**The internal application form mirrors what is requested by the NIHR although no word limits have been set for the internal application, please provide as much relevant detail as possible.**

1. **Applicant Name/Proposed Director:** Dr Fergus Caskey, (Nephrologist and applied researcher, University of Bristol, and Medical Director of the UK Renal Registry)

**Deputy director:** A/Prof Razeen Davids (Nephrologist and applied researcher, Stellenbosch University, and Chair of the South African Renal Registry)

**Co-Applicants**

**University of Bristol (UoB):** Prof Margaret May (Biostatistician), Dr Stephanie MacNeill (Clinical trialist), Dr Retha Steenkamp (Head of operations, UKRR), Mr George Swinnerton (Head of systems, UKRR), Prof Yoav Ben Shlomo (Clinical epidemiologist), Prof Jenny Donovan (Qualitative researcher/ ethnographer), Dr Leila Rooshenas (Qualitative researcher/ ethnographer), Prof Will Hollingworth (Health economist), Prof Richard Coward (Paediatric nephrologist & basic scientist), Dr Shona Methven (Nephrologist & applied researcher), Dr Pippa Bailey (Nephrologist & applied researcher)

**University of Stellenbosch (UoS) and University of Cape Town (UCT):** Prof Jimmy Volminck (Clinical epidemiologist and Dean, UOS), Prof Usuf Chikte (Clinical epidemiologist, UOS), Prof Taryn Young (Clinical epidemiology, UOS), Dr Tonya Esterhuizen (Biostatistician, UOS), A/Prof Andrew Boulle (Public health, UCT), Dr Nicola Wearne (Nephrologist and researcher, UCT)

1. **Global health research ambitions**

Provide a high summary level (three or four short statements) on the ambitions of your proposed Group and the level of funding being applied for, based on your existing experience and track-record in global health, or in a current UK-based specialist field/s.

* Support development of the existing South African Renal Registry (SARR) so that it can monitor equity of access to treatment and quality of care for people with all stages of kidney disease in the Republic of South Africa (RSA).
* Use existing cohort studies and routine healthcare databases in RSA to inform heath service planning by estimating current unmet need for acute kidney injury (AKI), chronic kidney disease (CKD) and end-stage kidney disease (ESKD) requiring renal replacement therapy (RRT) and model future need.
* Facilitate the training, career development and mentorship of clinician researchers and social scientists to use the registries and routine healthcare databases to support translational public health research that identifies local health needs, underpins effectiveness research, monitors implementation of that evidence and demonstrates any resulting public health benefit.
* Support the SARR in developing a platform for a pan-African Renal Registry for the African Association of Nephrology (AFRAN)/ African Paediatric Nephrology Association (APNA).

It is likely that we will be applying for the full £2m.

1. **Summary of proposal in plain English**

Describe the specific aims of the proposed NIHR Global Health Research Group. The abstract should explain to a lay reader the goals and objectives, and the ways in which this research will deliver measurable benefits to patients and the public in lower and middle income countries.

When someone’s kidneys stop working in a high income country they can almost always be kept alive on dialysis or given a kidney transplant. Life expectancy and quality of life will be far from normal, but treatment is available to all and costs covered by the state. While better than most other sub-Saharan countries, the situation is different in the Republic of South Africa – dialysis is only available to those suitable for kidney transplantation and part of that assessment includes their social circumstances. While there may be some justification for this, it may significantly disadvantage some otherwise young, fit groups. Information collected by the South African Renal Registry suggests that access to treatment is not equal between rich and poor, between provinces or for people with HIV.

The South African Renal Registry was re-established 5 years ago and collects information on all people receiving dialysis or a kidney transplant. Its annual report has already been used to motivate the Ministry of Health to hold a summit on the optimal prevention and treatment of kidney disease. The African Association of Nephrologists has also asked the South African Renal Registry to provide the platform for a dialysis and transplant registry in other African countries.

The South African Renal Registry’s data collection, website and database need modernisation and professionalisation if they are to rise to this challenge. The UK Renal Registry, which is based in Bristol, has the breadth of IT experience and expertise to support this work and allow the South African Renal Registry to strengthen within South Africa and become the infrastructure for Africa.

Once the data are being collected, a broad range of research expertise is required to maximize the learning from that data and translate that into health benefits for the population. Some of this will focus on access to dialysis and transplant, but it is vital that we also look at ways of avoiding the need for dialysis and transplantation. Acute kidney injury and chronic kidney disease occur more often in low and middle income countries. They tend to affect younger people following infection, childbirth, trauma/ surgery, diabetes and hypertension. Simple interventions will reduce harm in these situations – rehydration, antibiotics and blood pressure control. This programme will therefore explore existing available routine healthcare databases in South Africa to see what information already exists that can be joined together to form a fuller picture of kidney disease.

Once the quality and validity of South Africa’s routine healthcare data is understood, epidemiological, ethnographic, health economics and clinical trials researchers at the University of Bristol will work with colleagues at the University of Stellenbosch and University of Cape Town to explore opportunities to use that existing infrastructure to undertake efficient studies and trials in South Africa. This has recently been done successfully with the UK Renal Registry. Exactly what these studies focus on will be decided by knowledge of the available data and following some research priority setting work involving patients, the public, clinicians and policy makers.

It is essential that this work builds research capabilities in the UK, the Republic of South Africa and other participating African countries. This will be ensured by jointly agreeing programmes of work, roles and responsibilities, authorship and training/ mentorship. The capacity building nature of this proposal means that the Group will be in a strong position to secure funding for efficient studies and trials from a range of public, private, charitable and non-governmental organisation sources into the future.

1. **Groups: Strategic plan 2017-2020**
2. Brief description of how this work will build on the strategic objectives of the host university and create an environment where world-class global health research, focused on the needs of LMICs, can thrive.

This proposal builds on Bristol’s significant reputation for multi-disciplinary research, particularly in the school of Social and Community Medicine. With particular reference to the University’s strategic objectives, this proposal will:

* Enhance the opportunities available to undergraduate and postgraduate students at the UoB (and UoS and UCT) and enable internationalization of the student experience.
* Deepen an alliance with a carefully selected overseas organisation in a middle income country – the UoB has recently established a student exchange agreement with UoS.
* Build strategic connections and relationships around the world, particularly given the plans for the SARR to act as the platform for the AFRAN/ APNA Renal Registry.
* Raise the UoB’s profile in Africa and increase engagement with highly networked and influential alumni and friends to encourage volunteering and philanthropic support.
* Stimulate collaborations with regional industry partners, universities and local government agencies where local research excellence and scale can be harnessed to drive world-leading innovation and improvements in equitable access to treatment and global health.
* Raise the UoB’s institutional profile and reinforce its global reputation for excellence.

1. Proposed programme of activities, including

Brief description of the proposed research programme and how it will fit with the global health agenda;

The worldwide prevalence of CKD in adults is approximately 10-13% [[1](#_ENREF_1), [2](#_ENREF_2)] but there is little published data from most African countries. [[3-5](#_ENREF_3)] Considering sub-Saharan Africa, a systematic review has identified 18 medium-quality and three high-quality studies and estimated a CKD population prevalence of 13.9%. [[4](#_ENREF_4)] However, these crude prevalence rates mask a higher rate of CKD in African countries. For example, when the age distribution of the populations is taken into account (www.wdi.worldbank.org), the crude prevalence of CKD in The RSA would be expected to be only two thirds that of the UK if it had the same population age distribution.

These high rates of kidney disease in sub-Sarahan Africa likely reflect increasing rates of non-communicable diseases (NCDs), a high burden of infectious diseases, exposure to numerous environmental toxins. High rates of AKI related to trauma and childbirth also explain why the incidence of CKD and ESKD is likely to be at least as high as is reported elsewhere. [[6](#_ENREF_6), [7](#_ENREF_7)] The number of adults with diabetes in sub-Saharan African is projected to increase from 19.8 million in 2013 to 41.5 million in 2035 [[8](#_ENREF_8), [9](#_ENREF_9)] and diabetes is already one of the commonest causes of ESKD requiring RRT [[10](#_ENREF_10)].Other important risk factors for CKD in the African region include hypertension and infection-related renal disease. The number of people with HIV in sub-Saharan Africa exceeds 25 million [[11](#_ENREF_11)] and this contributes greatly to CKD in this region. [[4](#_ENREF_4)]

The lack of renal registries and related publications means that there are very few reliable, current statistics on RRT in Africa. Published estimates are often based on old registry reports and unpublished data, [[3](#_ENREF_3), [12](#_ENREF_12)] thus hampering potential for strategic planning of resource allocation, optimal service-planning and setting of research priorities. The prevalence of RRT is strongly associated with gross national income per capita. [[6](#_ENREF_6)] Most African patients with ESKD are unable to access RRT and are treated conservatively. In 2015, Liyanage and colleagues [[13](#_ENREF_13)] estimated that there are at least 432 000 people in Africa requiring RRT but not receiving it. Where services are available, patients and their families generally pay out of pocket and most are unable to afford dialysis treatment beyond the first few months. [[14](#_ENREF_14)]

To address these issues, this registry-focused Global Health Research Group has a number of work packages:

Initial work will establish the arrangements that will be necessary for the partners to work jointly and agree the initial priorities for investment and research. During this stage the needs of the SARR will also be assessed and investment in infrastructure and staffing agreed. UoB and UK Renal Registry (UKRR) staff will travel to The RSA to facilitate workshops involving key stakeholders and visit the SARR and some selected renal units to understand data collection issues.

Assuming progression criteria are met at month 6, the agreed investment in SARR hardware, software and staffing will be made and research begun. At this stage the research is described in broad terms, as the priorities and specifics will be agreed during months 1-6 and during a priority setting exercise (see below):

* A piece of work will be undertaken (or commissioned from the James Lind Alliance) to systematically identify the kidney disease research priorities of key stakeholders, including policy makers, health care professionals, patients, and the public.
* Analysis of SARR data to describe the epidemiology of treated ESKD in The RSA, with particular focus on evidence of inequalities in access to treatment or outcomes on treatment for disadvantaged groups.
* Analysis of the new AFRAN/APNA Registry data to describe the epidemiology of treated ESKD in Africa, with particular focus on evidence of inequalities in access to treatment or outcomes on treatment for disadvantaged groups.
* Analysis of identified routine healthcare databases for evidence of rates and outcomes of diagnosed AKI, CKD and untreated ESKD. This work will be high valuable in service planning.
* An economic evaluation of the cost-effectiveness of RRT in The RSA will be undertaken using a combination of the new routine data identified above and available published evidence on costs and utilities. This will particularly focus on treatment of people from disadvantaged populations.
* An ethnographic study will look at decision making and access to treatment, particularly for people from disadvantaged populations.
* A sentinel surveillance study will be established in a random sample of renal units to explore the feasibility of collecting a richer data set in sub-group of patients. This will allow the impact of health policy changes on the renal service to be monitored efficiently, as has happened effectively in the USA [[15-17](#_ENREF_15)] and Germany [[18](#_ENREF_18)]. It will also have the potential to provide data for instrumental variable analyses exploring associations between practice patterns and outcomes and perhaps contribute South African data to the worldwide DOPPs Study [[16](#_ENREF_16), [19](#_ENREF_19)].
* Feasibility mixed-methods work will explore the possibility of developing an infrastructure for efficient registry trials, thus promoting sustainable evaluation of future interventions to optimize AKI and CKD management in RSA. This will entail developing a deep understanding of local challenges through qualitative methodology, and implementation of tailored strategies to overcome identified barriers.
* Feasibility work will explore the potential for using the registry infrastructure to collect richer phenotype data and biosamples on a subset of patients and then follow them up using existing healthcare databases.

Brief description of how strong international collaborations and partnerships will be established and how capacity will be strengthened in LMICs and in the UK;

The first phase of work has been designed to ensure that a strong and balanced partnership develops from this collaboration, with careful identification and involvement of key stakeholders, joint formulation of the key research questions and priorities, agreement of roles and responsibilities and authorship policies and integration of research teaching and training.

Throughout the rest of the programme we will focus on building capacity by looking for opportunities to secure funding for specific research projects that become possible and prove feasible. We will explore ways to incorporate local research institutions and programmes into national research environments and help strengthen these. Underpinning all this will be strong support, supervision and mentorship that will foster independent competitive researchers for the future.

This proposal builds on a developing collaboration between the SARR/ UoS/ UCT and the UoB/UKRR. In addition, strong collaborations will be built with the AFRAN/ APNA Renal Registry as it is established and hence potentially with renal researchers in a range of African countries. We will have the opportunity to build relationships with other global leaders in renal registries and cohort studies – the International Society of Nephrology, ERA-EDTA Registry, the Dialysis Outcomes and Practice Patterns Study. These collaborations will benefit RSA and other African nations as they will gain the expertise and capacity to document the burden of unmet need in renal disease in order to leverage change. These collaborations will allow UoB (and therefore UK nephrology) to gain traction on the world stage in nephrology and in global health. This will build expertise, capacity, and reputation for this ongoing collaboration and other future work.

Brief description of plans for developing research skills within the Group and in LMICs;

The proposed collaboration will facilitate the development of research skills for both parties as follows:

1. Support, supervision and mentorship that will foster independent competitive researchers for the future.
2. Staff exchanges/visits between UoB and UoS/ UCT
   1. to allow UOS/ UCT students to undertake a period of supervised research in UoB and undertake formal training (eg attend SSCM Short Courses in shortage areas that are not well covered in UoS/ UCT)
   2. to allow UoB staff to undertake a period of research in RSA to improve global health research skills.
3. Masters level projects for UoS/ UCT students based on the SARR data (from multi-disciplinary backgrounds e.g. Nephrology, Clinical Epidemiology).
4. Sentinel surveillance/ sampling studies in selected units.
5. Registry training workshops in RSA, facilitated by UoB and UKRR staff (to include delegates from RSA and those who will be running the AFRAN/APNA Renal Registry). This will be run with a view to “train the trainers” so that attendees could then return to their parent country and offer training to others involved in the AFRAN/APNA Renal Registry.

Measurable 6-month delivery targets (to be used for agreeing to proceed with full funding);

A key focus of the work in the first 6 months will be the development of strong fair effective research partnerships within the group. [[20](#_ENREF_20)]

* Identify key stakeholders for the work of the group and assess the barriers and facilitators to their engagement and involvement
* Review existing AKI and CKD published and ongoing studies and databases
* First visit by UKRR staff to SARR to assess current technology and assess needs
* First visit by UoB staff to UoS/UCT (or vice versa, but will meet more patients and policy makers if we visit RSA first) to meet with key stakeholders and agree:
  + Joint formulation of the initial research questions and priorities
  + Jointly agree the level of partners involvement in each activity - who will do what and how
  + Roles and responsibilities to each partner that are compatible with their competencies, preferences and social obligations
  + A mechanism for evaluating the effectiveness of the work of the group based on results and learning
  + Shared authorship and intellectual property policies
  + Integration of research teaching and training
  + Plans for workshops
* First meeting of steering group and agree terms of reference
* First meeting of SARR Patient Council and agree terms of reference

Medium (1-2 years) and long-term (2-3 years) aims and objectives and how these will be achieved.

The medium term aims of the Group are:

* To support the SARR in developing its infrastructure (hardware, software and human) to enable efficient, effective, secure data collection on treated ESKD from across RSA and other participating African countries
* To explore efficient ways to study the population needs and inequalities in AKI and CKD through existing routine healthcare data
* To strengthen the capacity for registry-based renal epidemiology and applied health services research.
* To identify any inequalities that may represent inequities and unmet need in the provision of treatment for kidney disease (CKD/AKI/ESKD), and develop an understanding of possible reasons for these patterns.
* To explore the cost-effectiveness of interventions to avoid harm from or provide treatment for kidney disease (CKD/AKI/ESKD)
* To establish the research priorities in kidney disease for RSA and Africa
* To disseminate the learning from the work of the group to as wide a global audience as possible.

These aims will be achieved through the following objectives:

* To develop a framework for planning, monitoring and evaluating the strengthening of research capacity in RSA and participating countries based on ESSENCE Framework.
* To invest in the hardware, software and staff necessary to achieve the efficient, effective, secure collection and transfer of data on treated ESKD.
* To obtain permission and link routine healthcare datasets from Western Cape to study rates of diagnosed AKI and CKD in the community
* To use epidemiological and statistical methods to analyse routine data on ESKD, CKD and AKI to highlight inequalities in diagnosis rates, treatment rates and outcomes.
* To use published data and available routine data on ESKD, CKD and AKI in economic evaluations that will act as business cases for health policy discussions and service planning.
* To undertake a research topic prioritisation exercise and produce a detailed plan of research to tackle these questions
* To develop a dissemination strategy that ensures communication of the learning from the work of the Group to patients, clinicians and policy makers in Africa and other LMICs as well as HICs.

The long-term aims of the Group are underpinned by the ESSENCE principles to strengthen research capacity in RSA and other participating LMICs by:

* Securing core rather than project funding in the long run.
* Incorporating local research institutions and their programmes into national research environments and help strengthen these environments.
* Embedding strong support, supervision and mentorship into the priorities of Group to build strong independent competitive researchers for the future.
* Providing the infrastructure and outcome measures for efficient clinical trials of interventions to reduce harm from kidney disease in RSA and other participating African countries
* Finding efficient ways of collecting richer data on a subset of patients and study the impact of policy changes on population health and the impact of variation in practice patterns on patient outcomes
* Exploring the options for using the SARR infrastructure to collect rich phenotype data and biosamples on a sub-group of people with diabetes and CKD in Africa and follow up their long term outcomes through linkage.

See attached Gantt chart.

1. Applications should outline how they link to existing institutional partnerships and strategies, how they will complement existing investments in the area, and how they will seek to ensure that capacity and capability is strengthened and sustained in the future.

Bristol hosts the UK Renal Registry, which collects data from across the UK on people with acute kidney injury, chronic kidney disease and end-stage renal disease on dialysis or with a kidney transplant. Collaboration with the School of Social and Community Medicine – including the Qualitative Research Integrated within Trials (QuinteT) research team and the Bristol Randomised Trials Collaboration (BRTC) – and Collaboration for Leadership in Applied Health Research and Care West (CLAHRC West) has transformed the UK Renal Registry over the last 5 years, helping it transition from a national audit organisation to a research organisation that has led two successful NIHR HTA grant applications for registry trials (£2.5m and £1.6m) and provided the infrastructure to support four other NIHR or Health Foundation-funded trials and two NIHR-funded linkage studies (£4.3m). The Bristol led registry trials are complex pragmatic trials that would not have succeeded without close working between the Registry, the School of Social and Community Medicine and CLAHRC West.

With Prof Davids, Chair of the South African Renal Registry, as deputy director of our Global Health Research Group we will ensure that the research agenda is set collaboratively to meet the needs of The RSA. Work will also be undertaken in year one to establish the priorities of patients, the public, clinicians and policy makers in The RSA. In addition, the programme of work will be overseen by a steering group that includes patients, local stakeholders and international leaders in registries and global health.

Prof. Margaret May was funded by the Worldwide Universities Network and the Newton Fund for a 4 week research visit to The RSA in October 2016 during which she taught a Masters level course on Advanced Survival and Prognostic Modelling at UCT. She visited the SARR at UOS and met with co-applicants (Davids, Chikte, Volmink, Young) to discuss collaboration with the UKRR and support for their new Masters in Biostatistics. She also met with co-applicants (Boulle and Wearne) at UCT and discussed how Public Health datasets in Western Cape could be used for research in conjunction with the SARR. Professors May and Boulle have collaborated for over 10 years on HIV projects linking clinical and public datasets and are well placed to continue working together to answer research questions in KD.

1. Sustainability plans beyond the duration of this award, including details on how collaborations and partnerships with researchers and other partners (NGOs, Governments, businesses) in developing countries will be sustained beyond the duration of this funding.

The proposed programme of work invests in an infrastructure that will support efficient studies in the future. It also systematically assesses the feasibility of a range of efficient study designs which could be the subject of future grant applications from NIHR (efficient trials and instrumental variable analysis), MRC (a biosample facility embedded in a registry platform) and industry (efficient trials and biosamples).

Through expert advisors and the Steering Committee, the group will also strengthen links with a network of global renal teams – the International Society of Nephrology (which undertakes a lot of varied work supporting the development of renal services in LMICs), the ERA-EDTA and USRDS registries (which have a lot of experience of collecting data and building research networks around the world) and AFRAN/ APNA (which will be key sustaining and growing the AFRAN/ APNA Renal Registry).

1. **Indicate whether you have considered and discussed with your School/Faculty** why the institution is well-placed to be making this application e.g. underpinning facilities, that will be built on through this funding as well as any specific support from your organisation that will be provided for the programme.

The suitability of the UoB and its facilities to support this Global Health Research work has been discussed over the last 6 months with senior academic staff at the School of Social and Community Medicine – Prof Margaret May and Prof Yoav Ben-Shlomo. Originally this was in preparation for a Newton Fund grant application (aiming for a call in 2017) with lots of advice from Simon Glasser in RED. When this NIHR Global Health Research Group call came out, we discussed the strengths of the School of Social and Community Medicine and in particular the QuinteT team, the Health Economics team and the Bristol Randomised Trials Collaboration. We were delighted when Prof Jenny Donovan, Prof Will Hollingworth and Dr Athene Lane agreed to support the proposal representing their respective teams. We have informed Prof Caroline Relton of our plans to work up this application and will send her (and Prof Tim Peters) a copy of this bid when we submit it for the internal assessment.

1. **Director’s track record**

Describe the recognised achievements in their specialist research area including relevant external sources of funding in the last 5 years.

Dr Caskey is consultant nephrologist and Medical Director of the UK Renal Registry, the national audit and quality assurance organisation for people with kidney disease in the UK. Although initially limited to dialysis and kidney transplantation, the UK Renal Registry has expanded coverage to include acute kidney injury (in primary and secondary care), pre-dialysis chronic kidney disease and patient reported outcomes.

Since taking up this post he has focussed on developing the research programme and reputation of the Registry by integrating a range of health services research expertise from the School of Social and Community medicine. This combination of a national efficient data collection infrastructure and internationally renowned expertise in health services research has proven very successful in attracting funding for two clinically important challenging trials that could change practice, both led by Dr Caskey:

* The Prepare Multimorbid frail older people for End-stage Kidney Disease (PrepareME) Trial – a randomised controlled trial comparing quality of life-adjusted life years gained from preparing for conservative care versus preparing for dialysis (NIHR-HTA, £2.5m)
* The High-volume Haemodiafiltration versus High-flux Haemodialysis Trial (H4RT) – a randomised controlled trial comparing the relative effectiveness of high-volume HDF compared with high-flux HD on non-cancer mortality and hospital admission due to a cardiovascular event or infection (NIHR HTA, £1.6m)

He has also led for the Registry as the measurement and analysis partner in two Health Foundation-funded stepped wedge cluster randomized controlled trials aimed at (1) reducing death with acute kidney injury in 5 hospital trusts and (2) reducing late presentation with end-stage kidney disease in 20 renal units. We see this as an area of potential development at the South African Renal Registry.

It will be important to build links with other key global organisations and Dr Caskey is in an excellent position to do this. He is a member of the European ERA-EDTA Registry committee, a registry of registries based in Amsterdam, and has worked closely with them on a number of registry collaborations and primary research studies. One of these is as one of three European members of the EURODOPPS Oversight Committee, which oversees European collaboration with the Dialysis Outcomes and Practice Patterns (DOPPS), a global study of dialysis practice patterns and outcomes which has been highly effective at influencing changes in clinical practice.

Links with the ERA-EDTA Registry also led to Dr Caskey being part of the European faculty running a workshop in Cape Town in April 2015. This was attended by approximately 50 clinicians and researchers from The RSA and 10 other African country representatives, with letters of support from their Ministries of Health to explore setting up national and pan-African renal registries. This was where he met Prof Davids, who then visited Bristol and the UK Renal Registry during a trip to the UK in April 2016 to explore future potential for collaboration.

External funding

* NIHR HTA 15/80/52. The High-volume Haemodiafiltration vs High-flux Haemodialysis Registry Trial (H4RT). Chief investigator. £1,500,276 (2017-2021) – approved for funding but contracts not signed yet
* NIHR HTA 15/57/39. Prepare Multimorbid frail older people for End-stage kidney disease – the PrepareME trial. Chief investigator. £2,538, 968 (2017-2021)
* NIHR HTA. Bioimpedance guided fluid management in dialysis patients – the BISTRO trial. Co-applicant. £1,403,368 (2016-2019)
* NIHR HTA. Survival Improvement with Cholecalciferol in Patients on Dialysis – the SIMPLIFIED registry trial. Co-applicant. £1,341,913 (2015-2023)
* NIHR SBRI Devices for Dignity. Care.Know.Do. Development and evaluation of a tailored, online & telephone support programme for patients with CKD, phase II. Co-applicant (with Atlantis Healthcare). £160,000 (2015-2018)
* Health Foundation. Tacking acute kidney injury: a multi-centre quallity improvement project. Co-applicant. £500,000 (2015-2018)
* NIHR HTA. Risks and benefits of bisphosphonates in patients with osteoporosis and renal impairment. Co-applicant. £340,485 (2015-2017)
* NIHR HS&DR. Risk modelling for quality improvement in the critically ill: making best use of routinely available data. Co-applicant. £255, 248 (2015-2017)
* Health Foundation. A programme to spread eGFR graph surveillance for the early identification, support and treatment of people with progressive chronic kidney disease (ASSIST-CKD). Co-applicant. £395,403 (2014-2017)
* NIHR RfPB. Optimising early dialysis catheter function – the UK Peritoneal Dialysis Outcomes and Practice Patterns Study. Co-applicant. £371,877 (2014-2017)
* NIHR SBRI Devices for Dignity. Care.Know.Do. Development and evaluation of a tailored, online & telephone support programme for patients with CKD. Co-applicant (with Atlantis Healthcare). £88,425 (2014)
* ERA-EDTA Council. The European Quality (EQUAL) Study on treatment in advanced kidney disease. National coordinator. £1.8m in total, £350k for UK (2012-2014)
* NIHR HS&DR. A national study of practice patterns in UK renal units in the use of dialysis and conservative kidney management to treat people aged 75 years and over with chronic kidney failure (stage 5 chronic kidney disease, CKD5). Co-applicant, lead Investigator Prof Paul Roderick, Southampton. £360k (2011-2103)

Provide a short CV for the Director demonstrating that they are at the forefront of their fields and can lead a Group that will influence the practice of global health research. Relevant publications should be listed in the CV. Provide short CV’s for other applicants.

CVs attached.

1. **Team expertise, special interests and track record**

Describe the track-record and expertise of each UK and LMIC member and the individual contributions they will make to delivering the strategy. Describe the maturity of existing relationships or plans to develop strong relations with partners in the future.

Individual team members from the School of Social and Community Medicine bring a range of methods expertise that is a main strength of the proposal – biostatistics and experience of collaborating with public health and statistical colleagues in RSA (May), clinical epidemiology (Ben-Shlomo), health economics (Hollingworth), complex clinical trials (MacNeill), applied qualitative research with intervention (Donovan and Rooshenas) and clinician researchers with experience with epidemiological studies and cluster/ individual randomized controlled trials utilizing registry infrastructure (Caskey), paediatric, diabetic nephropathy basic science, LMIC research (Coward) and epidemiological and qualitative methods (Bailey).

The UK Renal Registry brings IT systems and programming expertise (Swinnerton), operations expertise (Steenkamp) and clinician researcher experience with epidemiological studies and cluster/ individual randomized controlled trials utilizing registry infrastructure (Methven).

Individual members from the University of Stellenbosch bring expertise in setting up and running a registry, using the data to inform high level policy decisions, and health services research (Davids), clinical epidemiology and global health research (Volmink), public health (Chikte) clinical epidemiology and evidence based care (Young), biostatistics (Esterhuizen).

Individual members from the University of Cape Town bring expertise in available routine healthcare databases (Boulle) and clinician researcher (Wearne).

Briefly describe plans for how the proposed collaborators and partners, particularly those from LMICs, will be involved in prioritising research topics and themes.

They have already been involved:

1. Workshop with ERA-EDTA, April 2015
2. Visit from Razeen Davids to Bristol, April 2016
3. A review by Davids, Caskey and Young on registries and research in Africa, 2016, in press
4. Visit from Margaret May to Cape Town, October 2016

They will continue to be involved through:

1. Management Group meetings, monthly by telephone or skype
2. Steering Group meetings, six monthly alternating between face-to-face and telephone/ skype
3. Interviews, focus groups and surveys of stakeholders in The RSA – patients, the public, clinicians and policy makers.

Describe plans for involving the users of the research.

1. There will be patient and public involvement in the management group and steering group.
2. Interviews, focus groups and surveys of stakeholders in The RSA – patients, the public, clinicians and policy makers.
3. **ODA compliance statement**

Provide a statement explicitly demonstrating how the proposal meets key ODA requirements. It must answer the following three questions in order:

1. Which country/countries on the DAC list will directly benefit from this proposal?

Core work:

* The RSA

A registry for Africa

* Zambia - Dr Kenneth Kapembwa
* Kenya - Dr Jonathan Wala
* Ghana - Dr Vincent Boima

1. How is your proposal directly and primarily relevant to the development challenges of these countries?

This proposal will build a platform that enables ongoing translational public health research and an evidence base that is relevant to the South African and wider African population through:

* Data infrastructure support and development
* Data collection and linkage to inform public health policy and planning
* Data analysis (biostatistics, epidemiology, ethnography and health economics) for research and to inform public health policy and planning
* Training and career development for health services researchers interested in addressing health inequalities in non-communicable diseases.

The priorities for this work will be identified systematically by working with a full range of stake holders in The RSA and other participating countries.

1. How do you expect that the outcome of your proposed activities will promote the health needs of a country or countries on the DAC list.

* Identify areas of inequity in access to treatment and outcomes on treatment for disadvantaged populations
* Assess the cost-effectiveness of various treatment options – including prevention of harm from AKI and CKD and access to various forms of dialysis and kidney transplantation
* Informing decisions about investing in health services to get maximal public health benefit
* Working with academic and industry partners to explore future sustainable models for running a kidney disease registry in The RSA and wider Africa.

Please submit completed application forms to Collette Sheahan ([Collette.Sheahan@bristol.ac.uk](mailto:Collette.Sheahan@bristol.ac.uk)) by the internal deadline of 1pm December 15th 2016.

**References**

1. Mills, K.T., et al., *A systematic analysis of worldwide population-based data on the global burden of chronic kidney disease in 2010.* Kidney International, 2015. **88**(5): p. 950–957.

2. Hill, N.R., et al., *Global prevalence of chronic kidney disease–a systematic review and meta-analysis.* PLoS One, 2016. **11**(7): p. e0158765.

3. Naicker, S., *End-stage renal disease in Sub-Saharan Africa.* Kidney International Supplements, 2013. **3**(2): p. 161-163.

4. Stanifer, J.W., et al., *The epidemiology of chronic kidney disease in sub-Saharan Africa: a systematic review and meta-analysis.* Lancet Global Health, 2014. **2**(3): p. e174-e181.

5. Swanepoel, C.R., N. Wearne, and I.G. Okpechi, *Nephrology in Africa—not yet uhuru.* Nature Reviews Nephrology, 2013. **9**(10): p. 610-622.

6. Schieppati, A. and G. Remuzzi, *Chronic renal diseases as a public health problem: epidemiology, social, and economic implications.* Kidney Int Suppl, 2005(98): p. S7-S10.

7. White, S.L., et al., *How can we achieve global equity in provision of renal replacement therapy?* Bulletin of the World Health Organization, 2008. **86**(3): p. 229-237.

8. Noubiap, J., J. Naidoo, and A.P. Kengne, *Diabetic nephropathy in Africa: a systematic review.* World J Diabetes, 2015. **6**(5): p. 759-773.

9. Aguiree, F., et al., *IDF Diabetes Atlas: sixth edition*. 2013, International Diabetes Federation: Basel, Switzerland.

10. Davids, M.R., et al., *South African Renal Registry Report 2014*. 2014, South African Renal Society, Cape Town.

11. *AIDS by the numbers*. 2016, Joint United Nations programme on HIV/AIDS Geneva, Switzerland.

12. Benghanem Gharbi, M., *Renal replacement therapies for end-stage renal disease in North Africa.* Clinical nephrology, 2010. **74**: p. S17-9.

13. Liyanage, T., et al., *Worldwide access to treatment for end-stage kidney disease: a systematic review.* Lancet, 2015. **385**(9981): p. 1975-1982.

14. Arogundade, F., et al., *The pattern, clinical characteristics and outcome of ESRD in Ile-Ife, Nigeria: Is there a change in trend?* African health sciences, 2011. **11**(4): p. 594-601.

15. Pisoni, R.L., et al., *DOPPS practice monitor to help evaluate impact of bundle on hemodialysis patient care.* Nephrol News Issues, 2010. **24**(12): p. 28, 30.

16. Tentori, F., et al., *The DOPPS practice monitor for US dialysis care: potential impact of recent guidelines and regulatory changes on management of mineral and bone disorder among US hemodialysis patients.* Am J Kidney Dis, 2014. **63**(5): p. 851-4.

17. Tentori, F., et al., *The DOPPS Practice Monitor for US Dialysis Care: PTH Levels and Management of Mineral and Bone Disorder in US Hemodialysis Patients.* Am J Kidney Dis, 2015. **66**(3): p. 536-9.

18. Kleophas, W., et al., *Changes in dialysis treatment modalities during institution of flat rate reimbursement and quality assurance programs.* Kidney Int, 2013. **84**(3): p. 578-84.

19. Robinson, B.M. and F.K. Port, *International hemodialysis patient outcomes comparisons revisited: the role of practice patterns and other factors.* Clin J Am Soc Nephrol, 2009. **4 Suppl 1**: p. S12-7.

20. Swiss Commission for Research Partnerships with Developing Countries (KFPE), *A Guide for Transboundary Research Partnerships: 11 Principles*.