Table 1 | Detection approaches: populations and study design

Data source	Numerator or outcome	Population (denominator)	Steps to yield comparability and greater specificity	Example referent source	Advantages	Disadvantages	Other potentially useful measures if available
Passive detection approaches							
Mortality registry[a]	**Deaths attributable to kidney disease[b]**	**National or regional mortality**	**Age-standardize[c] Subtract deaths attributable to diabetic kidney disease, or if not available, adjust for age-standardized diabetes prevalence[d]**	**High-income countries mortality registries**	**A high-level, resource-efficient approach to identify hot spots**	**Sometimes difficult to disaggregate to regional or state level Data are nonspecific and not be able to differentiate CKDu from high rates of cause-specific kidney disease (e.g., IgA nephropathy)**	**Cause of ESRD or cause of kidney disease leading to death Data on the proportion of (non-CKD) deaths of unknown cause should also be reported as a quality indicator**
Dialysis and transplant registry[a]	**Prevalent or incident numbers of patients with ESRD of unknown cause**	**Prevalent or incident ESRD population**	**Include only CKD not AKI Age standardize[c] Only include those with "unknown" cause if registry provides these data**	**USRDS, ERA-EDTA, ANZDATA**	**A high-level, resource efficient approach to identify hot spots May also able to give a regional- or state-level estimate if data are available**	**Not available or not representative of entire burden of (untreated) ESRD, in many low- and middle-income countries Attribution of kidney disease cause may be incorrect (or both known causes and CKDu may coexist)**	**Occupation of persons with ESRD Family history of persons with ESRD**
Active detection approaches							
Population-based study[a]	**Kidney function measures (see Table 2)**	**Random (or stratified random) sample or whole population of geographically defined community (age >18 yr)[e]**	**Strategies to achieve high-response rates across entire population**	**NHANES**	**Representative of true population prevalence of disease**	**Fieldwork can be challenging and response variable Requires new or existing census data**	**See Table 2**
Clinic- or camp-based study	Kidney function measures	Self-presenting or volunteer community population		KEEP, ISN-KDDC	Convenient to implement	Not representative and prone to major issues in interpretation due to selection bias	
Workplace	Kidney function measures	Random sample, whole population		Appropriate comparator populations may be challenging to identify (i.e., similar demographics)	Can be easier to capture participants than it is for community-based studies	Unlikely to be representative of whole community so may be misleading with regard to population prevalence and risk factors Investigators need to be sensitive to differing incentives between employees and employers to participating	

AKI, acute kidney injury; ANZDATA, Australian and New Zealand Dialysis and Transplant registry; CKD, chronic kidney disease; CKDu, chronic kidney disease of unknown cause; ERA-EDTA, European Renal Association–European Dialysis and Transplant Association; ESRD, end-stage renal disease; IDF, International Diabetes Federation; IHME, Institute for Health Metrics and Evaluation; ISN-KDDC, International Society of Nephrology's Kidney Disease Data Center KEEP, Kidney Early Evaluation Program; NHANES, National Health and Nutrition Examination Survey; USRDS, US Renal Data System; WHO, World Health Organization.

[a]Bold entries are suggested approaches. We propose, that to the extent feasible, the data should be disaggregated to regional (in addition to national) levels and presented by age- and sex-strata so localized clustering can be identified.

[b]The latest WHO and IHME global burden of disease estimates include age-specific kidney disease attributable death estimates (but see text).

[c]To referent world population as recommended by WHO (http://www.who.int/healthinfo/paper31.pdf?ua=1).

[d]These data are available on a national level at least via the IDF for many countries; WHO also provides estimates for age-specific deaths due to diabetic kidney disease.

[e]Reporting of response rates stratified by age and sex are essential. These summary response rate data should be stratified by sex and age with adequate granularity to detect response bias (e.g., 10-year age bands).