

Supplementary material, table 1: Descriptive information on population-based data sources identified by the literature search

Reference	Relevant, potentially relevant	Study design	Study date	Study site	Study population & sample size	Ascertainment of causes of death
Kishamawe et al. Health & Demographic Surveillance System Profile: The Magu Health and Demographic Surveillance System. <i>Int J Epi</i> 2015; 44:1851-61.	Relevant	HDSS (longitudinal surveillance system with repeated censuses, continuous birth & death notifications)	From 1994. VA from Feb 1995.	Kisesa ward (all 7 villages), Magu district, Mwanza region	All residents (N = 35,569 in 2014)	VA (ICD-10)
Mrema et al. Health & Demographic Surveillance System Profile: The Rufiji Health and Demographic Surveillance System. <i>Int J Epi</i> 2015; 44: 472-83.	Relevant	HDSS (longitudinal surveillance system with repeated censuses, continuous birth & death notifications)	From 1998. VA from 1999	Rufiji district (38 villages), Pwani region	All residents (N = 103,503 in 2012)	VA (ICD-10)
Geubbels et al. Health & Demographic Surveillance System Profile: The Ifakara Rural and Urban Health and Demographic Surveillance System. <i>Int J Epi</i> 2015; 44:848-61	Relevant	HDSS (longitudinal surveillance system with repeated censuses, continuous birth & death notifications)	From 1996. VA from 2000	Across Kilombero & Ulanga districts (25 villages), Morogoro region	All residents (N = 126,836 in 2012)	VA (ICD-10)
			From 2007. VA from 2007	Ifakara town (5 areas), Kilombero district, Morogoro region	All residents (N = 44,992 in 2012)	
Kamugisha et al. Establishing and implementing Demographic Surveillance System as a tool for monitoring health interventions in Korogwe District, north-eastern Tanzania. <i>Tanzan J Health Res</i> 2011; 13: 57-67.	Relevant	HDSS (longitudinal surveillance system with repeated censuses, continuous birth & death notifications)	From 2005. VA from 2005	Korogwe district (14 villages across 3 wards), Tanga region	All residents (N = 25,264 in 2005)	VA (ICD-10)
Moshiro et al. The importance of injury as a cause of death in sub-Saharan Africa: results of a community-based study in Tanzania. <i>Public Health</i> 2001; 115: 96-102.	Relevant	Adult Morbidity and Mortality Project (AMMP): Longitudinal surveillance system with repeated censuses (annual or semi-annual), continuous birth & death notifications	From 1992	* Dar es Salaam city (Ilala & Temeke districts) * Morogoro Rural district (61 villages), Morogoro region * Hai district (51 villages), Kilimanjaro region	All residents (N = 307,912 inhabitants)	VA (ICD-10)
Kabadi et al. Data Resource Profile: The sentinel panel of districts: Tanzania's national platform for health impact evaluation. <i>Int J Epi</i> 2015; 44:79-86.	Relevant	Tanzanian Sentinel Panel of Districts (SPD): SAVVY (Sample Vital registration with Verbal autopsies): Longitudinal surveillance system with repeated censuses (every 5 years), continuous birth & death notifications	From Mar 2011	Nationally representative sample of 23 districts in the mainland, excluding districts under demographic surveillance	Nationally representative sample of households (N = 644,217)	VA (ICD-10)
Kamugisha et al. Malaria specific mortality in lowlands and highlands of Muheza district, north-eastern Tanzania. <i>Tanzan Health Res Bull</i> 2007; 9: 32-7.	Relevant	Cross-sectional household survey: Enumeration of all households with a history of death (2 years recall period)	Not reported	Muheza district (non-random sample of 4 villages in highland areas & 4 villages in lowland areas), Tanga region	All residents (sample size not reported)	VA
Hanson et al. Maternal mortality and distance to facility-based obstetric care in rural southern Tanzania: a secondary analysis of cross-sectional census data in 226 000 households. <i>Lancet Glob Health</i> 2015; 3: e387-95.	Potentially relevant	Cross-sectional household survey: Enumeration of all households, live births history in all WRA (5 years recall period), history of deaths in the household (Jan 2004 to June 2007)	Jun - Oct 2007	* Lindi Rural, Nachingwea and Ruangwa districts (all villages), Lindi region * Newala and Tandahimba districts (all villages), Mtwara region	All residents (N = 818,583)	VA (ICD-10)
Kaatano et al. Patterns of malaria related mortality based on verbal autopsy in Muleba District, north-western Tanzania. <i>Tanzan J Health Res</i> 2009; 11: 210-8.	Potentially relevant	Cross-sectional verbal autopsy survey: Enumeration of all households with a history of death (July 1997 to June 2006)	Not reported	Muleba district (random sample of 3 villages in epidemic areas & 3 villages in non-epidemic areas), Kagera region	All residents (sample size not reported)	VA (ICD-10)

Dark grey lines indicate data sources for which no response was received at the data acquisition stage and without information on drowning death reported in the publication

Light grey lines indicate data sources re-classified as not relevant at the data acquisition stage

Supplementary material, table 2: Descriptive information on hospital-based data sources identified by the literature search

Reference	Relevant, potentially relevant	Study design	Study date	Study site	Sample size	Ascertainment of causes of death
Kipsaina et al. Mortuary based injury surveillance for low-mid income countries: process evaluation of pilot studies. <i>Injury</i> 2015; 46: 1509-14.	Relevant	Mortuary-based fatal injury surveillance system pilot study	From Sep 2010 to Feb 2011	Not reported	1,500 deaths, 180 injury deaths	Medical record (ICD-10)
Murray et al. Population Health Metrics Research Consortium gold standard verbal autopsy validation study: Design, implementation, and development of analysis datasets. <i>Popul Health Metr</i> 2011; 9: 27.	Relevant	Prospective review of "high quality" medical records (eligible causes of death)	From Jan 2007 to Dec 2010	** 5 hospitals in Dar es Salaam: * Muhimbili referral hospital * Mwananyamala district hospital * Temeke district hospital * Hindu Mandal private hospital * Ocean Road Cancer Institute ** All 4 public hospitals on Pemba island	4,061 deaths	Medical record (gold standard), VA (ICD-10)
Boniface et al. Injury experience in Tanzania - Need for intervention. <i>East Afr Med J</i> 2013; 90: 171-9.	Relevant	Prospective review of medical records (admissions of injury patients at casualty departments)	From Nov 2011 to Dec 2012	6 hospitals: * Muhimbili Orthopaedic Institute, Dar es Salaam * Morogoro regional hospital * Kigoma regional hospital * Mtwara regional hospital * Musoma regional hospital * Korogwe district hospital, Tanga region	9,316 injuries, 120 deaths (0 drowning death)	Medical record
Kabadi et al. Data Resource Profile: The sentinel panel of districts: Tanzania's national platform for health impact evaluation. <i>Int J Epi</i> 2015; 44:79-86.	Potentially relevant	Tanzanian Sentinel Panel of Districts (SPD): FBIS (Facility-Based Information System): Aggregated DHIS-2 routine facility data	Monthly visits from Jan 2010	All health facilities in a nationally representative sample of 23 districts in the mainland, excluding districts under demographic surveillance	1,608 dispensaries, 193 health centres, 87 hospitals	Medical record
Mutasingwa et al. Injury registration in a developing country. A study based on patients' records from four hospitals in Dar es Salaam, Tanzania. <i>Cent Afr J Med</i> 2011; 47: 203-9.	Potentially relevant	Retrospective review of medical records (inpatient admissions with acute injury, outpatients excluded)	From Jan to Dec 1998	4 hospitals in Dar es Salaam: * Muhimbili Medical Centre * Muhimbili Orthopedic Institute * Agakhan hospital * Mission Mikocheni hospital	1,098 acute injuries (0 drowning case)	Medical record
Rutta et al. Epidemiology of injury patients at Bugando Medical Centre, Tanzania. <i>East Afr Med J</i> 2001; 78: 161-4.	Potentially relevant	Retrospective review of medical records (injuries at surgical, clinic, casualty, radiology, theatre wards)	From 1995 to 1997	Bugando Medical Centre referral hospital in Mwanza, Mwanza district, Mwanza region	3,340 injuries (25 drowning cases), 73 deaths	Medical record
Cox et al. Emergency medicine in a developing country: experience from Kilimanjaro Christian Medical Centre, Tanzania, East Africa. <i>Emerg Med Australas</i> 2007; 19: 470-5.	Potentially relevant	Retrospective review of medical records (admissions at casualty department, outpatients excluded)	From Jul 2005 to Jan 2006	Kilimanjaro Christian Medical Centre referral hospital in Moshi, Moshi district, Kilimanjaro region	c. 400 injury casualties	Medical record

Aregawi et al. Reductions in malaria and anaemia case and death burden at hospitals following scale-up of malaria control in Zanzibar, 1999-2008. <i>Malar J</i> 2011; 10: 46.	Potentially relevant	Retrospective review of medical records (outpatient attendances, inpatient admissions)	From 1999 to 2008	6 hospitals in Zanzibar: * Chakechake * Mkoani * Wete district hospitals in Zanzibar * Kivunge * Makunduchi primary health care centres on Unguja island * Micheweni primary health care centre on Pemba island		Medical record
Sawe et al. Trends in mortality associated with opening of a full-capacity public emergency department at the main tertiary-level hospital in Tanzania. <i>Int J Emerg Med</i> 2015; 8: 24.	Potentially relevant	Retrospective review of medical records (admissions at the casualty room and emergency department)	Casualty room: From Jan 2008 to Dec 2009; ED opening in Jan 2010: From Feb 2010 to Dec 2011	Muhimbili National Hospital in Dar es Salaam	753 deaths, of whom 53 trauma (non-road traffic accidents) deaths	Medical record
Maegga et al. Malaria in the southern highlands of Tanzania: a review of hospital records. <i>Tanzan Health Res Bull</i> 2005; 7: 125-32.	Potentially relevant	Retrospective review of medical records (outpatient attendances, inpatient admissions)	From 1986 to 2000	10 "voluntary agency" hospitals: * Isoko * Mbozi * Chimala * Igongwe * Itete, Mbeya region * Ilebula * Uwemba * Consolata Ikonda * Bulongwa * St John Lugalawa, Iringa region		Medical record
Simon et al. Paediatric injuries at Bugando Medical Centre in North-western Tanzania: A prospective review of 150 cases. <i>J Trauma Manag Outcomes</i> 2013; 7: 10.	Potentially relevant	Prospective review of medical records (paediatric injury admissions at AE department and paediatric surgical ward, patients without next of kin to consent and deaths before complete assessment excluded)	From Aug 2011 to Apr 2012	Bugando Medical Centre referral hospital in Mwanza, Mwanza district, Mwanza region	150 paediatric (1 month to 10 years old) injuries	Medical record
Peck et al. Hypertension-related diseases as a common cause of hospital mortality in Tanzania: a 3-year prospective study. <i>J Hypertens</i> 2013; 31: 1806-11.	Potentially relevant	Prospective review of medical records (admissions at adult medical wards)	From Jan 2009 to Dec 2011	Bugando Medical Centre referral hospital in Mwanza, Mwanza district, Mwanza region	11,045 adult (> 12 years old) admissions, 2,049 deaths	Medical record
Mgaya et al. Suicide in the Dar es Salaam region, Tanzania, 2005. <i>J Forensic Leg Med</i> 2008; 15: 172-6.	Potentially relevant	Prospective review of medical records (suicide deaths at mortuaries)	From Jan to Dec 2005	Muhimbili National Hospital in Dar es Salaam	1,500 autopsies (1,420 medico-legal)	Medical record, autopsy
Outwater et al. Homicide death in Dar es Salaam, Tanzania 2005. <i>Int J Injury Cont Saf Prom</i> 2008; 15: 243-52.	Potentially relevant	Prospective review of medical records (violent deaths - homicide, suicide, and police perpetrated deaths - at mortuaries)	2005	Muhimbili National Hospital in Dar es Salaam	458 intentional injury deaths	Medical record

Dark grey lines indicate data sources for which no response was received at the data acquisition stage and without information on drowning death reported in the publication

Light grey lines indicate data sources re-classified as not relevant at the data acquisition stage

Supplementary material, table 3: Descriptive information on report-based data sources identified by the in-country networking

Government institution's name	Potentially relevant or relevant	Data source
Ministry of Transport -Surface and Marine Regulatory Authority (SUMATRA)	Relevant	Electronic annual reports on maritime accidents/ sunken vessels (> 4 m) in the Tanzanian territorial water with number of passengers in distress, rescued and missing
Zanzibar Marine Authority (ZMA)	Relevant	Electronic annual reports on maritime accidents/ sunken vessels (> 4 m) in the Zanzibar territorial water with number of passengers in distress, rescued and missing
Ministry of Water and Irrigation	Potentially relevant	Electronic and paper-based annual reports on specific zones/basins
Prime Minister office - Disaster Management Department	Potentially relevant	Paper-based annual reports on all national level disasters
Ministry of Home Affairs	Potentially relevant	Electronic and paper-based annual reports with notification of deaths reported to the police
Tanzania Meteorological Authority (TMA)	Potentially relevant	Electronic annual reports on disasters related to climate
Ministry of Fisheries	Potentially relevant	Paper-based annual reports on small (< 4 m) vessels & water basins
Beach management unit (BMU)	Potentially relevant	Information on near drowning, drowning deaths of fishermen (vessels < 4 m)

Dark grey lines indicate data sources for which no response was received at the data acquisition stage

Light grey lines indicate data sources re-classified as not relevant at the data acquisition stage

Supplementary material, table 4: Drowning mortality estimates by sex and by data source

Data source	Time period	Drowning related ICD-10 codes (range)	Total all-cause deaths	Total drowning deaths	Males			Females				
					Drowning fraction (%)	Total population (annual average)	Annual average drowning mortality rate/100,000	Total all-cause deaths	Total drowning deaths	Drowning fraction (%)	Total population (annual average)	Annual average drowning mortality rate/100,000
Population-based data												
Ifakara urban HDSS (Geubbels et al., 2015)	Jan 2008 - Dec 2014	V90-Y21	1,163	6	0.52	18,644	4.6	1,181	3	0.25	21,125	2.0
Ifakara rural HDSS (Geubbels et al., 2015)	Jan 2008 - Dec 2014	V90-Y21	3,199	32	1.00	59,491	7.7	2,989	24	0.80	60,823	5.6
Rufiji HDSS (Mrema et al., 2015)	Jan 2008 - Dec 2014	V90-Y21	2,601	17	0.65	47,281	5.1	2,690	11	0.41	51,283	3.1
SAVVY survey, 22 districts across the mainland (Kabadi et al., 2015)	Jan 2008 - Dec 2014	V90-Y21	8,416	103	1.22	272,883	9.4	6,917	40	0.58	287,412	3.5
Muleba district, Kagera region (Kaatano et al., 2009)	Jul 1997 - Jun 2007	V90-Y21	202	3	1.49	-	-	217	0	0.00	-	-
Hospital-based data												
5 hospitals in Dar es Salaam (Murray et al., 2011)	Nov 2006 - Dec 2010	-	1,569	19	1.21	-	-	1,670	3	0.18	-	-
4 hospitals on Pemba island (Murray et al., 2011)	Jan 2007 - Dec 2010	-	428	25	5.84	-	-	390	9	2.31	-	-

