subsequently donates to another recipient, and so on. The chain then terminates with donation to an individual on the deceased donor waiting list. In the USA, this has resulted in 30 transplants occurring from a single UKD.[3] In the UK, 47% of UKDs have been used to prime short chains of two transplants, and the UK Living Donor Strategy aims for 75% to be used for chains, with three transplants in each chain, by 2020[4].

Despite the increase in UKD in the UK, this practice is not permittedin many European countries and is uncomfortable for some healthcare professionals, principally due to concerns about the motivations, characteristics and outcomes in this group of donors.[5] We have previously performed the largest quantitative study of psychosocial and physical outcomes in UKDs, where we sampled a national cohort of all 148 UKDs in the UK over the first 5 years of the programme and compared them with a regional sample of 148 specified kidney donors (SKDs,

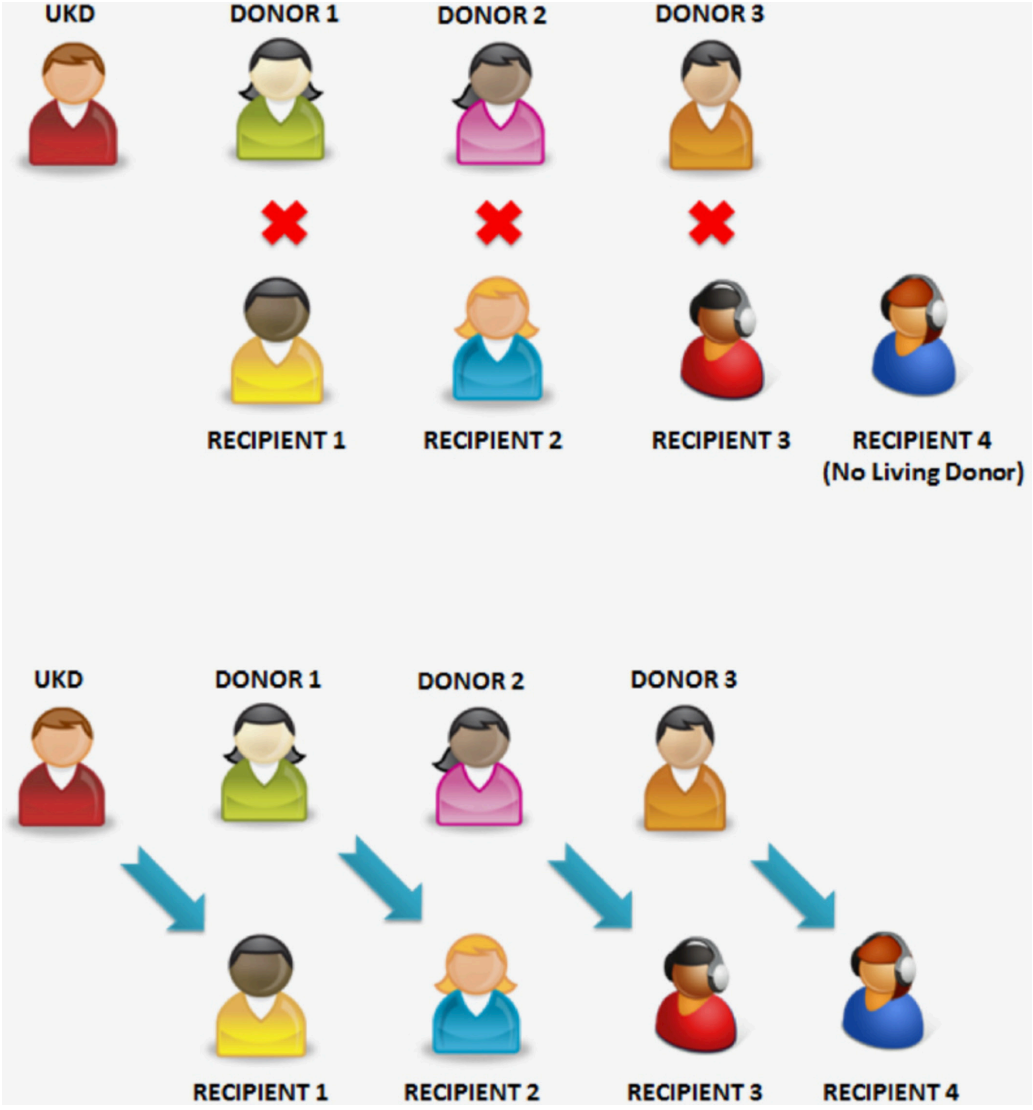

Figure 1 Illustration of an altruistic donor chain, primed by an unspecified kidney donor (UKD).

those who donate to someone with whom the donor has an existing emotional relationship).[6] All donors were sent a questionnaire that included a range of validated psychosocial outcome measures and questions specific to their donation. Physical outcome data were obtained from the NHS Blood and Transplant (NHSBT). This study found that both physical and psychosocial outcomes were comparable between UKDs and SKDs, which suggests that clinician concerns may be unfounded. The limitations of this study were in its retrospective design and the inherent bias associated with this. While we were able to analyse physical outcome data for the entire cohort, we were unable to determine whether those with poor psychosocial outcomes were within the non-responders and therefore not captured as part of the study. In addition, this study demonstrated a broad variation in donation rates across the country, with no obvious underlying reason.

A number of potential deterrents to UKD have been highlighted in our previous qualitative work and through consultation with UKDs in the development of this study.[7] For example, we have previously found that barriers to donation may exist within families where there is tension over the decision to donate altruistically and that there may be a role for transplant services to support families in this situation.[7] UKDs have also reported experiencing scepticism and resistance from some of the healthcare professionals they encountered. The psychiatric assessment (which is no longer legally mandatory but is considered current best practice) was also described as a difficult experience for UKDs who felt that they had to prove their sanity.[7]

AIMS AND OBJECTIVES

The aim of this research programme is to perform a comprehensive assessment of the unspecified donor programme in the UK. Its objectives are to establish:

1. Whether variation in practice and attitudes across the UK is unnecessarily preventing some unspecified donation.
2. Whether psychosocial and physical outcomes after unspecified donation are equal to those in specified donors.
3. The economic benefit of unspecified donation.

Ethical dimensions and implications of unspecified donation will also be explored. The programme's data will be used to develop national guidelines and inform transplant teams' decisions about potential donors.

METHODS AND ANALYSIS

Design

This is a mixed-methods research programme investigating unspecified kidney donation in the UK over a period of 5 years.

Research questions

The study will be asking three main questions based on the research objectives listed above:

1. RQ1: Is there variation in transplant professionals' (TPs) practice and attitudes, which is preventing some unspecified living kidney donations? (Protocol in online supplementary file 1)
2. RQ2: Are psychosocial and physical outcomes after unspecified donation equivalent to those after specified donation? (Protocol in online supplementary file 2)
3. RQ3: What is the economic benefit from unspecified donation?

In order to answer these three research questions, a mixed-methods design will be used, incorporating

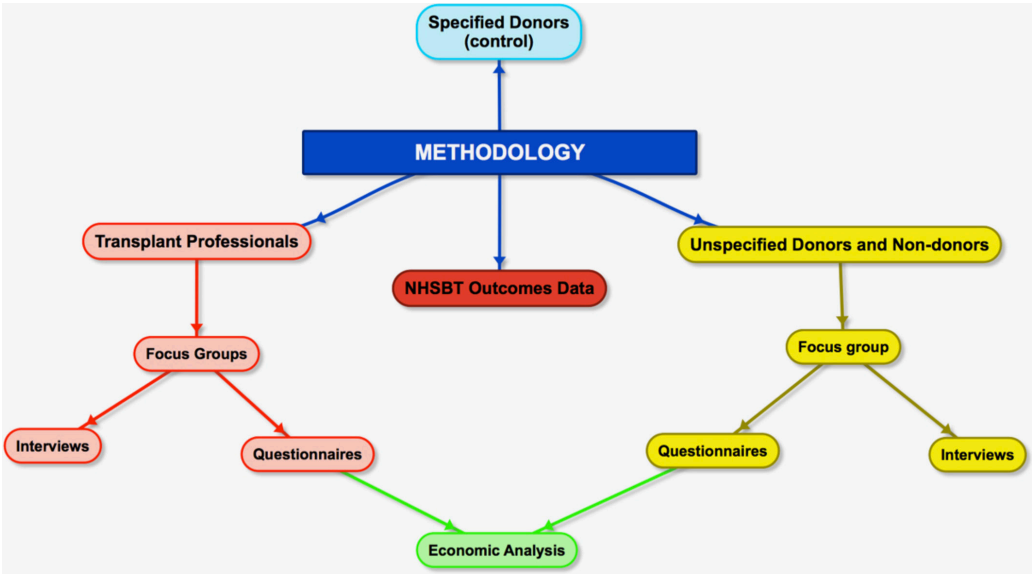

Figure 2 Bound study methodology. NHSBT, NHS Blood and Transplant.

questionnaires to obtain quantitative data and interviews and focus groups to obtain qualitative data (figure 2). The third question, related to health economics, will be answered using embedded data capture elements within the first two research questions.

RQ1 TPs' Perspective

This substudy defines TP as any healthcare professional that may come in contact with a potential unspecified donor. These include renal transplant physicians, surgeons, transplant coordinators, nurses involved in transplantation, psychologists and independent assessors, as well as administrative staff from all 23 UK centres. Answering this research question will involve three stages. The first stage will involve focus groups, led by qualitative researchers, in which the views of TPs regarding UKD will be ascertained. Focus groups will be undertaken in four centres, chosen according to their volume of donations. This will allow sampling from two centres with higher donation rates and two centres whose rates are among the lowest. The data obtained will undergo thematic analysis, and the key themes identified will be extrapolated. This data will be used to inform the subsequent stages. The second stage will involve questionnaire development, from the themes generated by the focus groups. The questionnaires will form the basis of a series of prospective cohort studies, which will help ascertain broader, nationwide attitudes towards unspecified kidney donation, as well as current working practices in the different transplant centres. The questionnaires will be disseminated using professional networks to all UK TPs. The third stage will involve in-depth qualitative interviews that will be conducted with TPs selected from six centres, again chosen according to their donation volume. These interviews will provide a more detailed understanding of professionals' views and will additionally help add meaning to the data obtained from the prospective cohort studies (questionnaire based).

RQ2 Donors' Perspective

Two focus groups will be held to assist in informing the development of study-specific questionnaires. The first focus group will involve individuals that have proceeded to donate a kidney as a UKD, while the second will involve individuals who presented as potential UKDs, but who did not proceed to donate. Themes emerging from the focus groups will be identified using thematic analysis, and questions specific to UKD will be written and validated by the research team. These questions will subsequently become part of larger questionnaires, which will also include validated psychosocial outcome measures capturing data on a range of different factors.[8–17] Validated psychosocial outcomes measures will include: the Client Service Receipt Inventory,[8] Rosenberg Self-esteem Scale,[9] Generalised Anxiety Disorder 7-Item Scale,[10] Multi-dimensional Scale of Perceived Social Support,[11] Ten-Item Personality Measure,[12] Decision Regret Scale,[13] Patient Health Questionnaire (PHQ-9),[14] Satisfaction with Life Scale,[15] Flourishing Scale[16] and the Quality of Life Health Survey (SF-12).[17]

The questionnaires will be used as part of a longitudinal cohort study with four intervention points, as determined by participants' progress through the donation pathway. All those presenting to a transplant centre as a potential UKD will complete a baseline questionnaire. The second questionnaire will be given immediately prior to donation or immediately after the donor is withdrawn from the assessment process. The final two questionnaires will be given at 3 and 12 months after donation or withdrawal.

The study population will consist of all those individuals approaching a transplant centre with an interest in becoming an unspecified donor, irrespective of whether they subsequently donated or not. Potential specified donors will be used as the control population. Due to the fact that not all those who present as potential donors go on to donate, the study will result in two test groups and two control groups (figure 3).

1. Test group 1: potential unspecified donors who proceed to donation.
2. Test group 2: potential unspecified donors who do not proceed to donation (either due to personal choice or withdrawal by the clinical assessors).
3. Control group 1: potential specified donors who proceed to donation.
4. Control group 2: potential specified donors who do not proceed to donation (either due to personal choice or withdrawal by the clinical assessors).

Qualitative interviews will also be completed with a sample of 15 UKDs who completed their donation, 15 UKDs who withdrew and 15 UKDs who were withdrawn from the process by the transplant team. Participants will be asked about their experience of the donation process and services, barriers and enablers to donation and outcomes from either donating or withdrawing from the process. These interviews will take place 3 months after donation or withdrawal from the donation process.

The data collected will be compared with and supplemented by each donor's NHSBT records. These will be used to provide physiological outcome data as well as information regarding the donation procedure for each participant. Physiological data will be collected before and after donation, as well as at 12 months following donation, as per national donor follow-up protocol. NHSBT data will be collected retrospectively once a participant completes the 12-month questionnaire or earlier should they choose to withdraw from the study. Consent to obtain NHSBT data will be obtained through the initial study participation consent form. A formal request for data use has been approved by NHSBT and has been subsequently ratified by the Ethics Committee.

RQ3 economic outcomes of unspecified kidney donation

The economic effects of living kidney donation will be determined by examining the impact of donation on healthcare and societal costs for specified and unspecified donors, using the Client Service Receipt Inventory

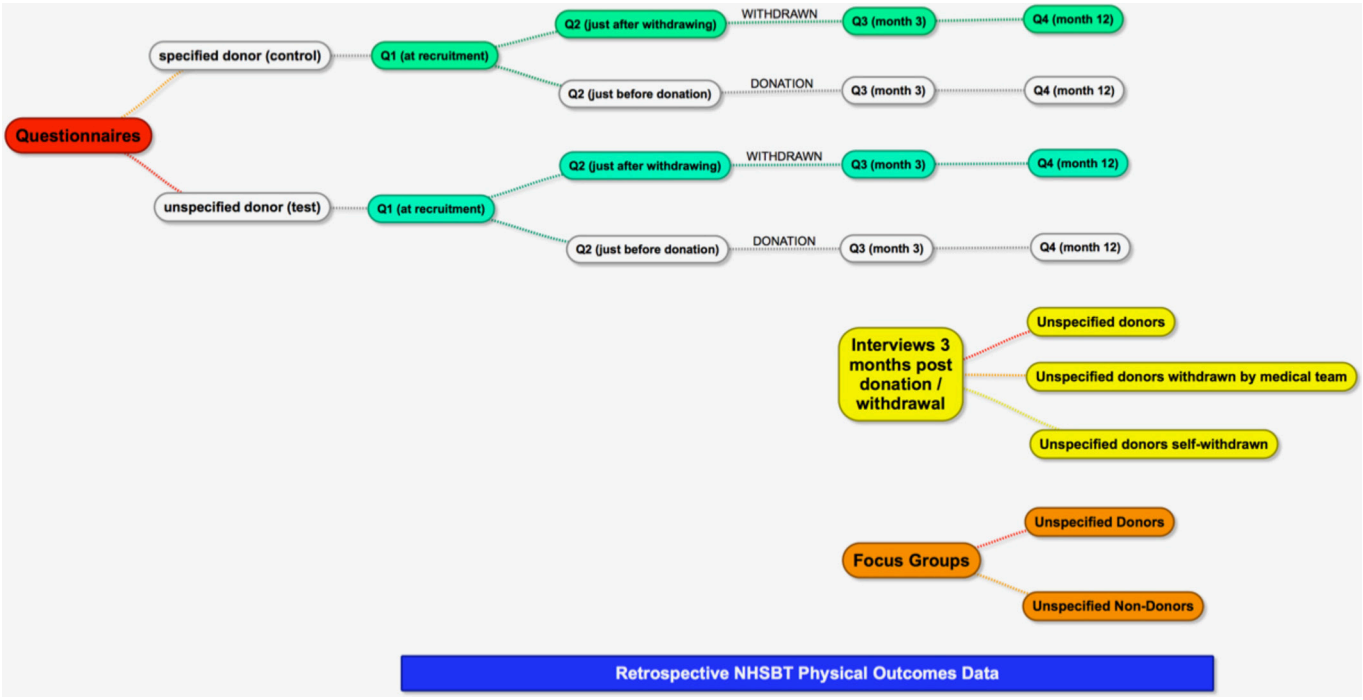

Figure 3 Research question 2: participant flow chart. NHSBT, NHS Blood and Transplant.

(CSRI) questionnaire.[8] CSRI has been widely used and will be adapted and customised to reflect the healthcare services used in kidney donation. It will be administered in self-reported questionnaires to donors and will aim to determine the type and frequency of specific health services accessed.

ELIGIBILITY CRITERIA

Participants eligible for RQ1 recruitment include any TP that has had contact with unspecified donors.

Participants eligible for RQ2 recruitment include any individual that makes contact with a transplant centre to enquire about unspecified donation and proceeds beyond the initial telephone conversation, as well as being able to give informed consent. Non-English speakers will be included, and adequate translation facilities will be provided.

Individuals who have already begun the donation work-up process at the time of study commencement will also be eligible for recruitment provided they are more than 2 weeks away from donation. Control participants will be recruited from those individuals known to a transplant centre for the purposes of donating a kidney to a known individual (specified donors) using the same inclusion criteria. Enrolment can be found in figure 4.

ENROLMENT

Recruitment to the questionnaire for professionals' study (RQ1) will be through professional networks. Local collaborators at specific centres will be established to assist with recruitment for the focus groups and interviews.

For the participant study (RQ2), all 23 centres across the UK will be set up as participant identification centre sites. Any individual who makes contact with a living donor coordinator to enquire about donation will be informed about the study and recruitment options. If they are happy to receive information and provide verbal consent, the coordinator will either pass their contact details to the research team at Guy's Hospital or will provide the individual with the study coordinator's details. Aggregated data will be provided by each centre regarding the total number of enquiries made to allow comparison with numbers making additional contact and recruited to the study. Once contact has been made, the research team from Guy's Hospital will provide further information to the individual and be responsible for the recruitment and consent of participants.

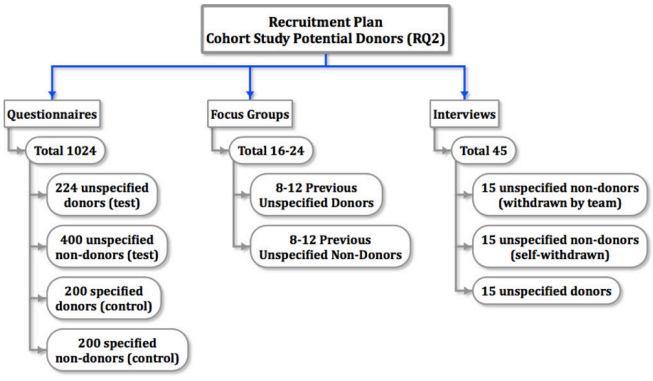

Figure 4 Study recruitment population.

SAMPLE SIZE CALCULATION

Based on previous retrospective work,[6] it is expected that a recruitment rate of 80% will be achieved. The study will aim to recruit 624 participants, of which 224 will go on to donate as unspecified donors. This recruitment rate is higher than is typical for longitudinal studies but justifiable given the population being studied. A sample size of 624 will provide sufficient precision to estimate the 95% CI for proceeding to donation to within ±4% overall and to within ±18% for each centre. In summary, the study aims to recruit 224 participants who have undergone unspecified donation (test group 1) and 400 who did not donate (test group 2).

The control group will recruit 200 individuals who are donating to friend or relative (specified donors, control group 1) and 200 individuals that intend to donate to a friend or relative but do not proceed (specified non-donors, control group 2). Based on our retrospective study, we expect a recruitment rate of 80%. Therefore, we will need to approach 500 specified donors. Given a stable rate of approximately 1000 specified donations per year across the UK, we anticipate that we will be able to recruit the control group using the same 3-year recruitment window as the main cohort. If there is no difference between the unspecified altruistic and specified donors on the physical and psychological variables at 12 months, it will be possible to determine that the lower limit of a one-sided 95% CI will be above the non-inferiority limit of a standardised mean difference of 0.3, which is deemed to be the smallest acceptable clinically meaningful difference—this allows for 20% missing data due to drop-out, at a significance level of 5% with 90% power.[18] These individuals will be recruited through transplant coordinators nationally.

STUDY SET UP

The research programme will be carried out at a national level, with sponsorship and monitoring provided by the Guy's Hospital Research and Development department. It has received funding from the National Institute of Health Research under Health Services & Delivery Research (HS&DR) project number 13/54/54.

Guy and St. Thomas' NHS Foundation Trust is the lead site and are collaborating with Plymouth University, the University of Birmingham and King's College London. Twenty-three centres across the UK have been established as patient identification centres with all research activity being conducted centrally at Guy's Hospital.

ANALYSIS PLAN

Qualitative data analysis

Data generated via the focus groups and staff interviews will be analysed using the framework approach. The framework approach was developed by the National Centre for Social Research.[19] It is a deductive form of analysis that is increasingly being used in healthcare research where the aim is to develop practical applications and target policy development. It starts deductively from the aims and objectives identified in the study. However, this approach is grounded and inductive, in that it is heavily based in participants' original accounts and the observations of those studied. Framework analysis largely conforms to the thematic analysis approach aiming to describe patterns in the data and provide a description of the data with an emphasis on making the process of identification clear and delineated.[20] The process of framework analysis enables interaction with the data set until a meaningful account is revealed with a conceptual framework, thus allowing the development to an explanatory account. Data will be analysed in adherence with the five stages of data analysis using the framework approach as presented in Ritchie and Lewis (2003) and aided by the computer software programme NVIVO (version 11).

Cohort study analysis

In addressing RQ1 concerning variables relating to an individual proceeding to donate, descriptive analysis will be used to describe the proportion of participants who withdraw or proceed to donation and the reasons for failing to proceed. Survival analysis will be used to identify predictors of proceeding to donation. Specifically, we will estimate Cox proportional hazards models where the dependent variable is the number of days between first contact with the unit and the date of donation, with those whose decision has been made censored at the date of their last known status. The analysis will include all individuals enquiring about donation, with the dependent variable an indicator for each proceeding to donation. Centre-level structural and attitudinal factors identified in the study group's previous work[8] will be included in the models to determine whether these variables explain variation in donation rates. Individual level demographic variables at baseline (eg, age, sex, education and ethnicity) and time-dependent psychological factors will be included to determine their association with outcome. Power to detect effects for individual level variables will be acceptable, but only large effects will be detectable for centre level variables.'

To address RQ2 relating to outcomes after donation, descriptive analysis will be used to compare baseline variables for individuals in each of the specified donor (test) and unspecified donor (control) groups. Linear or logistic mixed-effects models will be used to estimate between group differences in outcome variables at the 3-month and 12-month postdonation follow-up assessments. A three-level model will be specified with observations at each time-point (level 1) nested within individuals (level 2), who themselves are nested within centres (level 3). Group membership and follow-up assessment (time) will be included in the models as dummy variables. Interaction terms for group and time will allow for assessments of differences at individual time points. Models will adjust for potential individual level demographic confounders measured at baseline (eg, age, sex, education and ethnicity) and the baseline level of the outcome

variable. Missing outcome data are under the assumption that data are missing at random. Sensitivity analysis will be performed to assess this assumption.

Economic outcomes analysis

The economic benefits of unspecified donation will be examined using decision analytical methods. Decision analytic models use mathematical relationships to define a series of possible consequences that flow from a set of alternative options being evaluated. Here the decision is to accept or not accept unspecified donation. If unspecified donation is accepted and an individual is assessed, then there are a series of events that can occur. These include refusal to proceed, being deemed unsuitable, successfully donating and a recipient benefiting.

There are costs associated with these, and the outcomes will be measured in terms of quality-adjusted life years (QALYs) for donors using the SF-12 and for recipients with QALYs derived from previous literature.

Data for the model will draw on a systematic literature review of published economic evaluations of kidney donation, as well as from the costing exercise described above and expert opinion. The model will take a lifetime horizon (with appropriate discounting) and will allow us to estimate the expected costs and QALY gain following the start of the process of unspecified donation. Given uncertainty around the model parameters, we will conduct a series of sensitivity analyses (deterministic and probabilistic) to assess its robustness. Key parameters to vary may include rejection and refusal rates and values placed on future QALY gains. The model will estimate costs and benefits for the donors. It will also estimate QALY gains for recipients, and if possible, we will incorporate future costs for recipients as well.

ETHICS AND DISSEMINATION

The number of individuals considering living kidney donation to someone they have not previously met is becoming more common and has a significant potential to reduce the UK waiting list for kidney transplantation. Despite this trend, the concept of unspecified kidney donation remains uncomfortable for some clinicians. Furthermore, the assessment and donation process may have scope for improvement from the donor's perspective. This study will provide a comprehensive assessment of the unspecified donor programme in the UK in order to determine the extent and reasons for variation in practice, ascertain barriers to donation, as well as the economic implications of unspecified donation. The study will also assess clinical outcomes after unspecified donation in order to facilitate evidence-based decision making regarding future unspecified donors, as well as inform the creation of national guidelines.

Author affiliations
[1]Department of Renal Transplantation, Guy's and St. Thomas' NHS Foundation Trust/King's College London, London, UK
[2]NHS Blood and Transplant, London, UK
[3]School of Psychology, University of Plymouth
[4]Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, UK
[5]Renal Transplant Department, Portsmouth Hospitals NHS Trust, Portsmouth, UK
[6]Institute of Applied Health Research, University of Birmingham, Birmingham, UK

Acknowledgements This study is funded by the National Institute of Health Research under HS&DR Programme project number: 13/54/54. Authors would also like to acknowledge Jan Shorrock and Paul van den Bosch for their expert advice and support. The study team would also like to acknowledge the support of NHSBT, the British Transplantation Society and all 23 transplant centres across the United Kingdom. This research was supported in part by the National Institute for Health Research (NIHR) Biomedical Research Centre based at Guy's and St. Thomas' NHS Foundation Trust and King's College London. The views expressed are those of the authors and not necessarily those of the National Health Service, NIHR or the Department of Health.

Contributors NM and HM conceived the idea for the project with input from AM and AC regarding the qualitative work and PM leading on the economic aspect of the project. RG, PGo, HM, LB, AC, LW, SN, JC, PGi, AM, PM, HD and NM collaboratively contributed to the design of the study and its protocols. RG and PG led the writing of the manuscript. RG, PGo, HM, LB, AC, LW, SN, JC, PGi, AM, PM, HD and NM have reviewed and revised the manuscript critically for important intellectual content. RG, PGo and NM take responsibility of the paper as a whole.

Funding This project was funded by the National Institute for Health Research (Health Service and Delivery Research programme) (project number 13/54/54).

Competing interests None declared.

Ethics approval Professionals Study (RQ1)-HRA approval (170483). Participant Cohort Study (RQ2): ethical approval from South Central-Berkshire B Research Ethics Committee (15/SC/0637).

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

1. NHS. NHS Blood and Transplant Latest Statistics. https://www.organdonation.nhs.uk/supporting-my-decision/statistics-about-organ-donation/
2. NHS Blood and Transplant. Annual report on living kidney transplantation. 2016. http://www.odt.nhs.uk/pdf/organ_specific_report_kidney_2016.pdf
3. Melcher ML, Veale JL, Javaid B, *et al*. Kidney transplant chains amplify benefit of nondirected donors. *JAMA Surg* 2013;148:165–9.
4. NHSBT. UK Living Donor Strategy to 2020. www.organdonation.nhs.uk
5. Fortin MC, Dion-Labrie M, Hébert MJ, *et al*. Are 'anonymous' and 'non-directed' prerequisites for living altruistic donation? The views of transplant physicians from France and Québec. *Soc Sci Med* 2008;67:147–51.
6. Maple H, Chilcot J, Burnapp L, *et al*. Motivations, outcomes, and characteristics of unspecified (nondirected altruistic) kidney donors in the United Kingdom. *Transplantation* 2014;98:1182–9.
7. Clarke A, Mitchell A, Abraham C. Understanding donation experiences of unspecified (altruistic) kidney donors. *Br J Health Psychol* 2014;19:393–408.
8. Beecham JK, Knapp MRJ. Costing psychiatric interventions. In: Thornicroft G, Brewin C, Wing JK, *Measuring Mental Health needs*. London: Gaskell, 1992.
9. Rosenberg M. *Society and the adolescent Self-Image*. Revised edition. Middletown, CT: Wesleyan University Press, 1989.
10. Spitzer RL, Kroenke K, Williams JB, *et al*. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med* 2006;166:1092–7.

11. Zimet GD, Dahlem NW, Zimet SG, *et al*. *The Multidimensional Scale of Perceived Social Support*. : Journal of Personality Assessment, 1988:52: 30–41.
12. Gosling SD, Rentfrow PJ, Swann WB. A very brief measure of the Big-Five personality domains. *J Res Pers* 2003;37:504–28.
13. O'Connor AM. *User manual—Decision Regret Scale (document on the internet). Ottawa: Ottawa Hospital Research Institute*. 3. Ottawa: Ottawa Hospital Research Institute, 1996. https://decisionaid.ohri.ca/docs/develop/User_Manuals/UM_Regret_Scale.pdf (accessed 10 Apr 2016).
14. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med* 2001;16:606–13.
15. Diener E, Emmons RA, Larsen RJ, *et al*. The satisfaction with Life Scale. *J Pers Assess* 1985;49:71–5.
16. Diener E, Wirtz D, Tov W, *et al*. New measures of well-being: flourishing and positive and negative feelings. *Social Indicators Research* 2009;39:247–66.
17. SF-12v2™ Health Survey. *1992–2002 by Health Assessment Lab, Medical Outcomes Trust and QualityMetric Incorporated*. United Kingdom: All rights reserved. SF-12® is a registered trademark of Medical Outcomes Trust. IQOLA SF-12v2 Standard, English 8/02.
18. Julious SA. Sample sizes for clinical trials with normal data. *Stat Med* 2004;23:1921–86.
19. Ritchie J, Lewis J. *Qualitative research practice: a guide for social science students and researchers*: Sage, 2003.
20. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77–101.