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# TRENDS OF BIRTHS AND DEATHS REGISTRATION IN SOKOTO METROPOLIS, SOKOTO STATE, NIGERIA

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## Abstract

Birth and death registration is a foundation of reliable demographic data in any geographical area and is very important for policy and planning. Using both qualitative and quantitative methods, this study examined the trends of births and deaths registration in Sokoto Metropolis, covering all the 14 vital registration centres in the Metropolis. Two sets of data were used: one was obtained from archives of the National Population Commission (NPC) (2009-2018) which included all registered births and deaths. The other was through in-depth interviews involving four NPC officials. Line graphs were used to show the trends of births and deaths registration, and chi-square were employed to test the weather in birth and death registration among the centers has significant difference as well as content analysis was used to highlight the major challenges facing births and deaths registration. The result showed that the temporal distribution of births registration is increasing while deaths registration is decreasing and there is significant difference in birth and death registration among the centers. The study further showed that the challenges that hindered the smooth running of registration of birth and death include lack of awareness, people's perception, level of government commitments, lack of adequate funding, among others. The study recommends massive awareness campaigns on vital registration events and their importance for national planning and the establishment of more registration centres by NPC.

**Keywords:** Vital registration, Population growth, Registration records, Temporal distribution

## Introduction

Census is the most comprehensive source which provides the benchmark against which data from other sources, such as vital registrations are measured (Linder, 1998 & National Population Commission NPC, 2004) as quoted by Abbas (2012). Vital registration is one of the most important sources of demographic data because it is continuous, as such countries need to know how many people are married and divorced, as well as how many people are born or died each year and the main causes of their deaths in order to have well-functioning health systems and plan for the entire sectors of life. The only way to count everyone and to track all these is through vital registration, and it does not only provide the basis for individual legal identity but also allows countries to identify their most pressing health issues, and other issues of affecting

the population in a country (World Health Organization WHO, 2013).

To achieve this, however, a fully functional vital registration system should be compulsory, universal, permanent and continuous and should ensure the confidentiality of personal data it collects, transmits and stores effectively, guarantees their quality and integrity. Such a system and its instruments add value in safeguarding human rights and contribute to the efficient functioning of any society (United Nation Children's Emergency Fund UNICEF, 2013). In addition, records of all vital events must be maintained securely and permanently so they will be available when needed for administrative or individual purposes in the future. Methods and procedures must be established by the government agency responsible for vital registration to ensure that current records are added to the vital registration

system appropriately and that all records of vital events are preserved and maintained for future use (National Center for Health Statistics NCHS, 2015 & Africans Union AU, 2016).

Globally, each year, about two-thirds (38 million) of 57 million annual deaths go unregistered, and as much as 40% (48 million) of 128 million births go unregistered, representing one out of three children born (World Bank Group WBG, 2014 & Mikkelsen, Phillips and Abouzahr, 2015). Although it can be argued that census and other large sample surveys may be useful in supplementing demographic data in countries where vital registration system is still at infancy, the two are expensive to perform on a routine basis, being frequently marred by politics, disputes about figures, underfunding and topographical challenges and should rather serve as complements in a comprehensive health information system and other services (Davis, 2009; Salawu, 2009; Mikkelsen, *et al*, 2015). Unfortunately, the accuracy of birth and death, marriage, divorce, judicial separation and other vital event records, particularly in developing countries, has come under scrutiny in several studies with the increasing realization that each year, despite a growing awareness of the importance of vital registration, and the commitment of states under international law to ensure this right, several births and deaths, fetal deaths, marriages and other vital events go unreported (WBG, 2014 & Mikkelsen, *et al*, 2015). Sokoto Metropolis may not be an exception when considering some of the challenges facing registration of vital events. Therefore, when births and deaths go uncounted and are not documented, governments cannot design effective policies and programmes that affect public health, education and planning for the population and sustainable development (NPC, 2008).

Numerous studies on births and deaths registration have been carried out across the Nigeria inclusive. For examples Abbas (2012) studied the locational analysis of vital registration centers and implications on birth registration coverage in Gombe State, he assessed the level of spatial accessibility and efficiency of vital registration and identified areas where new potential centers should be located in the state, which he achieved through mapping out the locations and catchment areas of the existing vital registration centers. Location-allocation and Gravity Model was used for the assessment of influence, accessibility and determination of optimum location

of the registration centers. Another, study by Maigari (2007) as quoted by Abbas (2012) on application of GIS in assessing existing birth registration centers was restricted to Gombe LGA, birth registration only and to the creation of data base only. Williams (2014) also assessed completeness of births and deaths registration in an urban community of Mokola, a semi-urban community in Oyo state, Nigeria. The cross sectional study with a two stage cluster sampling was designed and information on births and deaths registration was collected using a structured pretested interviewer administered questionnaire. Isara, and Atimati (2015) studied the socio-demographic determinants of birth registration among mothers in an urban community in Southern Nigeria, this study highlighted the awareness, knowledge and practice of birth registration by mothers and community based descriptive cross-sectional study was carried out among mothers in an urban community in Ovia North-East local government area of Edo state, Nigeria using structured interviewer administered questionnaire. Tobin, Obi1 and Isah (2013) looked at the status of birth and death registration and associated factors in the South-South region of Nigeria, the study explored the practice of birth and death registration and the factors that govern this practice which have negative consequences for economic planning and development, using a cross-sectional descriptive study design and questionnaire was used for to examine the practice of birth and registration.

There are not many studies focusing on vital registration that have been conducted in Sokoto Metropolis, hence, the need to investigate the trends of births and deaths registration to assess the level of registration of such events in the study area. This study is designed to address this research gap.

### The Study Area

The Sokoto Metropolis is located between Latitude 12°58'N and 13° 40'N and Longitude 5°10'E and 5°18'E, and it comprises of two major local government councils areas, namely; Sokoto North and Sokoto South respectively and some parts of Dange Shuni, Kware, Bodinga and Wamakko Local Governments Areas all within the state (Sokoto, 2006; S Figure 1). It covers approximately a total land area of about 108.2 square kilometres (Sokoto, 2006).





## Material and Methods

Data collected from the NPC office on births and deaths registration records (Appendices 1 and 2) were entered into Excel Microsoft (2007) application and the data were subjected to time series analysis to determine the trends of registration records of the events over the period of ten years (2009-2018) and

chi-square were also employed using Statistical Package for Social Science (SPSS) version 20 software to perform the analysis with a significant level (0.05) and the stated hypothesis: there is no significant difference in birth and deaths registration among the centers in the Metropolis were tested. The interviews were coded and recorded using tape recorder based on the schedules of the in-depth interview. Data obtained from an in-depth interview was analyzed using content analysis (in qualitative method). Content analysis is a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding which is widely use in social science research (Stemler, 2000).

## Results and Discussion

### Trends of births registration (2009-2018)

The trend of birth registration across the study area shown in Figure 2 reveals that rates of birth registration in 2009, 2010, 2012 and 2013 is low and stated to increase from 2014 but fall drastically in

2017 and the registration shot up 2018. Similarly, the trend of birth registration in the centres across the study area indicates that the rates of birth registration in 2009 in almost all the centres were low and started to increases from 2014 but fall in 2017 the registration shot up 2018 (Figure 3). It indicates that 2016 has the highest registration records in all the years and Runjin Sambo Clinic recorded higher registration on that very year while Mabera Clinic had the lowest registration records at the period of this study (2019).

However, the decline in the registration of births in 2017 was attributed to the poor records keeping by the commission as explained by one of the key officials during the in-depth interview. The official opined that there were some little challenges they experienced in some months of that year, as such data were not forwarded to the main office of the commission at Abuja for further analysis. This data was misplaced leading to poor registration records on that very year. In addition, the calculated chi-square (167.514) portrays a significant variation in birth registration among the registration centers with p-value 0.0001 which is less than 0.05 (significant

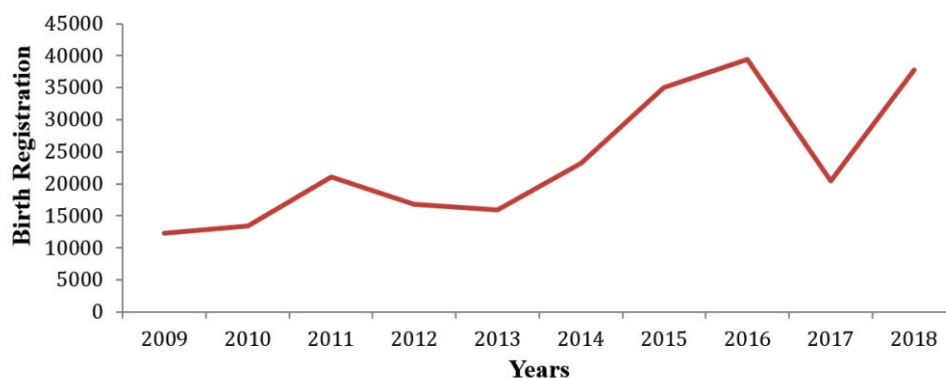


Figure 2: Temporal Distribution of Births Registration (2009-2018)

Source: Authors' Data Analysis, (2019)

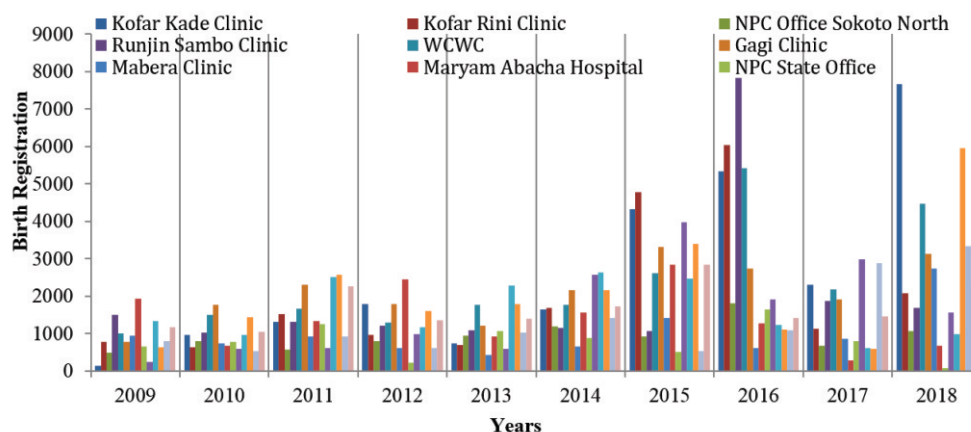


Figure 3: Temporal Distribution of Births Registration by Registration Centre (2009-2018)

Source: Authors' Data Analysis, (2019)



level). Base on this it has been made clear that the formulated null hypothesis is here by rejected and alternative hypothesis was accepted. Hence, there is significant difference in birth registration among the centers in the Metropolis.

Figure 4 illustrates the line of the best fit model. The stationary  $R^2$  (0.606) shows that the lower value of births registration records over the years (2009 and 2010) indicate a better fit in the figure. It also shows a strong positive relationship between the births records and years, because the Y-axis is 2,622 (births registration records) and the X-axis is + 9,119 (years) this is an indication that, as X increases, then Y must increase, which reveals that they are moving almost in the same direction (registration records) increases every year.

The result also implies that there is a significant level of variation between the years and centres in terms of

registration records in the study area. Generally, this shows that the people of the area are becoming more aware of the importance of birth registration through sensitization during antenatal care. This is similar to the finding of Musah *et al* (2015) who identifies that births registration in Ghana is increasing every year due to a higher level of awareness. In addition, they are of the view that taking mothers to hospitals for antenatal and maternity care will increase birth registration records of any particular society. It also agrees with the finding of Makinde *et al* (2016) which show significant variation between the different regions in the country and even within the same places over these periods 2002 to 2010 and they opined that birth registration will continue to increase in the coming years due to awareness that people are getting with regards to registration of births.

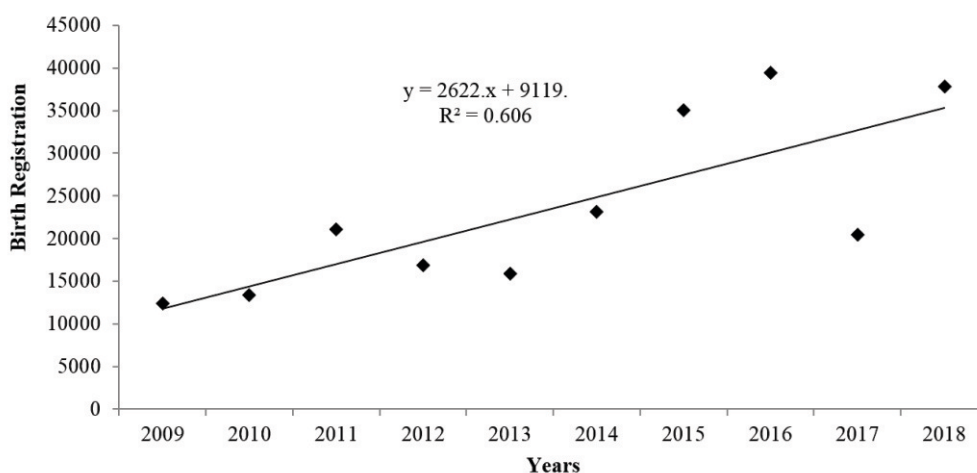


Figure 4: Line of Best Fit of Births Registration (2008-2019)

Source: Authors' Data Analysis, (2019)

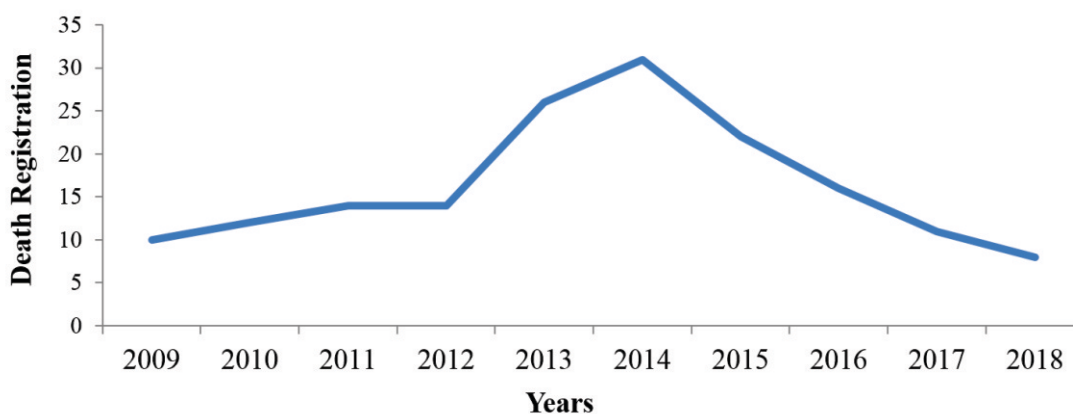


Figure 5: Temporal Distribution of Deaths Registration (2009-2018)

Source: Authors' Data Analysis, (2019)

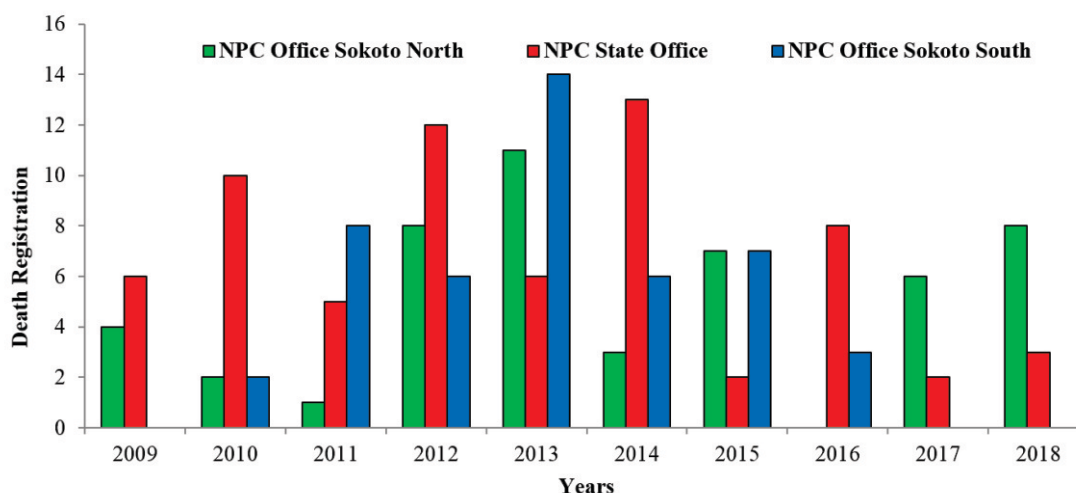


Figure 6: Temporal Distribution of Deaths Registration by Registration Centre (2009-2018)

Source: Authors' Data Analysis, (2019)

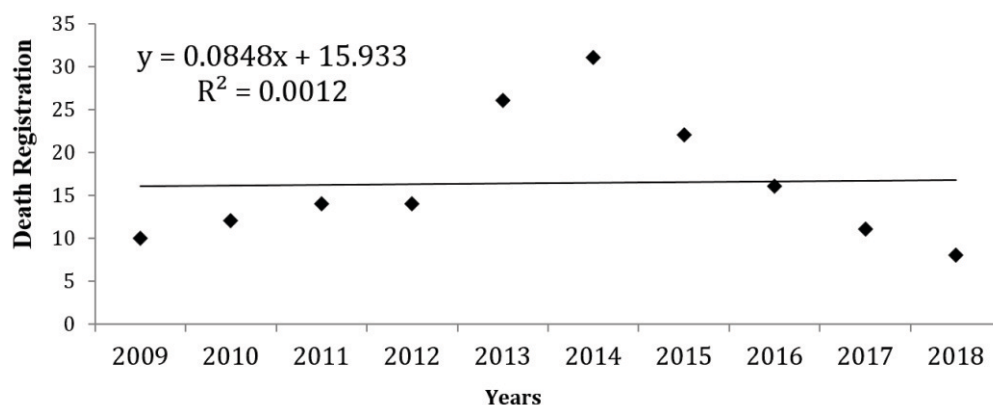


Figure 7: Line of Best Fit of Deaths Registration (2008-2018)

Source: Authors' Data Analysis, (2019)

### Trends of deaths registration (2009-2018)

The trend of deaths registration across the study and even from the centres indicates that the records at the beginning of the period in all centres and even the general trend were low, but started to increase from 2011 then dropped drastically in 2015, 2017 and 2018 and based on the records of the centres only NPC Sokoto South centre had zero (0) registration record in 2009 (Figures, 5 and 6). All the registration records (2009-2018) reveal that 2013 has the highest registration records because that very year the governor of the state insisted that, monetary claims for the deceased will not be paid without a death certificate. This made the families of the deceased register and fortunately, this policy was not sustained even during his tenure due to political reasons as explained by the NPC officials during the interview.

Nevertheless, there is significant variation in death registration among the registration centers, because the calculated  $\chi^2$  (42.557) with the p-value (0.000) which is less than 0.05 (significant level) and the

stated null hypothesis is here by rejected and alternative hypothesis was accepted. Therefore, there is significant difference in birth registration among the centers in the Metropolis.

Figure 7, shows the line of best fit model and in all the years (2008-2019) only 2016 registration records indicate better fit based on stationary  $R^2$  (0.001). It also explains a very small positive relationship between the death registration and years, because the Y-axis is 0.084 (deaths registration records) and X-axis is + 15.93 (years) this is an indication that as X increases then, Y must increase, which reveals that the data is scanty at the period of this study (2019).

The study also revealed that there is no significant level of variation between the years, centres and the registration records in the study area. This means that registration is very low, centres are also very few and people are not fully aware of the importance of deaths registration as well as even aware to register it. Death registration was reported to be very low since the inception of the program and it continued to drop

up to 2018 because death certificates are very rarely demanded as explained by NPC staff during the interview. They also highlighted that, there is a need for more awareness on deaths registration as well as registration of other vital events such as marriage, divorces and separations. This result consistent with many studies across the world such as WBG (2014); Mikkelsen *et al* (2015); Parmar *et al* (2016) and UNICEF (2017) which affirmed that many deaths globally go unregistered especially in developing countries and these will have greater effects on the country's planning especially on health related issues if care is not taken.

### Challenges of births and deaths registration

The major problems that births and deaths registration face can be attributed to inadequate funding, lack of professional personals and inadequate supporting staff, poor records keeping, inadequate transportation facilities, inadequate centres as private hospitals are not part of centres, lack of government commitments at all levels and low level of awareness on the importance of registering vital events especially deaths. All these reduce the levels of registrations of vital events in the study area. The low level of deaths registration awareness is attributed to a lack of government concern on the importance of death registration for national planning. People only registered births without fully understanding the importance of registering such events. And the fear with the present coverage especially on deaths registration, if to be used for proper planning the study area will be marginalized due to insufficient data. More so, one of the officials emphasizes on the challenges that are facing deaths registration:

*“Taking their personnel to court, a lot of procedures are involved before issuing the certificate which makes it difficult for people to obtain the certificate and people are not adequately aware of the importance of death certificate as well. Cultural backgrounds of the people in the area also hinder the registration of the death”.*

In addition, lack of full use of active methods for birth and death registration also hinders vital registration coverage and this as well as other

challenges restricted them to registrar two major vital events (births and deaths). Therefore, the officials are of the view that, if the governments (federal, state and local governments) focus on awareness creation on the importance of reporting such events through advocacy and sustained media campaign the level of coverage of vital registration of not even deaths but other vital events may improve significantly in the succeeding years. All the interviewed personals support the establishment of many registrations centres especially in private hospitals because all the existing centres are public places.

### Conclusion and Recommendations

It can be concluded that the temporal distribution of births registration is increasing while deaths registration is decreasing and there is significant variation in birth and death registration among the centers. The challenges that hinder the smooth running of births and deaths registration are socio-cultural, political and economic factors including lack of awareness, people's perception, government commitments and lack of adequate funding. Therefore, government should establish more centres especially on deaths registration and all the private hospitals should serve as centres as well as mandating health officers to act as registrars. Massive campaigns should be made by the NPC and other stakeholders like Ministry of Health, Primary Health care, Ministry for Local Government and Chieftaincy Affairs, Ministry of Information, developmental partners such as UNICEF and WHO as well as traditional, religious leaders and mass media in the area on the issues of vital registration events and its importance this will improve the trends of registration. The government at all levels should provide adequate funding, professional personals including ad-hoc staff, and logistics support to improve the entire vital registration system in the area. Government should take adequate measures including strong laws and regulations to address the challenges that are linked with the poor deaths registration and even births registration in the area such as making birth and death registration compulsory and simplify procedures, especially for death registration.

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Appendix 1  
BIRTHS REGISTRATION RECORDS (2009-2018)

REGISTRATION CENTERS	YEAR 2009	YEAR 2010	YEAR 2011	YEAR 2012	YEAR 2013	YEAR 2014	YEAR 2015	YEAR 2016	YEAR 2017	YEAR 2018	TOTAL
KofarKade Clinic	128	954	1316	1796	735	1639	4326	5338	2305	7663	26200
KofarRini Clinic	781	626	1512	954	685	1694	4784	6033	1133	2071	20273
NPC Office Sokoto North	480	792	569	807	943	1190	931	1813	672	1062	9259
RunjinSambo Clinic	1489	1016	1312	1203	1079	1156	1066	7828	1877	1687	19713
WCWC	1011	1506	1666	1289	1759	1772	2610	5409	2173	4471	23666
Gaji Clinic	778	1759	2296	1778	1202	2156	3324	2731	1915	3124	21063
Mabera Clinic	946	738	919	614	425	649	1423	618	850	2746	9928
Maryam Abacha Hospital	1923	672	1328	2438	919	1557	2848	1268	277	679	13909
NPC State Office	656	776	1247	217	1060	877	499	1652	788	68	7840
NPC Office Sokoto South	240	596	604	981	587	2576	3976	1905	2981	1560	16006
Specialist Hospital Sokoto	1328	954	2500	1169	2286	2643	2462	1230	612	986	16170
YarAkija Clinic	626	1438	2576	1603	1790	2159	3387	1111	593	5963	21246
Farfaru Clinic	806	532	926	608	1016	1420	521	1092	2873	3335	13129
UDUTH Sokoto	1165	1046	2256	1348	1389	1723	2842	1422	1459	2381	17031
<b>TOTAL</b>	<b>12357</b>	<b>13405</b>	<b>21027</b>	<b>16805</b>	<b>15875</b>	<b>23211</b>	<b>34999</b>	<b>39450</b>	<b>20508</b>	<b>37796</b>	<b>235433</b>

Source: National Population Commission State Office, Sokoto State, (2019)



Appendix 2  
DEATHS REGISTRATION RECORDS (2009-2018)

REGISTRATION CENTER	YEAR 2009	YEAR 2010	YEAR 2011	YEAR 2012	YEAR 2013	YEAR 2014	YEAR 2015	YEAR 2016	YEAR 2017	YEAR 2018	TOTAL
NPC Office Sokoto North	4	2	1	8	11	3	7	0	6	8	50
NPC State Office	6	10	5	12	6	13	2	8	2	3	67
NPC Office Sokoto South	0	2	8	6	14	6	7	3	0	0	46
TOTAL	10	14	14	26	31	22	16	11	8	11	163

Source: National Population Commission State Office, Sokoto State, (2019)