

Appendices

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Appendix 1: Permission to use Data from the DHIS



DHIS SOFTWARE DATA

DATA USER'S AGREEMENT

The National Department of Health, South Africa encourages all interested users to request for Data Sets/ Data on projects conducted by or for the Department. Users are however required to read and sign the User's Agreement Information, which stipulates the conditions for use of the Data Sets/Data before the requested Data Set/Data is made available.

Please read the following agreement. All users of all the Data Sets i.e. GIS, DHIS, CENSUS 1996 etc. agree to the following conditions listed below. If you accept these conditions, fill in the required information and sign at the appropriate place.

1. The User agrees that the South African Government is the owner of the Data Set(s).
2. The use of these Data Sets in research communication, scholarly papers, journals and the like is encouraged, but the authors of these communications and documents are required to acknowledge/cite the National Department of Health as the source of the Data.
3. The User agrees that he/she will not provide/publish any reports/statements without prior discussion with and permission of the Chief Director for Information Evaluation & Research at National Department.
4. A copy of any document produced from the Data Set for publication or other forms of circulation should be submitted to the Chief Director: Information Evaluation & Research at National Department

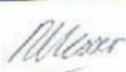
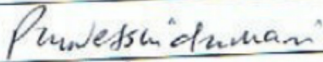


5. The User agrees that any use of the Data or reliance by the User or any of the Data is at the User's own risk and that the National Department of Health shall not be liable for any loss or damage howsoever arising as a result of such use.
6. The User acknowledges that the Data was collected by the National Department of Health and provided by the National Department of Health for research and information purposes and there could be discrepancies, errors or omissions in any or all of the Data.
7. The User agrees that he/she will not attempt to link nor permit others to attempt to link the records of persons in these Data Sets with personally identifiable records from any other source.
8. The User agrees that he/she will not attempt to use nor permit others to use the Data Sets to learn the identity of any person included in any set.
9. The User agrees that he/she will not contact nor permit others to contact persons in the Data Sets to question, verify or discuss data in the DHIS Data Set.
10. The User agrees that he/she will make no statement nor permit others to make statements indicating or suggesting that interpretations drawn are those of the National Department of Health.



11. The User agrees that his/her signature indicates his/her agreement to comply with the above-stated requirements.

Please complete this form

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DOH Representative*:	
Date:	01/07/2007

* The Data User's Agreement must be signed by the Chief Director for Health Information Evaluation & Research (NDOH) or an official of the Department of Health delegated by the Chief Director.

Appendix to Data Users Agreement (C-Sections)

Information required includes the DHIS datasets for the financial year ending March 2010, which includes the DHIS_ZA_NDH04, DHIS_ZA_NDH05 and DHIS_ZA_Hosp2 files. From these files the indicator Caesarean section rate for the period 2000 - 2010 - is required for the purposes of completing a research thesis to obtain a Masters Degree in Public Health from the University of Witwatersrand. The student number is 7930410 and the thesis title is; *"A review and comparison of the rate and trends of Caesarean sections in public sector district hospitals in South Africa with a description of the guidelines and protocols followed in two district hospitals."*

As a part-time student at the School of Public Health, University of Witwatersrand, and as part fulfillment of the requirements towards the Master of Public Health Degree, I am reviewing the Caesarean section rates in district hospitals throughout South Africa with the objective of obtaining a better understanding of the wide variation and increasing trends observed.

The Caesarean section rate is considered an important indicator of access to essential obstetric care in developing countries and in South Africa it is among one of the key maternal health indicators used in the evaluation of safe motherhood programmes.

In the 12 month period April 2007 – March 2008, the C-section rate in district hospitals across the 52 health districts in South Africa as reported through the District Health Information System (DHIS) and District Health Barometer 2007/08, was 15.6% and varied from a high of 32.8% in Nelson Mandela Bay Metro (EC) to a low of 2.0 % in Frances Baard (NC). These wide variations are concerning and could be due to a number of contributing factors and impact on both the cost to the health system and the health and wellbeing of mother and child. The average C-section rate in district hospitals country-wide has increased from 12.4% in 2000/01 to 15.6% in 2007/08 and research is required to ascertain if this increasing trend is true for all district hospitals as there are both health risks and health systems costs associated with increased rates of C-sections. Part of the

research conducted is in reviewing these variations and trends from the data available in the DHIS and documenting these for each district hospital in SA.

To this end, permission is requested to access the Caesarean section rate indicator from the DHIS records 2000-2010.

The results as set out in the final report will enable district hospitals to compare their C-section rates to average national, province and district rates as well as against other similar hospitals and will help to monitor their practice over time and evaluate the effectiveness of interventions to reduce C-section rates or improve quality of care. It will also enable a greater understanding of clinical guidelines and protocols used to conduct Caesarean sections.

It is in the interest of the health system to know if pregnant women attending district hospitals receive appropriate elective or emergency C-sections in line with good quality maternal health outcomes and it is hoped that this research will bring greater understanding and useful information for management.

Should you have any queries or wish to discuss further, kindly do not hesitate to contact me. Please note that once the protocol has been accepted, the Ethical Clearance certificate and questionnaire will be available for your records.

Thank you

Yours Sincerely,



F. Monticelli

Appendix 2: Data completeness

2.1 Percentage record completeness by hospital level and year

Hospital level	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
No. of District Hospital	249	249	249	249	249	249	249	249	249
% complete	80.7%	84.3%	88.4%	89.6%	92.0%	96.8%	96.4%	96.8%	79.9%
No. of Regional Hospitals	50	50	50	50	50	50	50	50	50
% complete	76.0%	96.0%	96.0%	94.0%	96.0%	94.0%	94.0%	96.0%	94.0%
No. of Provincial Tertiary Hospitals	12	12	12	12	12	12	12	12	12
% complete	91.7%	83.3%	83.3%	91.7%	91.7%	91.7%	91.7%	91.7%	91.7%
No. of National Central Hospitals	7	7	7	7	8	8	8	8	8
% complete	42.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
No. of Specialised Hospitals	1	1	1	1	1	1	1	1	1
% complete	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

2.2 Percentage completeness by province, year and hospital level

Province and hospital level	2000	2001	2002	2003	2004	2005	2006	2007	2008
EC District Hospitals	75%	77%	80%	85%	92%	98%	98%	98%	68%
EC Regional Hospitals	100%	100%	100%	100%	75%	50%	50%	75%	50%
EC Provincial Tertiary Hospitals	83%	67%	67%	83%	83%	83%	83%	83%	83%
FS District Hospitals	88%	92%	100%	100%	100%	100%	100%	100%	79%
FS Regional Hospitals	100%	100%	100%	100%	100%	100%	100%	100%	100%
FS National Central Hospitals	100%	100%	100%	100%	100%	100%	100%	100%	100%
GP District Hospitals	0%	70%	70%	70%	80%	90%	100%	100%	90%
GP Regional Hospitals	0%	100%	100%	100%	100%	100%	100%	100%	100%
GP National Central Hospitals	0%	100%	100%	100%	100%	100%	100%	100%	100%
KZN District Hospitals	97%	95%	97%	97%	97%	100%	100%	100%	97%
KZN Regional Hospitals	100%	100%	100%	92%	92%	92%	92%	92%	92%
KZN Provincial Tertiary Hospitals	100%	100%	100%	100%	100%	100%	100%	100%	100%
KZN National Central Hospitals	-	-	-	-	100%	100%	100%	100%	100%
MP District Hospitals	90%	90%	90%	95%	95%	95%	95%	95%	90%
MP Regional Hospitals	100%	100%	100%	100%	100%	100%	100%	100%	100%
MP Provincial Tertiary Hospitals	100%	100%	100%	100%	100%	100%	100%	100%	100%
LP District Hospitals	90%	90%	94%	90%	94%	97%	94%	97%	97%
LP Regional Hospitals	100%	100%	100%	100%	100%	100%	100%	100%	100%
LP Provincial Tertiary Hospitals	100%	100%	100%	100%	100%	100%	100%	100%	100%
NW District Hospitals	72%	67%	78%	78%	72%	89%	89%	89%	67%
NW Regional Hospitals	100%	100%	100%	100%	100%	100%	100%	100%	100%
NC District Hospitals	74%	79%	79%	79%	84%	95%	89%	89%	42%
NC Regional Hospitals	100%	100%	100%	100%	100%	100%	100%	100%	100%
WC District Hospitals	86%	90%	97%	97%	97%	97%	97%	97%	86%
WC Regional Hospitals	60%	60%	60%	60%	100%	100%	100%	100%	100%
WC National Central Hospitals	100%	100%	100%	100%	100%	100%	100%	100%	100%
WC Specialised Hospitals	100%	100%	100%	100%	100%	100%	100%	100%	100%

2.3 List of hospitals recording zero C-sections by year (ordered by province)

Hospital Name	Year	No. of deliveries	Prov.	District Code	District Name	Hospital level
ec Aberdeen Hospital	2002	119	EC	DC10	Cacadu DM	District
ec Aberdeen Hospital	2003	144	EC	DC10	Cacadu DM	District
ec Aberdeen Hospital	2004	131	EC	DC10	Cacadu DM	District
ec Aberdeen Hospital	2005	145	EC	DC10	Cacadu DM	District
ec Aberdeen Hospital	2006	138	EC	DC10	Cacadu DM	District
ec Aberdeen Hospital	2007	126	EC	DC10	Cacadu DM	District
ec Adelaide Hospital	2000	240	EC	DC12	Amathole DM	District
ec Bambisana Hospital	2002	237	EC	DC15	O Tambo DM	District
ec Bambisana Hospital	2003	266	EC	DC15	O Tambo DM	District
ec Bambisana Hospital	2004	331	EC	DC15	O Tambo DM	District
ec Bedford Hospital	2003	138	EC	DC12	Amathole DM	District
ec Bedford Hospital	2004	161	EC	DC12	Amathole DM	District
ec Bedford Hospital	2005	176	EC	DC12	Amathole DM	District
ec Bedford Hospital	2006	138	EC	DC12	Amathole DM	District
ec Bedford Hospital	2007	153	EC	DC12	Amathole DM	District
ec Cala Hospital	2005	630	EC	DC13	C Hani DM	District
ec Canzibe Hospital	2002	564	EC	DC15	O Tambo DM	District
ec Canzibe Hospital	2003	822	EC	DC15	O Tambo DM	District
ec Canzibe Hospital	2004	846	EC	DC15	O Tambo DM	District
ec Cathcart Hospital	2000	136	EC	DC12	Amathole DM	District
ec Cathcart Hospital	2001	152	EC	DC12	Amathole DM	District
ec Cathcart Hospital	2003	146	EC	DC12	Amathole DM	District
ec Cathcart Hospital	2004	167	EC	DC12	Amathole DM	District
ec Cathcart Hospital	2005	193	EC	DC12	Amathole DM	District
ec Cathcart Hospital	2006	172	EC	DC12	Amathole DM	District
ec Cofimvaba Hospital	2005	1352	EC	DC13	C Hani DM	District
ec Cofimvaba Hospital	2006	1454	EC	DC13	C Hani DM	District
ec Dordrecht Hospital	2002	231	EC	DC13	C Hani DM	District
ec Dordrecht Hospital	2003	285	EC	DC13	C Hani DM	District
ec Dordrecht Hospital	2004	370	EC	DC13	C Hani DM	District
ec Dordrecht Hospital	2005	352	EC	DC13	C Hani DM	District
ec Dordrecht Hospital	2006	335	EC	DC13	C Hani DM	District
ec Elliot Hospital	2004	355	EC	DC13	C Hani DM	District
ec Elliot Hospital	2005	385	EC	DC13	C Hani DM	District
ec Elliot Hospital	2006	418	EC	DC13	C Hani DM	District
ec Elliot Hospital	2007	377	EC	DC13	C Hani DM	District
ec Fort Beaufort Hospital	2007	736	EC	DC12	Amathole DM	District
ec Glen Grey Hospital	2003	737	EC	DC13	C Hani DM	District
ec Glen Grey Hospital	2004	986	EC	DC13	C Hani DM	District
ec Glen Grey Hospital	2005	930	EC	DC13	C Hani DM	District
ec Greenville Hospital	2000	104	EC	DC15	O Tambo DM	District
ec Greenville Hospital	2004	153	EC	DC15	O Tambo DM	District
ec Indwe Hospital	2002	217	EC	DC13	C Hani DM	District
ec Indwe Hospital	2003	232	EC	DC13	C Hani DM	District
ec Indwe Hospital	2004	321	EC	DC13	C Hani DM	District
ec Indwe Hospital	2005	355	EC	DC13	C Hani DM	District
ec Indwe Hospital	2006	288	EC	DC13	C Hani DM	District
ec Indwe Hospital	2007	295	EC	DC13	C Hani DM	District
ec Isilimela Hospital	2000	279	EC	DC15	O Tambo DM	District

Hospital Name	Year	No. of deliveries	Prov.	District Code	District Name	Hospital level
ec Isilimela Hospital	2001	301	EC	DC15	O Tambo DM	District
ec Isilimela Hospital	2002	248	EC	DC15	O Tambo DM	District
ec Isilimela Hospital	2004	317	EC	DC15	O Tambo DM	District
ec Komga Hospital	2005	199	EC	DC12	Amathole DM	District
ec Komga Hospital	2006	168	EC	DC12	Amathole DM	District
ec Komga Hospital	2007	124	EC	DC12	Amathole DM	District
ec Livingstone Hospital	2004	1032	EC	NMA	N Mandela MM	District
ec Maclear Hospital	2003	489	EC	DC14	Ukhahlamba DM	District
ec Maclear Hospital	2004	630	EC	DC14	Ukhahlamba DM	District
ec Maclear Hospital	2005	604	EC	DC14	Ukhahlamba DM	District
ec Maclear Hospital	2006	673	EC	DC14	Ukhahlamba DM	District
ec Maclear Hospital	2007	655	EC	DC14	Ukhahlamba DM	District
ec Madwaleni Hospital	2000	800	EC	DC12	Amathole DM	District
ec Madzikane ka Zulu Memorial Hospital	2003	1226	EC	DC44	A Nzo DM	District
ec Martje Venter (Tarkastad) Hospital	2003	213	EC	DC13	C Hani DM	District
ec Martje Venter (Tarkastad) Hospital	2004	201	EC	DC13	C Hani DM	District
ec Martje Venter (Tarkastad) Hospital	2005	227	EC	DC13	C Hani DM	District
ec Martje Venter (Tarkastad) Hospital	2006	239	EC	DC13	C Hani DM	District
ec Martje Venter (Tarkastad) Hospital	2007	176	EC	DC13	C Hani DM	District
ec Molteno Hospital	2005	205	EC	DC13	C Hani DM	District
ec Molteno Hospital	2006	234	EC	DC13	C Hani DM	District
ec Molteno Hospital	2007	221	EC	DC13	C Hani DM	District
ec Nessie Knight Hospital	2003	762	EC	DC15	O Tambo DM	District
ec Nessie Knight Hospital	2005	584	EC	DC15	O Tambo DM	District
ec Nessie Knight Hospital	2006	678	EC	DC15	O Tambo DM	District
ec Nessie Knight Hospital	2007	856	EC	DC15	O Tambo DM	District
ec Port Alfred Hospital	2003	531	EC	DC10	Cacadu DM	District
ec Port Alfred Hospital	2004	642	EC	DC10	Cacadu DM	District
ec Port Alfred Hospital	2005	596	EC	DC10	Cacadu DM	District
ec Port Alfred Hospital	2006	742	EC	DC10	Cacadu DM	District
ec Port Alfred Hospital	2007	699	EC	DC10	Cacadu DM	District
ec Port Elizabeth Provincial Hospital	2007	50	EC	NMA	N Mandela MM	District
ec SAWAS Memorial (Jansenville) Hospital	2004	209	EC	DC10	Cacadu DM	District
ec SAWAS Memorial (Jansenville) Hospital	2005	250	EC	DC10	Cacadu DM	District
ec SAWAS Memorial (Jansenville) Hospital	2006	226	EC	DC10	Cacadu DM	District
ec SAWAS Memorial (Jansenville) Hospital	2007	184	EC	DC10	Cacadu DM	District
ec Sipetu Hospital	2006	564	EC	DC44	A Nzo DM	District
ec Sipetu Hospital	2007	623	EC	DC44	A Nzo DM	District
ec SS Gida Hospital	2003	309	EC	DC12	Amathole DM	District
ec SS Gida Hospital	2004	400	EC	DC12	Amathole DM	District
ec SS Gida Hospital	2005	383	EC	DC12	Amathole DM	District
ec SS Gida Hospital	2006	384	EC	DC12	Amathole DM	District
ec SS Gida Hospital	2007	366	EC	DC12	Amathole DM	District
ec St Lucy's Hospital	2000	790	EC	DC15	O Tambo DM	District
ec St Lucy's Hospital	2001	771	EC	DC15	O Tambo DM	District
ec St Lucy's Hospital	2002	647	EC	DC15	O Tambo DM	District

Hospital Name	Year	No. of deliveries	Prov.	District Code	District Name	Hospital level
ec St Lucy's Hospital	2003	939	EC	DC15	O Tambo DM	District
ec St Lucy's Hospital	2004	1097	EC	DC15	O Tambo DM	District
ec Sterkstroom Hospital	2005	93	EC	DC13	C Hani DM	District
ec Sterkstroom Hospital	2006	119	EC	DC13	C Hani DM	District
ec Sterkstroom Hospital	2007	115	EC	DC13	C Hani DM	District
ec Steynsburg Hospital	2004	180	EC	DC14	Ukhahlamba DM	District
ec Steynsburg Hospital	2005	153	EC	DC14	Ukhahlamba DM	District
ec Steynsburg Hospital	2006	148	EC	DC14	Ukhahlamba DM	District
ec Steynsburg Hospital	2007	162	EC	DC14	Ukhahlamba DM	District
ec Sundays Valley (Kirkwood) Hospital	2005	622	EC	DC10	Cacadu DM	District
ec Sundays Valley (Kirkwood) Hospital	2006	652	EC	DC10	Cacadu DM	District
ec Sundays Valley (Kirkwood) Hospital	2007	589	EC	DC10	Cacadu DM	District
ec Tafalofefe Hospital	2002	276	EC	DC12	Amathole DM	District
ec Tafalofefe Hospital	2005	477	EC	DC12	Amathole DM	District
ec Tafalofefe Hospital	2006	433	EC	DC12	Amathole DM	District
ec Willowmore Hospital	2004	229	EC	DC10	Cacadu DM	District
ec Willowmore Hospital	2005	198	EC	DC10	Cacadu DM	District
ec Willowmore Hospital	2006	202	EC	DC10	Cacadu DM	District
ec Willowmore Hospital	2007	195	EC	DC10	Cacadu DM	District
ec Zitulele Hospital	2000	362	EC	DC15	O Tambo DM	District
ec Zitulele Hospital	2001	382	EC	DC15	O Tambo DM	District
fs Diamond/Diamant Hospital (Jagersfontein)	2006	652	FS	DC16	Xhariep DM	District
fs Diamond/Diamant Hospital (Jagersfontein)	2007	668	FS	DC16	Xhariep DM	District
fs Elizabeth Ross Hospital	2002	3058	FS	DC19	T Mofutsanyane DM	District
fs Elizabeth Ross Hospital	2003	2518	FS	DC19	T Mofutsanyane DM	District
fs Elizabeth Ross Hospital	2004	2924	FS	DC19	T Mofutsanyane DM	District
fs Elizabeth Ross Hospital	2005	3074	FS	DC19	T Mofutsanyane DM	District
fs Elizabeth Ross Hospital	2006	3099	FS	DC19	T Mofutsanyane DM	District
fs Elizabeth Ross Hospital	2007	3108	FS	DC19	T Mofutsanyane DM	District
fs Embekweni Hospital (Zastron)	2003	475	FS	DC16	Xhariep DM	District
fs Embekweni Hospital (Zastron)	2004	518	FS	DC16	Xhariep DM	District
fs Embekweni Hospital (Zastron)	2005	447	FS	DC16	Xhariep DM	District
fs Embekweni Hospital (Zastron)	2006	507	FS	DC16	Xhariep DM	District
fs Embekweni Hospital (Zastron)	2007	494	FS	DC16	Xhariep DM	District
fs Mohau Hospital (Hoopstad)	2002	714	FS	DC18	Lejweleputswa DM	District
fs Mohau Hospital (Hoopstad)	2003	673	FS	DC18	Lejweleputswa DM	District
fs Mohau Hospital (Hoopstad)	2004	890	FS	DC18	Lejweleputswa DM	District
fs Mohau Hospital (Hoopstad)	2005	807	FS	DC18	Lejweleputswa DM	District
fs Mohau Hospital (Hoopstad)	2006	759	FS	DC18	Lejweleputswa DM	District
fs Mohau Hospital (Hoopstad)	2007	861	FS	DC18	Lejweleputswa DM	District
fs Phumelela Hospital (Vrede)	2003	417	FS	DC19	T Mofutsanyane DM	District
fs Phumelela Hospital (Vrede)	2005	389	FS	DC19	T Mofutsanyane DM	District
fs Phumelela Hospital (Vrede)	2006	436	FS	DC19	T Mofutsanyane DM	District
fs Stoffel Coetzee Hospital (Smithfield)	2003	333	FS	DC16	Xhariep DM	District
fs Stoffel Coetzee Hospital (Smithfield)	2006	361	FS	DC16	Xhariep DM	District
fs Stoffel Coetzee Hospital (Smithfield)	2007	340	FS	DC16	Xhariep DM	District
gp Mamelodi Hospital	2001	4118	GP	TSH	City of Tshwane MM	District

Hospital Name	Year	No. of deliveries	Prov.	District Code	District Name	Hospital level
gp Mamelodi Hospital	2002	4398	GP	TSH	City of Tshwane MM	District
gp Mamelodi Hospital	2003	4765	GP	TSH	City of Tshwane MM	District
gp Pretoria West Hospital	2006	1380	GP	TSH	City of Tshwane MM	District
kz Montebello Hospital	2004	624	KZN	DC29	iLembe DM	District
kz Umphumulo Hospital	2003	833	KZN	DC29	iLembe DM	District
kz Umphumulo Hospital	2004	949	KZN	DC29	iLembe DM	District
kz Wentworth Hospital	2005	310	KZN	ETH	eThekwini MM	District
kz Wentworth Hospital	2006	723	KZN	ETH	eThekwini MM	District
kz Wentworth Hospital	2007	770	KZN	ETH	eThekwini MM	District
lp Botlokwa Hospital	2005	1469	LP	DC35	Capricorn DM	District
lp Dilokong Hospital	2005	3112	LP	DC47	Gr Sekhukhune DM	District
lp Helene Franz Hospital	2001	1761	LP	DC35	Capricorn DM	District
lp Helene Franz Hospital	2002	1747	LP	DC35	Capricorn DM	District
lp Thabazimbi Hospital	2000	686	LP	DC36	Waterberg DM	District
lp Witpoort Hospital	2001	562	LP	DC36	Waterberg DM	District
lp Zebediela Hospital	2004	817	LP	DC35	Capricorn DM	District
mp Bernice Samuels Hospital	2002	900	MP	DC31	Nkangala DM	District
mp Bernice Samuels Hospital	2003	854	MP	DC31	Nkangala DM	District
mp Bernice Samuels Hospital	2004	939	MP	DC31	Nkangala DM	District
mp Elsie Ballot Hospital	2007	578	MP	DC30	G Sibande DM	District
nc Barkly West Hospital	2004	646	NC	DC9	Frances Baard DM	District
nc Barkly West Hospital	2005	642	NC	DC9	Frances Baard DM	District
nc Barkly West Hospital	2006	684	NC	DC9	Frances Baard DM	District
nc Barkly West Hospital	2007	738	NC	DC9	Frances Baard DM	District
nc Douglas (Hester Malan) Hospital	2006	491	NC	DC7	Pixley ka Seme DM	District
nc Douglas (Hester Malan) Hospital	2007	303	NC	DC7	Pixley ka Seme DM	District
nc Garies (Van Rooyen) Hospital	2005	65	NC	DC6	Namakwa DM	District
nc Garies (Van Rooyen) Hospital	2006	38	NC	DC6	Namakwa DM	District
nc Garies (Van Rooyen) Hospital	2007	65	NC	DC6	Namakwa DM	District
nc Jan Kempdorp Hospital	2003	405	NC	DC9	Frances Baard DM	District
nc Jan Kempdorp Hospital	2004	423	NC	DC9	Frances Baard DM	District
nc Jan Kempdorp Hospital	2005	477	NC	DC9	Frances Baard DM	District
nc Jan Kempdorp Hospital	2006	461	NC	DC9	Frances Baard DM	District
nc Jan Kempdorp Hospital	2007	386	NC	DC9	Frances Baard DM	District
nc Kakamas Hospital	2006	417	NC	DC8	Siyanda DM	District
nc Kakamas Hospital	2007	455	NC	DC8	Siyanda DM	District
nc Keimoes Hospital	2006	388	NC	DC8	Siyanda DM	District
nc Keimoes Hospital	2007	370	NC	DC8	Siyanda DM	District
nc Manne Dipico (Colesberg) Hospital	2006	331	NC	DC7	Pixley ka Seme DM	District
nc Manne Dipico (Colesberg) Hospital	2007	327	NC	DC7	Pixley ka Seme DM	District
nc Nababeep Hospital	2004	71	NC	DC6	Namakwa DM	District
nc Nababeep Hospital	2005	60	NC	DC6	Namakwa DM	District
nc Postmasburg Hospital	2007	705	NC	DC8	Siyanda DM	District
nc Warrenton Hospital	2005	402	NC	DC9	Frances Baard DM	District
nc Warrenton Hospital	2006	400	NC	DC9	Frances Baard DM	District
nc Warrenton Hospital	2007	399	NC	DC9	Frances Baard DM	District
nw Brits Hospital	2005	3168	NW	DC37	Bojanala Platinum DM	District
nw Christiana Hospital	2004	415	NW	DC39	Bophirima DM	District
nw Christiana Hospital	2005	389	NW	DC39	Bophirima DM	District

Hospital Name	Year	No. of deliveries	Prov.	District Code	District Name	Hospital level
nw Christiana Hospital	2006	287	NW	DC39	Bophirima DM	District
nw Christiana Hospital	2007	348	NW	DC39	Bophirima DM	District
nw Koster Hospital	2006	475	NW	DC37	Bojanala Platinum DM	District
nw Koster Hospital	2007	497	NW	DC37	Bojanala Platinum DM	District
nw Nic Bodenstein Hospital	2007	661	NW	DC40	Southern DM	District
nw Swartruggens Hospital	2005	224	NW	DC37	Bojanala Platinum DM	District
nw Swartruggens Hospital	2006	394	NW	DC37	Bojanala Platinum DM	District
nw Swartruggens Hospital	2007	408	NW	DC37	Bojanala Platinum DM	District
nw Ventersdorp Hospital	2006	579	NW	DC40	Southern DM	District
nw Ventersdorp Hospital	2007	157	NW	DC40	Southern DM	District
wc False Bay Hospital	2007	452	WC	CPT	City of Cape Town	District
wc Laingsburg Hospital	2001	118	WC	DC5	Central Karoo DM	District
wc Laingsburg Hospital	2002	98	WC	DC5	Central Karoo DM	District
wc Laingsburg Hospital	2003	113	WC	DC5	Central Karoo DM	District
wc Laingsburg Hospital	2004	87	WC	DC5	Central Karoo DM	District
wc Laingsburg Hospital	2005	95	WC	DC5	Central Karoo DM	District
wc Laingsburg Hospital	2006	90	WC	DC5	Central Karoo DM	District
wc Laingsburg Hospital	2007	87	WC	DC5	Central Karoo DM	District
wc Murraysburg Hospital	2001	92	WC	DC5	Central Karoo DM	District
wc Murraysburg Hospital	2002	105	WC	DC5	Central Karoo DM	District
wc Murraysburg Hospital	2003	100	WC	DC5	Central Karoo DM	District
wc Murraysburg Hospital	2004	136	WC	DC5	Central Karoo DM	District
wc Murraysburg Hospital	2005	107	WC	DC5	Central Karoo DM	District
wc Murraysburg Hospital	2006	116	WC	DC5	Central Karoo DM	District
wc Murraysburg Hospital	2007	118	WC	DC5	Central Karoo DM	District
wc Prince Albert Hospital	2002	157	WC	DC5	Central Karoo DM	District
wc Prince Albert Hospital	2003	139	WC	DC5	Central Karoo DM	District
wc Prince Albert Hospital	2004	148	WC	DC5	Central Karoo DM	District
wc Prince Albert Hospital	2005	179	WC	DC5	Central Karoo DM	District
wc Prince Albert Hospital	2006	202	WC	DC5	Central Karoo DM	District
wc Prince Albert Hospital	2007	166	WC	DC5	Central Karoo DM	District
wc Radie Kotze Hospital	2001	330	WC	DC1	West Coast DM	District
wc Radie Kotze Hospital	2002	271	WC	DC1	West Coast DM	District
wc Radie Kotze Hospital	2003	330	WC	DC1	West Coast DM	District
wc Uniondale Hospital	2006	180	WC	DC4	Eden DM	District
wc Uniondale Hospital	2007	150	WC	DC4	Eden DM	District
wc Wesfleur Hospital	2002	779	WC	CPT	City of Cape Town	District
wc Wesfleur Hospital	2003	775	WC	CPT	City of Cape Town	District
wc Wesfleur Hospital	2005	970	WC	CPT	City of Cape Town	District
wc Wesfleur Hospital	2007	764	WC	CPT	City of Cape Town	District

Appendix 3: Deprivation Index and socio-economic quintile by district, 2007

Province	District code	District Name	DI (2007)	SEQ (2007)
EC	DC10	Cacadu	1.76	4
EC	DC12	Amathole	3.27	2
EC	DC13	Chris Hani	3.74	1
EC	DC14	Ukhahlamba	3.67	2
EC	DC15	O.R. Tambo	4.47	1
EC	DC44	Alfred Nzo	4.46	1
EC	NMA	Nelson Mandela Bay Metro	1.55	5
FS	DC16	Xhariep	2.27	3
FS	DC17	Motheo	2.12	3
FS	DC18	Lejweleputswa	2.04	4
FS	DC19	Thabo Mofutsanyane	2.92	3
FS	DC20	Fezile Dabi	1.59	5
GP	DC42	Sedibeng	1.67	4
GP	DC46	Metsweding	2.15	3
GP	DC48	West Rand	1.76	4
GP	EKU	Ekurhuleni	1.82	4
GP	JHB	City of Johannesburg	1.63	5
GP	TSH	City of Tshwane	1.88	4
KZN	DC21	Ugu	3.82	1
KZN	DC22	uMgungundlovu	2.38	3
KZN	DC23	Uthukela	3.72	1
KZN	DC24	Umzinyathi	4.57	1
KZN	DC25	Amajuba	2.83	3
KZN	DC26	Zululand	4.18	1
KZN	DC27	Umkhanyakude	4.49	1
KZN	DC28	Uthungulu	3.46	2
KZN	DC29	iLembe	3.63	2
KZN	DC43	Sisonke	4.12	1
KZN	ETH	eThekweni	1.81	4
LP	DC33	Mopani	3.39	2
LP	DC34	Vhembe	3.56	2
LP	DC35	Capricorn	3.44	2
LP	DC36	Waterberg	2.72	3
LP	DC47	Greater Sekhukhune	4.16	1
MP	DC30	Gert Sibande	2.55	3
MP	DC31	Nkangala	2.63	3
MP	DC32	Ehlanzeni	3.16	2
NC	DC45	John Taolo Gaetsewe (Kgalagadi)	2.88	3
NC	DC6	Namakwa	0.97	5
NC	DC7	Pixley ka Seme	1.84	4
NC	DC8	Siyanda	1.56	5
NC	DC9	Frances Baard	1.71	4
NW	DC37	Bojanala Platinum	2.66	3
NW	DC38	Ngaka Modiri Molema (Central)	3.35	2
NW	DC39	Dr Ruth Segomotsi Mompati (Bophirima)	3.41	2
NW	DC40	Dr Kenneth Kaunda (Southern)	1.92	4
WC	CPT	City of Cape Town	1.23	5
WC	DC1	West Coast	0.88	5
WC	DC2	Cape Winelands	1.09	5
WC	DC3	Overberg	1.00	5
WC	DC4	Eden	1.31	5
WC	DC5	Central Karoo	1.32	5

Appendix 4: Definitions of Categories of Hospitals

Extract from the Government Gazette No.9570, Volume 554, Pretoria, 12 August 2011, No.34521.

R655 National Health Act (61/2003): Regulations Relating to Categories of Hospitals

District hospitals

3. (1) District hospitals are categorized into small, medium and large district hospitals with the following number of beds:

- (a) small district hospitals with no less than 50 beds and no more than 150 beds;
- (b) medium size district hospitals with more than 150 beds and no more than 300 beds; and
- (c) large district hospitals with no less than 300 beds and no more than 600 beds.

(2) A district hospital must –

- (a) serve a defined population within a health district and supports primary health care;
- (b) provide a district hospital package of care on a 24 hour basis;
- (c) have general practitioners and clinical nurse practitioners providing health services;
- (d) provide services that include in-patient and ambulatory health services as well as emergency health services.

(3) A district hospital receives outreach and support from general specialists based at regional hospitals.

(4) A district hospital may only provide the following specialist services-

- (a) paediatric health services,
- (b) obstetrics and gynaecology,
- (c) internal medicine; and
- (d) general surgery.

Regional hospitals

4 (1) A regional hospital must, on a 24 hour basis, provide -

- (a) health services in the fields of internal medicine, paediatrics, obstetrics and gynaecology, and general surgery and;
 - (b) health services in at least one of the following specialities—
 - (i) orthopaedic surgery;
 - (ii) psychiatry;
 - (iii) anaesthetics;
 - (iv) diagnostic radiology;
 - (c) trauma and emergency services;
 - (d) short term ventilation in a critical care unit; and
 - (e) services to a defined, regional drainage population, limited to provincial boundaries and receives referrals from several district hospitals.
- (2) A regional hospital receives outreach and support from tertiary hospitals.
- (3) A regional hospital has between 400 and 800 beds.

Tertiary hospitals

5. A tertiary hospital—

- (a) provides specialist level services provided by regional hospitals;
- (b) provides subspecialties of specialties referred to in paragraph (a);
- (c) provides intensive care services under the supervision of a specialist or specialist intensivist; and
- (d) receives referrals from regional hospitals not limited to provincial boundaries; and
- (e) has between 400 and 800 beds.

Central Hospitals

6. (1) A central hospital -

- (a) must provide tertiary hospital services and central referral services and may provide national referral services;
- (b) must provide training of health care providers;
- (c) must conduct research;
- (d) receives patients referred to it from more than one province;

- (e) must be attached to a medical school as the main teaching platform; and
- (f) must have a maximum of 1200 beds.

(2) Central referral services are provided in highly specialised units, require unique, highly skilled and scarce personnel and at a small number of sites nationwide.

~~(3) National referral services-~~

- (a) refer to super-specialised national referral units; and
- (b) represents extremely specialised and expensive services (e.g. heart and lung transplant, bone marrow transplant, liver transplant, cochlear implants).

Specialized hospitals

7. A specialized hospital-

- (a) provides specialized health services like psychiatric services, tuberculosis services, treatment of infectious diseases and rehabilitation services; and
- (b) has a maximum of 600 beds.

Appendix 5: Human Research Ethics Committee (Medical) Research Clearance Certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG
Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/49 Ms Fioarenza Monticelli

CLEARANCE CERTIFICATE

M110206

PROJECT

Caesarean section deliveries in public sector hospitals in South Africa, 2001 - 2009.

INVESTIGATORS

Ms Fioarenza Monticelli.

DEPARTMENT

School of Public Health

DATE CONSIDERED

25/02/2011

DECISION OF THE COMMITTEE*

Approved unconditionally

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE 25/03/2011

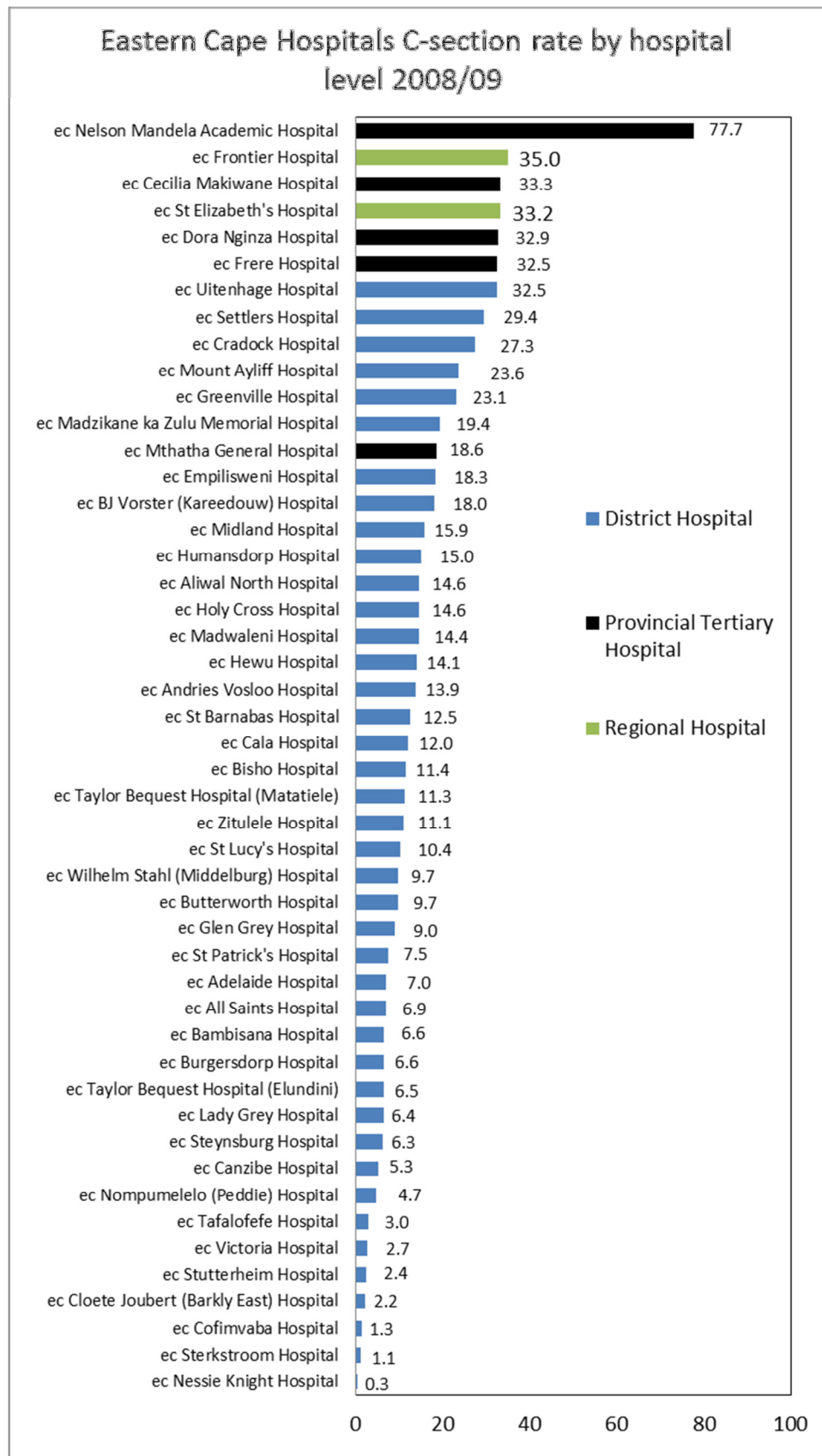
CHAIRPERSON 
(Professor PE Cleaton-Jones)

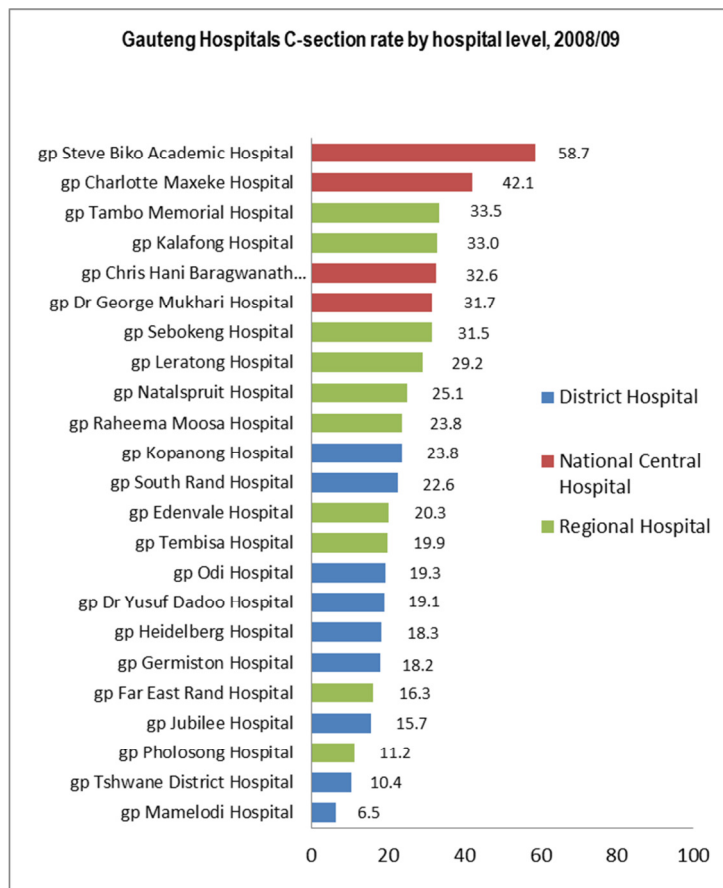
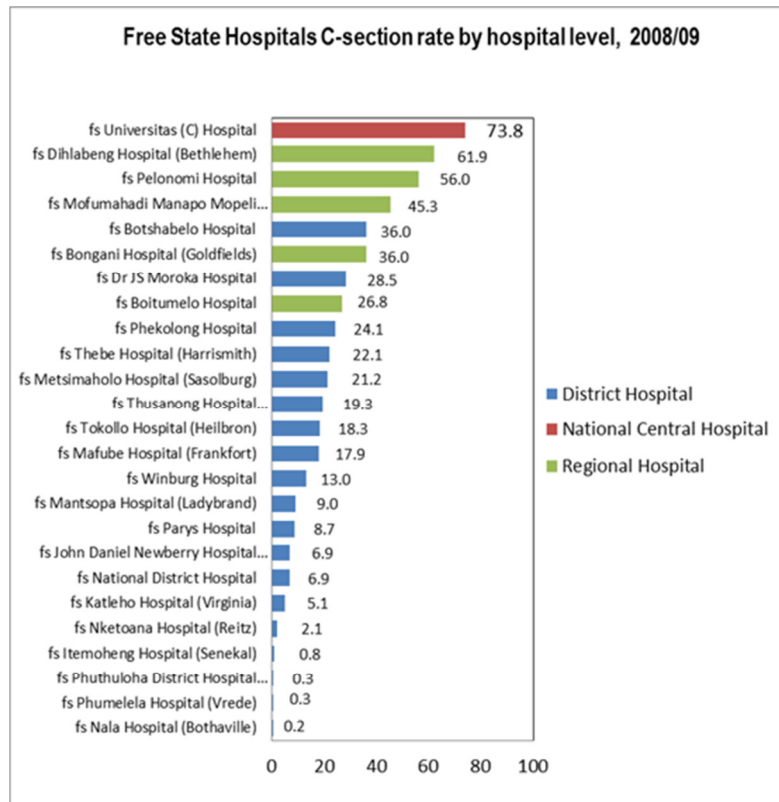
*Guidelines for written 'informed consent' attached where applicable
cc: Supervisor : Dr Duan Blaauw

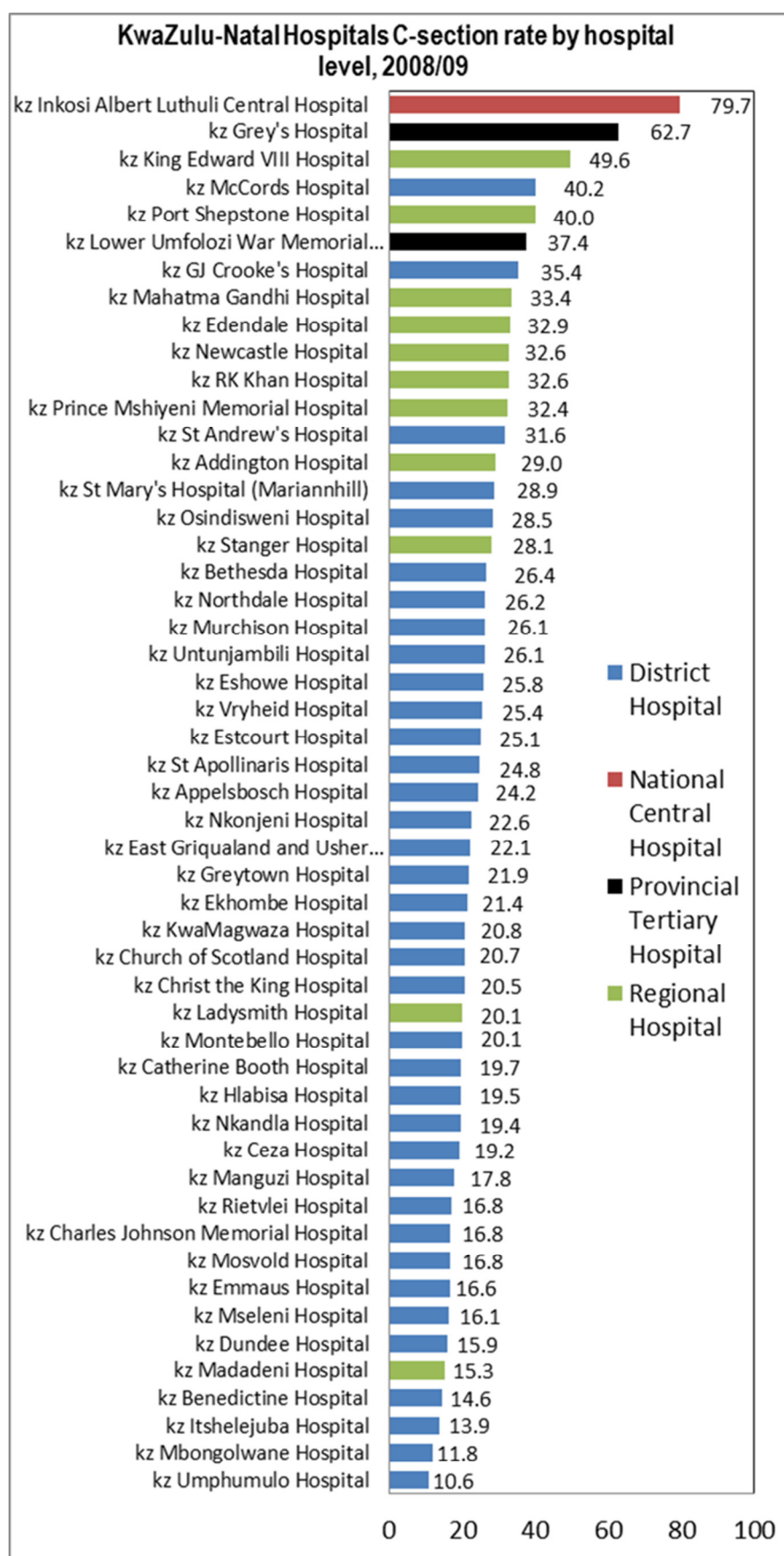
DECLARATION OF INVESTIGATOR(S)

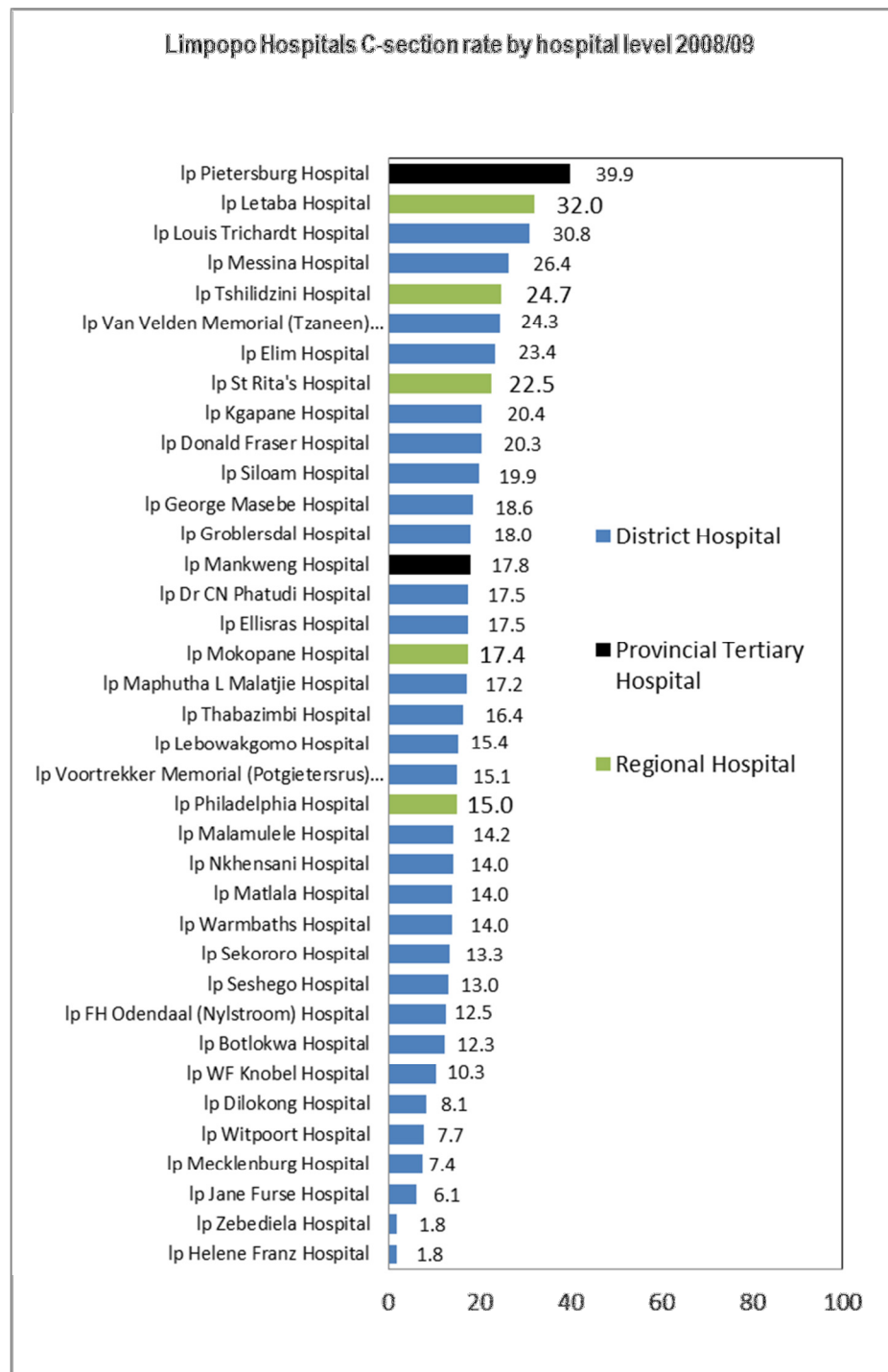
To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University.
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. I agree to a completion of a yearly progress report.
PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES..

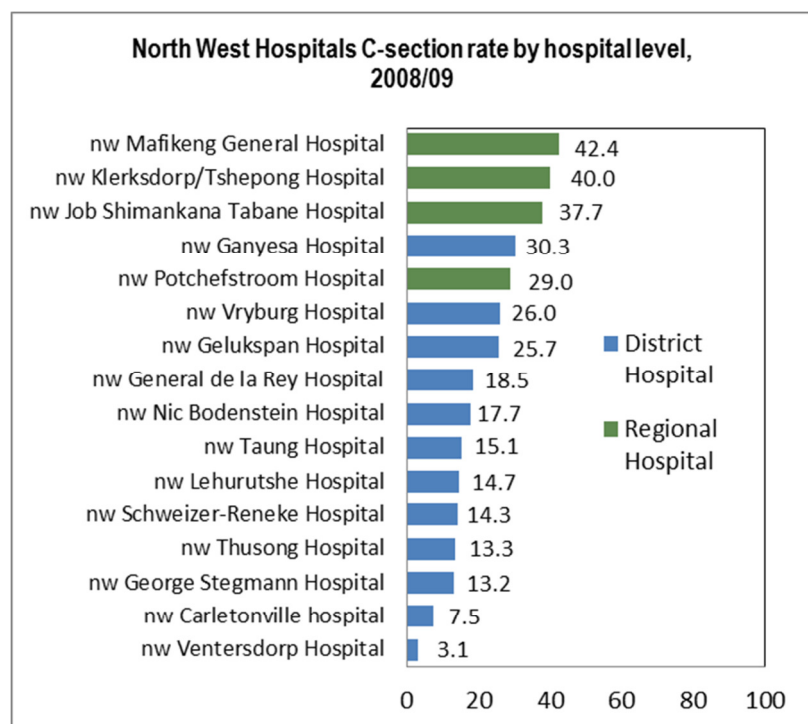
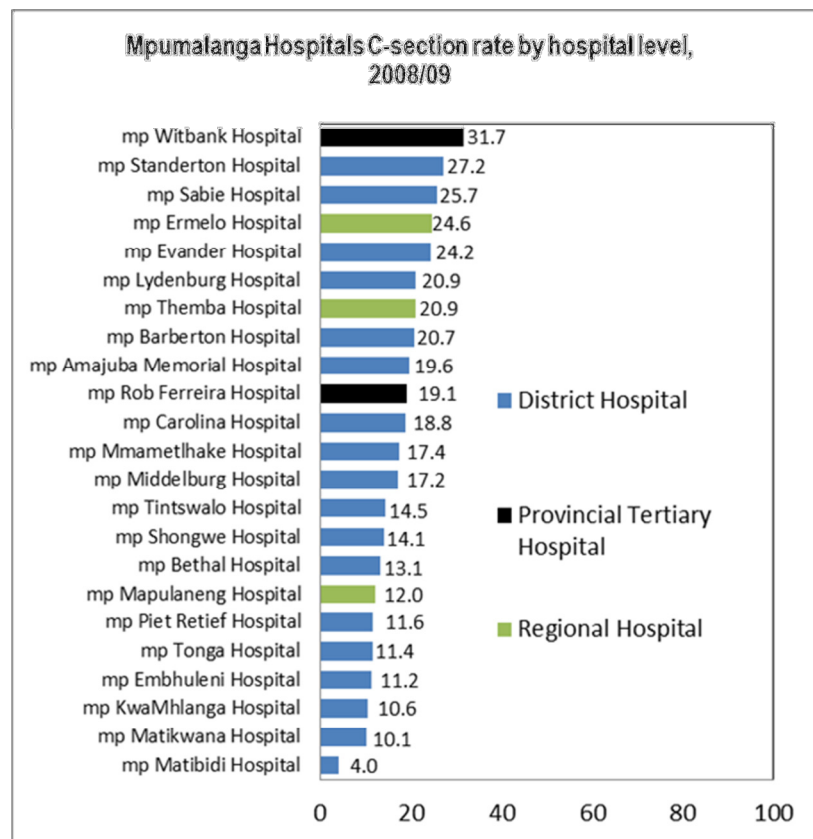
Appendix 6: C-section rates at Facility Level by Province

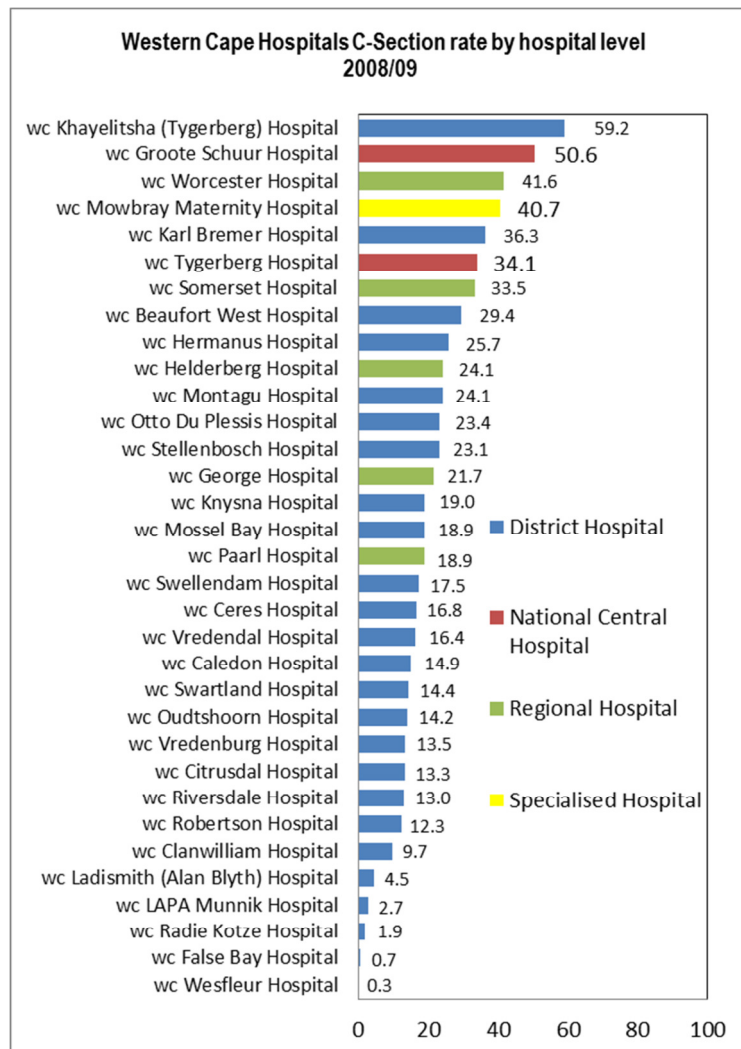
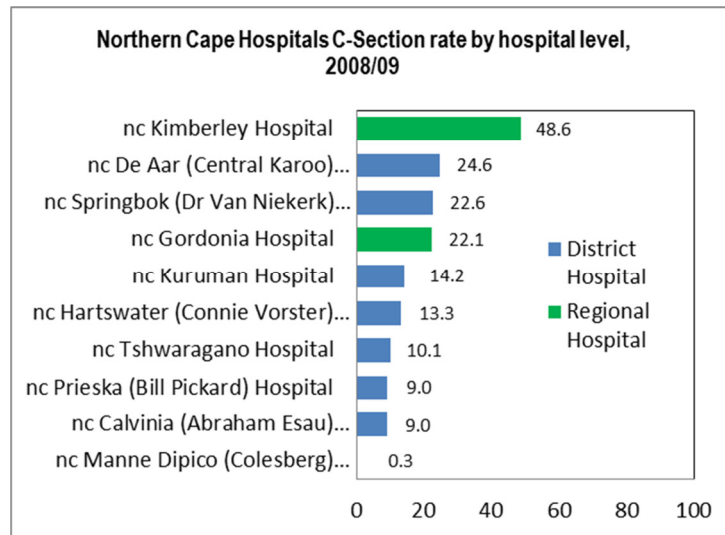










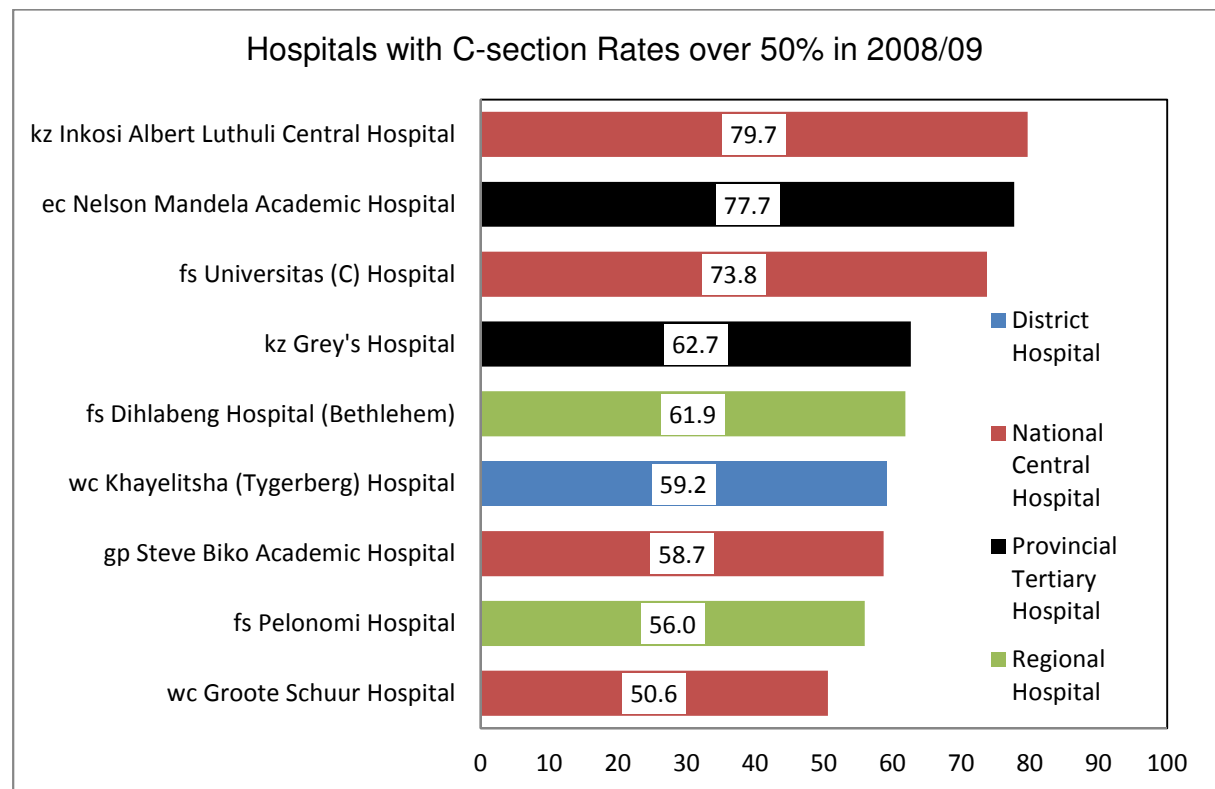


Appendix 7.Hospitals with C-section rates below 5% and above 50% in 2008/09

Appendix 7.1: District Hospitals with C-section rates below 5% in 2008/09

Hospital name	District	Province	C-section rate (%)	No. of Births
Nala Hospital	Lejweleputswa	Free State	0.2	985
Phumelela Hospital	Thabo Mofutsanyane	Free State	0.3	367
Manne Dipico Hospital	Pixley ka Seme	Northern Cape	0.3	347
Wesfleur Hospital	City of Cape Town	Western Cape	0.3	964
Nessie Knight Hospital	O.R. Tambo	Eastern Cape	0.3	949
Phuthuloha District Hospital	Thabo Mofutsanyane	Free State	0.3	929
False Bay Hospital	City of Cape Town	Western Cape	0.7	582
Itemoheng Hospital	Thabo Mofutsanyane	Free State	0.8	912
Sterkstroom Hospital	Chris Hani	Eastern Cape	1.1	91
Cofimvaba Hospital	Chris Hani	Eastern Cape	1.3	1 221
Helene Franz Hospital	Capricorn	Limpopo	1.8	2 455
Zebediela Hospital	Capricorn	Limpopo	1.8	1 540
Radie Kotze Hospital	West Coast	Western Cape	1.9	323
Nketoana Hospital	Thabo Mofutsanyane	Free State	2.1	778
Cloete Joubert Hospital	Ukhahlamba	Eastern Cape	2.2	278
Stutterheim Hospital	Amathole	Eastern Cape	2.4	751
Victoria Hospital	Amathole	Eastern Cape	2.7	594
LAPA Munnik Hospital	West Coast	Western Cape	2.7	333
Tafalofefe Hospital	Amathole	Eastern Cape	3.0	396
Ventersdorp Hospital	Dr Kenneth Kaunda	North West	3.1	572
Matibidi Hospital	Ehlanzeni	Mpumalanga	4.0	454
Ladismith Hospital	Eden	Western Cape	4.5	246
Nompumelelo Hospital	Amathole	Eastern Cape	4.7	489

Appendix 7.2: Hospitals with C-section rates above 50% in 2008/09



Appendix 7.3: District Hospital C-section rates by district, ranked from highest to lowest rate 2008/09

Province	District Code	District name	No.Hospitals (with data)	C-Sections	Births	Weighted C-Section rate (%)
Free State	DC16	Xhariep DM	0	0	missing values for all three DH	0
Gauteng	DC46	Metsweding DM	0	0	No hospitals	0
KwaZulu-Natal	DC25	Amajuba DM	0	0	only has regional H & One DH with missing values	0
Northern Cape	DC8	Siyanda DM	0	0	only has regional H, & all 3 DH have missing values	0
North West	DC40	Dr K Kaunda DM	3	310	3581	8.7
Eastern Cape	DC12	Amathole DM	8	1022	11122	9.2
Limpopo	DC47	Gr Sekhukhune DM	5	1253	13457	9.3
Eastern Cape	DC13	C Hani DM	8	732	7312	10.0
Limpopo	DC35	Capricorn DM	6	1547	15146	10.2
Eastern Cape	DC15	O Tambo DM	9	1436	13955	10.3
Free State	DC18	Lejweleputswa DM	4	683	6267	10.9
Eastern Cape	DC14	Ukhahlamba DM	7	588	5088	11.6
Gauteng	TSH	City of Tshwane MM	4	1896	15770	12.0
Northern Cape	DC45	Kgalagadi DM	2	478	3935	12.1
Western Cape	DC1	West Coast DM	7	642	5125	12.5
Free State	DC19	T Mofutsanyane DM	7	893	7026	12.7
North West	DC37	Bojanala Platinum DM	1	300	2280	13.2
Northern Cape	DC9	Frances Baard DM	1	67	505	13.3
Mpumalanga	DC32	Ehlanzeni DM	8	2985	21602	13.8
Mpumalanga	DC31	Nkangala DM	3	1155	7918	14.6
Limpopo	DC36	Waterberg DM	7	1248	8512	14.7
Western Cape	DC4	Eden DM	5	974	5934	16.4
Northern Cape	DC7	Pixley ka Seme DM	3	310	1864	16.6
Mpumalanga	DC30	G Sibande DM	7	2208	13214	16.7

Limpopo	DC33	Mopani DM	6	2454	14399	17.0
Province	District Code	District name	No.Hospitals (with data)	C-Sections	Births	Weighted C-Section rate (%)
Free State	DC20	Fezile Dabi DM	4	991	5702	17.4
Eastern Cape	DC44	A Nzo DM	3	1241	6870	18.1
KwaZulu-Natal	DC29	iLembe DM	3	446	2467	18.1
Gauteng	EKU	Ekurhuleni MM	1	770	4241	18.2
KwaZulu-Natal	DC24	Umzinyathi DM	4	2204	11788	18.7
Northern Cape	DC6	Namakwa DM	2	177	936	18.9
North West	DC38	Ngaka Modiri Molema DM	4	1096	5794	18.9
KwaZulu-Natal	DC27	Umkhanyakude DM	5	2186	11522	19.0
Free State	DC17	Motheo DM	4	962	5050	19.0
North West	DC39	Dr Ruth Segomotsi Mompati DM	4	876	4596	19.1
Gauteng	DC48	West Rand DM	1	654	3419	19.1
KwaZulu-Natal	DC26	Zululand DM	5	2825	14712	19.2
Western Cape	DC2	Cape Winelands DM	4	902	4663	19.3
Eastern Cape	DC10	Cacadu DM	5	917	4583	20.0
KwaZulu-Natal	DC43	Sisonke DM	4	1900	9027	21.0
Limpopo	DC34	Vhembe DM	6	3639	17260	21.1
Gauteng	DC42	Sedibeng DM	2	1257	5831	21.6
Western Cape	DC3	Overberg DM	4	558	2585	21.6
KwaZulu-Natal	DC23	Uthukela DM	2	1145	5267	21.7
KwaZulu-Natal	DC28	Uthungulu DM	6	1603	7320	21.9
Gauteng	JHB	City of Johannesburg MM	1	468	2075	22.6
KwaZulu-Natal	DC22	uMgungundlovu DM	2	1902	7334	25.9
Western Cape	DC5	Central Karoo DM	1	239	813	29.4
Western Cape	CPT	Cape Town MM	4	2123	7045	30.1
KwaZulu-Natal	ETH	eThekweni MM	3	3065	10003	30.6
KwaZulu-Natal	DC21	Ugu DM	3	3093	9762	31.7
Eastern Cape	NMA	N Mandela MM	1	1075	3312	32.5
Total	48		199	61495	357989	17.2

Appendix 8: Mean C-section rates 2000/01 – 2008/09**8.1 Mean¹ C-section rate by district and province (all hospital levels) 2000/01 - 2008/09**

Province	District	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
EC	Cacadu	14.8	15.2	12.7	13.8	13.9	16.5	16.8	17.4	20.0
EC	Amathole	17.1	17.6	16.2	14.1	16.5	16.4	16.5	15.9	21.4
EC	Chris Hani	9.5	10.3	9.6	7.6	7.9	9.2	9.8	10.2	19.2
EC	Ukhahlamba	9.6	8.6	8.6	6.4	7.3	7.1	8.4	8.1	11.6
EC	O.R. Tambo	15.0	13.5	13.4	14.0	14.0	19.6	21.5	17.9	24.0
EC	Alfred Nzo	3.0	4.6	3.3	2.5	4.7	5.4	9.5	14.3	18.1
EC	Nelson Mandela Bay Metro	20.5	19.9	19.0	20.6	24.2	26.4	28.5	31.0	32.8
EC Ave		15.1	14.8	13.9	13.5	14.6	16.7	18.1	16.9	22.8
FS	Xhariep	6.6	4.2	1.8	1.7	3.4	4.9	0.0	0.0	0.0
FS	Motheo	25.1	24.9	29.5	32.3	30.9	30.9	34.8	35.9	37.6
FS	Lejweleputswa	10.8	12.2	14.5	15.0	16.1	15.8	18.6	17.1	20.0
FS	Thabo Mofutsanyane	19.6	21.0	14.6	15.4	16.8	15.7	17.9	17.9	23.2
FS	Fezile Dabi	16.9	14.1	17.9	16.2	17.1	16.4	17.3	19.2	20.1
FS ave		17.9	17.7	18.4	18.9	19.5	19.0	21.3	21.6	25.4
GP	Sedibeng	no data	23.4	22.6	23.9	25.1	29.0	28.1	26.0	26.3
GP	West Rand	no data	19.7	18.1	17.5	20.1	20.8	22.4	22.7	26.1
GP	Ekurhuleni	no data	14.1	14.1	14.8	15.9	15.8	17.5	19.1	21.1
GP	City of Johannesburg	no data	25.3	24.0	25.0	27.3	26.7	27.1	28.1	30.5
GP	City of Tshwane	no data	23.6	23.6	25.2	26.8	24.8	24.8	24.4	26.0
GP Ave		no data	20.8	20.2	21.2	22.9	22.6	23.3	23.9	26.0
KZN	Ugu	21.9	21.4	23.1	23.8	25.1	27.6	28.4	28.1	34.2
KZN	uMgungundlovu	32.1	28.1	29.1	26.5	31.0	39.0	37.9	36.7	33.3
KZN	Uthukela	13.9	17.3	20.0	18.6	16.3	20.5	23.4	20.6	20.8
KZN	Umkhanyathi	11.7	11.9	12.0	13.1	13.5	15.2	14.7	15.5	18.7
KZN	Amajuba	20.1	14.5	17.1	16.8	15.1	15.5	17.3	20.2	21.4
KZN	Zululand	15.5	16.8	15.7	15.0	14.5	16.3	19.2	18.6	19.2
KZN	Umkhanyakude	14.4	13.5	12.6	12.6	13.2	14.6	17.2	17.8	19.0
KZN	Uthungulu	20.9	22.6	20.8	22.0	24.0	26.7	29.8	29.2	31.3
KZN	iLembe	15.3	18.9	20.0	21.5	22.1	23.4	24.9	25.6	25.3
KZN	Sisonke	16.3	16.9	21.7	18.8	18.9	20.4	20.1	21.2	21.0
KZN	eThekweni	30.4	28.3	30.8	32.1	32.2	32.6	33.4	33.4	34.3
KZN Ave		22.2	21.6	23.1	23.1	23.6	25.7	27.2	26.9	28.0
LP	Mopani	11.3	12.4	12.6	13.3	14.7	17.6	19.6	19.2	19.3
LP	Vhembe	20.3	20.6	21.2	20.8	23.3	24.6	26.2	24.9	22.0
LP	Capricorn	12.3	12.8	11.9	12.1	16.5	13.9	16.0	15.4	15.7
LP	Waterberg	11.1	12.0	11.4	12.6	13.2	13.7	13.3	14.7	15.4
LP	Greater Sekhukhune	10.7	12.6	11.2	9.9	10.0	10.7	11.7	12.7	13.2
LP Ave		13.6	14.5	13.9	13.9	15.5	15.9	17.3	17.3	17.2
MP	Gert Sibande	14.1	13.3	14.3	14.0	14.7	15.5	17.2	18.4	18.0
MP	Nkangala	14.0	16.7	17.2	16.5	15.3	18.9	18.3	16.7	20.8
MP	Ehlanzeni	12.4	12.1	13.0	12.6	13.8	14.6	13.5	13.4	15.2
MP Ave		13.2	13.4	14.3	13.8	14.3	15.7	15.4	15.3	17.0
NC	John Taolo Gaetsewe	13.7	12.7	11.5	13.3	13.6	14.0	13.3	14.1	12.1
NC	Namakwa	17.5	16.6	17.2	19.6	17.9	15.4	13.2	16.9	18.9
NC	Pixley ka Seme	16.7	16.5	16.9	19.1	17.1	8.9	11.0	13.6	16.6
NC	Siyanda	7.3	7.4	9.8	11.1	9.4	12.0	12.7	11.4	22.1
NC	Frances Baard	25.8	27.0	32.3	29.8	32.2	30.3	34.2	32.7	44.0
NC Ave		16.8	17.2	19.3	19.4	19.9	18.7	20.1	20.9	24.7
NW	Bojanala Platinum	15.0	15.2	10.3	11.7	12.6	10.7	13.9	16.2	30.4
NW	Ngaka Modiri Molema	18.8	21.4	19.0	21.5	17.9	14.3	27.1	27.1	26.4
NW	Dr Ruth Segomotsi Mompati	12.1	14.0	11.0	10.4	10.8	10.5	18.1	19.2	19.1
NW	Dr Kenneth Kaunda	15.2	16.1	19.4	20.6	24.3	26.0	25.8	30.3	27.4
NW Ave		15.7	16.9	15.8	17.0	17.3	16.4	21.5	23.4	26.6
WC	City of Cape Town	31.5	35.2	32.5	36.6	31.8	33.5	35.0	36.0	36.3
WC	West Coast	9.9	10.3	11.4	9.5	9.7	9.8	9.1	11.3	12.5
WC	Cape Winelands	10.0	12.0	14.2	13.3	18.9	20.2	19.2	18.5	22.7
WC	Overberg	15.0	15.2	14.4	17.7	17.9	19.0	19.0	21.0	21.6
WC	Eden	16.1	19.5	19.6	20.9	20.3	21.3	20.3	20.3	18.3
WC	Central Karoo	14.0	14.3	12.3	14.3	13.7	14.5	16.4	18.7	29.4
WC Ave		22.2	24.9	24.7	26.3	25.3	26.6	27.3	28.0	29.1
SA ave		18.1	18.7	18.9	19.3	19.9	20.8	22.1	22.3	24.4

¹ Mean is weighted by facility.

8.2 Mean² C-section rate by district and province (District hospitals) 2000/01 - 2008/09

² Mean is weighted by facility

Province	District	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
EC	Cacadu	14.8	15.2	12.7	13.8	13.9	16.5	16.8	17.4	20.0
EC	Amathole	7.0	7.8	6.2	5.2	5.0	4.6	5.0	6.1	9.2
EC	Chris Hani	6.2	7.5	6.5	5.5	5.0	4.5	3.5	6.6	10.0
EC	Ukhahlamba	9.6	8.6	8.6	6.4	7.3	7.1	8.4	8.1	11.6
EC	O.R. Tambo	5.5	8.0	6.4	4.9	4.2	7.4	10.5	10.4	10.3
EC	Alfred Nzo	3.0	4.6	3.3	2.5	4.7	5.4	9.5	14.3	18.1
EC	Nelson Mandela Bay Metro	21.2	22.9	23.2	25.9	24.6	22.9	23.3	32.8	32.5
EC ave		8.6	9.4	8.3	7.7	7.5	8.2	9.6	11.4	13.4
FS	Xhariep	6.6	4.2	1.8	1.7	3.4	4.9	0.0	0.0	no data
FS	Motheo	13.1	15.2	16.9	18.3	18.7	16.9	17.1	17.3	19.0
FS	Lejweleputswa	6.7	5.6	7.6	9.1	10.5	8.1	9.1	9.6	10.9
FS	Thabo Mofutsanyane	8.1	9.6	6.1	5.3	7.6	8.0	10.0	9.7	12.7
FS	Fezile Dabi	16.5	14.6	15.6	14.4	14.6	14.2	15.4	16.6	17.4
FS ave		10.5	10.5	10.0	10.1	11.4	10.7	11.6	11.8	14.7
GP	Sedibeng	no data	19.0	18.2	19.5	21.7	23.1	22.2	23.9	21.6
GP	West Rand	no data	5.6	8.3	11.9	13.7	14.9	16.5	17.5	19.1
GP	Ekurhuleni	no data	11.4	6.2	10.0	13.5	11.6	13.5	14.1	18.2
GP	City of Johannesburg	no data	10.2	7.9	5.0	3.8	6.7	13.6	17.0	22.5
GP	City of Tshwane	no data	4.2	3.9	2.9	15.6	12.2	9.8	9.6	12.0
GP ave		no data	10.6	9.4	10.3	15.7	14.4	13.6	14.1	16.1
KZN	Ugu	21.4	19.1	19.8	22.2	23.3	23.5	25.1	24.7	31.7
KZN	uMgungundlovu	20.6	16.5	17.4	10.2	13.0	20.0	28.3	25.1	25.9
KZN	Uthukela	15.4	18.1	20.8	16.5	14.9	18.6	21.9	21.3	21.7
KZN	Umzinyathi	11.7	11.9	12.0	13.1	13.5	15.2	14.7	15.5	18.7
KZN	Zululand	15.5	16.8	15.7	15.0	14.5	16.3	19.2	18.6	19.2
KZN	Umkhanyakude	14.4	13.5	12.6	12.6	13.2	14.6	17.2	17.8	19.0
KZN	Uthungulu	19.7	20.0	21.0	21.1	24.2	25.9	25.2	22.9	21.9
KZN	iLembe	4.8	8.6	5.3	0.4	1.8	7.8	16.0	14.8	18.1
KZN	Sisonke	16.3	16.9	21.7	18.8	18.9	20.4	20.1	21.2	21.0
KZN	eThekweni	26.6	23.6	24.4	26.9	27.3	26.3	26.4	28.4	30.6
KZN ave		17.0	16.9	17.7	16.8	17.4	19.3	21.3	21.2	22.8
LP	Mopani	11.4	11.9	12.4	13.0	13.8	15.2	18.0	17.4	17.0
LP	Vhembe	18.9	19.3	19.8	19.7	22.5	23.6	25.2	23.7	21.1
LP	Capricorn	8.7	7.2	6.4	8.4	9.2	7.7	10.4	10.6	10.2
LP	Waterberg	12.7	13.7	12.5	12.6	13.5	14.3	13.7	14.7	14.7
LP	Greater Sekhukhune	8.7	11.3	10.0	6.8	6.5	7.1	9.3	11.8	9.3
LP Ave		12.5	12.9	12.4	12.4	13.0	13.4	15.4	15.7	14.7
MP	Gert Sibande	14.2	13.2	14.0	14.1	14.5	15.0	16.1	16.3	16.7
MP	Nkangala	10.0	10.8	10.2	10.7	8.7	11.9	12.5	11.5	14.6
MP	Ehlanzeni	13.4	12.2	12.7	12.3	13.1	13.5	12.3	11.6	13.8
MP ave		13.0	12.2	12.6	12.5	12.6	13.6	13.5	13.0	14.9
NC	John Taolo Gaetsewe (Kgale)	13.7	12.7	11.5	13.3	13.6	14.0	13.3	14.1	12.1
NC	Namakwa	17.5	16.6	17.2	19.6	17.9	15.4	13.2	16.9	18.9
NC	Pixley ka Seme	16.7	16.5	16.9	19.1	17.1	8.9	11.0	13.6	16.6
NC	Siyanda	5.3	3.1	5.4	4.9	1.7	1.7	1.3	0.0	no data
NC	Frances Baard	12.3	7.5	9.4	8.6	9.2	2.7	1.8	2.0	13.3
NC ave		13.0	11.2	11.7	12.9	11.7	9.1	8.8	8.8	14.3
NW	Bojanala Platinum	10.5	11.1	10.7	9.4	8.0	5.0	9.6	8.2	13.2
NW	Ngaka Modiri Molema	16.8	18.5	16.7	19.5	15.7	14.5	18.5	19.8	18.9
NW	Dr Ruth Segomotsi Mompati	12.1	14.0	11.0	10.4	10.8	10.5	18.1	19.2	19.1
NW	Dr Kenneth Kaunda	10.4	9.9	4.7	2.5	6.4	14.4	10.8	9.2	8.7
NW ave		13.7	15.0	12.5	12.6	11.5	10.6	14.9	14.1	15.9
WC	City of Cape Town	22.4	30.9	25.3	28.4	25.1	30.1	31.8	32.5	30.1
WC	West Coast	9.9	10.3	11.4	9.5	9.7	9.8	9.1	11.3	12.5
WC	Cape Winelands	8.4	11.9	13.7	13.1	15.2	16.2	18.3	18.5	19.3
WC	Overberg	15.0	15.2	14.4	17.7	17.9	19.0	19.0	21.0	21.6
WC	Eden	15.2	17.8	17.9	18.9	18.0	18.1	17.7	18.4	16.4
WC	Central Karoo	14.0	14.3	12.3	14.3	13.7	14.5	16.4	18.7	29.4
WC ave		14.0	16.6	16.7	17.4	17.1	18.6	19.5	20.7	20.8
SA ave		13.5	13.4	13.1	12.9	13.4	13.9	15.2	15.7	17.2

8.3 Mean³ C-section rate by district and province (Regional hospitals) 2000/01 - 2008/09

Province	District	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
EC	Chris Hani	17.6	18.8	17.8	16.2	15.8	19.8	23.7	28.9	35.0
EC	O.R. Tambo	15.9	12.1	13.9	11.5	11.8	11.5	16.5	28.2	33.2
EC	Nelson Mandela Bay Metro	24.6	22.6	22.3	18.8	no data	no data	no data	no data	no data
EC Ave		21.4	19.8	19.7	15.9	11.9	15.7	20.1	28.1	34.1
FS	Motheo	33.2	33.9	40.8	46.1	43.6	47.1	53.4	56.2	56.0
FS	Lejweleputswa	19.2	25.6	28.5	26.4	26.8	29.4	34.7	31.3	36.0
FS	Thabo Mofutsanyane	43.7	42.8	42.6	47.1	47.6	46.8	52.2	52.7	50.8
FS	Fezile Dabi	17.5	13.2	21.4	19.2	21.6	21.0	21.3	24.9	26.8
FS ave		28.4	29.0	33.6	34.9	35.3	36.5	41.3	42.4	43.9
GP	Sedibeng	no data	28.9	28.8	30.6	29.7	37.1	36.3	28.6	31.5
GP	West Rand	no data	25.4	21.8	19.8	22.5	23.0	25.5	25.2	29.2
GP	Ekurhuleni	no data	14.4	14.8	15.3	16.1	16.2	17.9	19.6	21.4
GP	City of Johannesburg	no data	17.7	19.2	18.1	18.6	19.7	21.6	21.5	22.9
GP	City of Tshwane	no data	31.9	30.3	30.9	30.3	32.2	33.4	33.3	33.0
GP Ave			18.7	18.5	18.6	19.4	20.2	21.7	22.0	24.0
KZN	Ugu	22.6	24.8	27.8	26.0	27.8	35.4	35.2	36.0	40.0
KZN	uMgungundlovu	35.9	32.4	30.3	29.3	33.6	46.6	40.6	40.5	32.9
KZN	Uthukela	12.7	16.6	19.3	20.4	17.7	22.1	24.6	19.9	20.1
KZN	Amajuba	20.1	14.5	17.1	16.8	15.1	15.5	17.3	20.2	21.4
KZN	iLembe	23.6	24.5	27.1	30.2	30.4	29.6	28.3	29.7	28.1
KZN	eThekweni	31.4	29.7	32.5	33.6	33.4	33.9	34.8	34.3	34.8
KZN ave		27.7	26.3	28.6	29.2	29.3	31.7	32.0	31.8	31.7
LP	Mopani	10.6	14.5	13.3	14.7	18.8	31.3	29.1	28.4	32.0
LP	Vhembe	23.2	23.6	24.5	23.8	25.4	27.1	29.0	28.7	24.7
LP	Waterberg	6.2	6.7	8.5	12.5	12.5	12.2	12.3	14.7	17.4
LP	Greater Sekhukhune	12.7	14.0	12.5	13.4	14.8	15.9	15.7	14.1	18.9
LP ave		15.0	16.1	15.4	16.1	17.7	20.1	20.0	19.7	21.9
MP	Gert Sibande	13.6	13.7	15.9	13.6	15.8	18.2	22.5	28.6	24.5
MP	Ehlanzeni	10.2	10.9	12.5	11.3	12.3	14.4	12.6	14.4	17.0
MP Ave		10.8	11.5	13.3	11.8	13.1	15.2	14.7	17.5	18.6
NC	Siyanda	8.9	10.7	12.8	15.0	14.7	19.1	20.8	20.0	22.1
NC	Frances Baard	31.1	36.9	43.4	39.1	47.2	47.2	52.3	50.2	48.6
NC ave		22.8	27.3	31.5	29.7	34.3	36.7	40.9	39.2	38.6
NW	Bojanala Platinum	17.2	17.0	10.2	12.6	14.4	16.2	16.2	24.8	37.7
NW	Ngaka Modiri Molema	23.2	27.8	23.0	24.5	21.3	14.0	43.9	42.5	42.4
NW	Dr Kenneth Kaunda	15.7	16.9	21.9	23.9	27.7	31.9	34.5	35.8	36.4
NW ave		17.2	18.4	18.4	20.4	21.9	23.1	28.9	33.0	37.9
WC	City of Cape Town	29.1	33.8	32.7	32.7	28.8	28.9	33.2	32.5	30.6
WC	Cape Winelands	11.8	12.2	14.8	13.5	21.9	23.3	20.0	18.5	25.3
WC	Eden	18.0	23.3	23.3	24.9	24.9	27.8	25.7	24.1	21.7
WC ave		20.8	24.0	24.7	24.8	25.9	26.9	27.3	26.4	27.4
SA ave		22.7	21.6	22.6	22.9	23.5	25.1	26.7	27.3	28.8

³ Mean is weighted by facility

8.4 Mean⁴ C-section rate by district and province (Provincial Tertiary Hospitals) 2000/01 - 2008/09

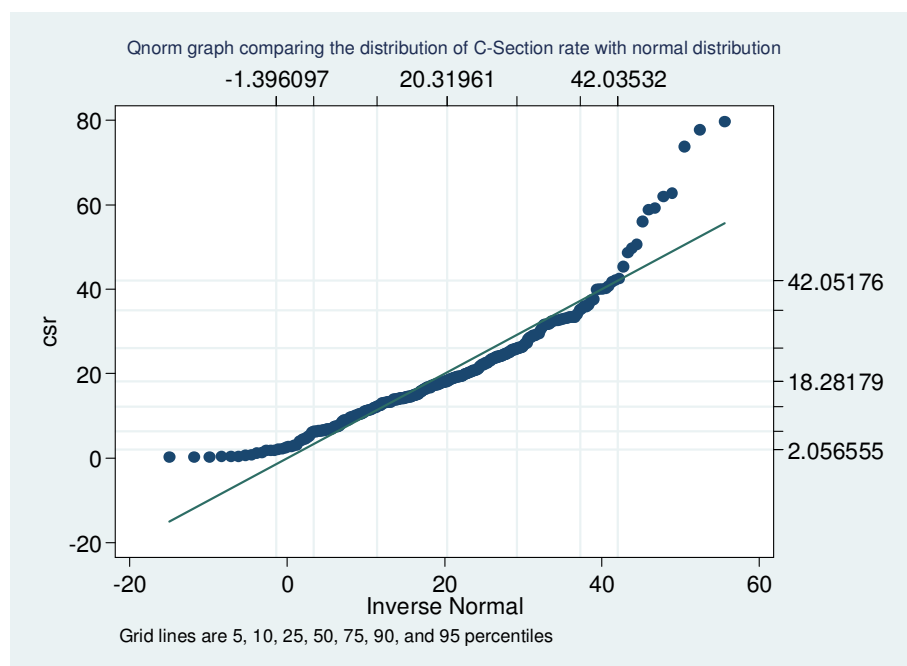
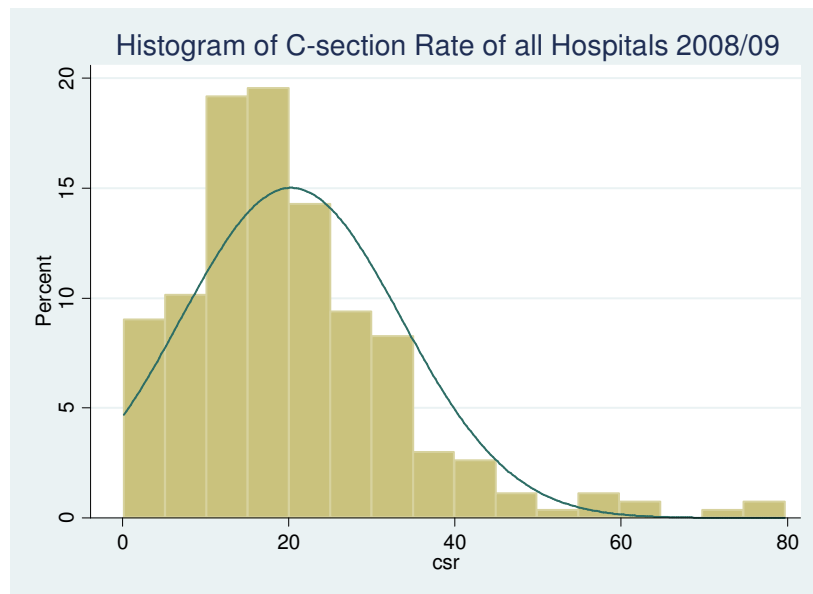
Province	District	District	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
EC	DC12	Amathole	26.8	26.9	25.5	23.7	27.3	28.2	27.7	32.3	32.9
EC	DC15	O.R. Tambo	24.1	22.1	22.8	34.4	27.0	37.6	39.0	42.7	39.7
EC	NMA	Nelson Mandela Bay Metro	2.7	4.1	1.5	19.1	26.6	27.6	30.6	30.2	32.9
EC Ave			23.4	22.7	21.6	24.8	27.0	30.7	31.8	33.5	34.9
KZN	DC22	uMgungundlovu	55.0	54.0	55.9	57.6	63.7	71.8	63.8	61.7	62.7
KZN	DC28	Uthungulu	22.0	24.8	20.6	22.5	23.8	27.3	32.9	33.5	37.4
KZN Ave			28.0	29.9	27.2	29.2	31.3	34.4	37.0	37.8	41.2
LP	DC35	Capricorn	19.3	23.3	22.2	24.7	28.4	24.3	25.5	24.3	25.4
LP Ave			19.3	23.3	22.2	24.7	28.4	24.3	25.5	24.3	25.4
MP	DC31	Nkangala	21.7	30.2	31.7	29.3	30.8	33.4	29.4	26.4	31.7
MP	DC32	Ehlanzeni	13.6	15.0	16.1	18.4	21.8	22.9	23.6	22.5	19.1
MP Ave			17.7	22.7	24.4	24.2	26.6	28.8	27.0	24.8	26.5
SA ave			23.3	24.7	23.6	26.0	28.1	30.4	31.4	31.6	33.9

8.5 Mean C-section rate by district and province (National Central Hospitals) 2000/01 - 2008/09

Province	District Code	District	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
FS	DC17	Motheo	60.5	62.8	64	63.5	64.3	60.8	68.4	73.3	73.8
FS ave			60.5	62.8	64	63.5	64.3	60.8	68.4	73.3	73.8
GP	JHB	City of Johannesburg		28.8	26.5	28.9	32.9	31.6	30.4	31.5	35
GP	TSH	City of Tshwane		28.6	29.5	32.2	31.7	32.9	38.9	39	39.2
GP ave				28.8	27.5	29.9	32.5	32	33	33.7	36.3
KZN	ETH	eThekweni					100	57.6	86.7	78.5	79.7
KZN ave							100	57.6	86.7	78.5	79.7
WC	CPT	City of Cape Town	34.3	36.3	34.7	46.3	34.3	35.1	35	37.1	41.1
WC ave			34.3	36.3	34.7	46.3	34.3	35.1	35	37.1	41.1
SA ave			36.3	30.6	29.2	32.7	33.2	33.2	34.2	35.1	37.9

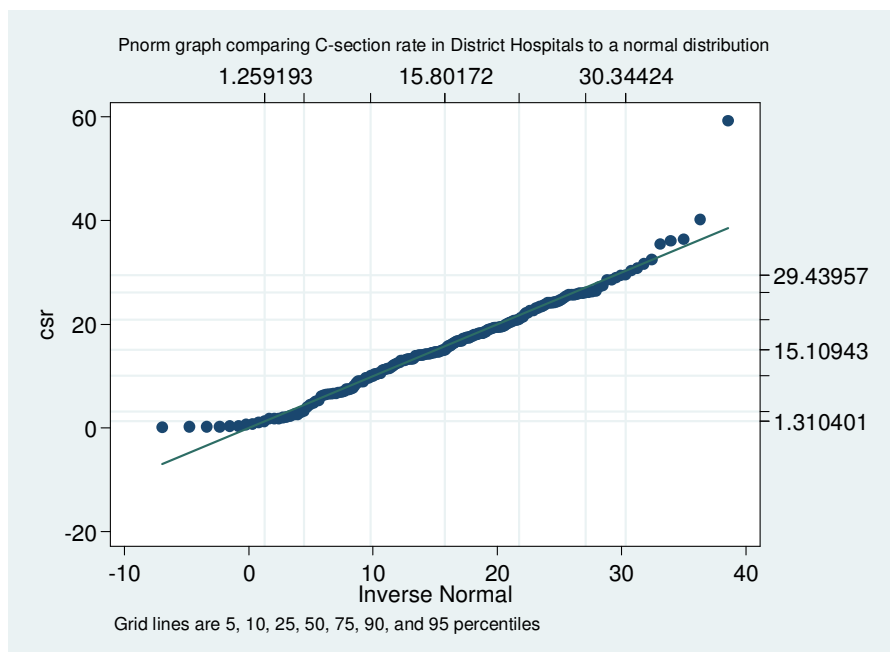
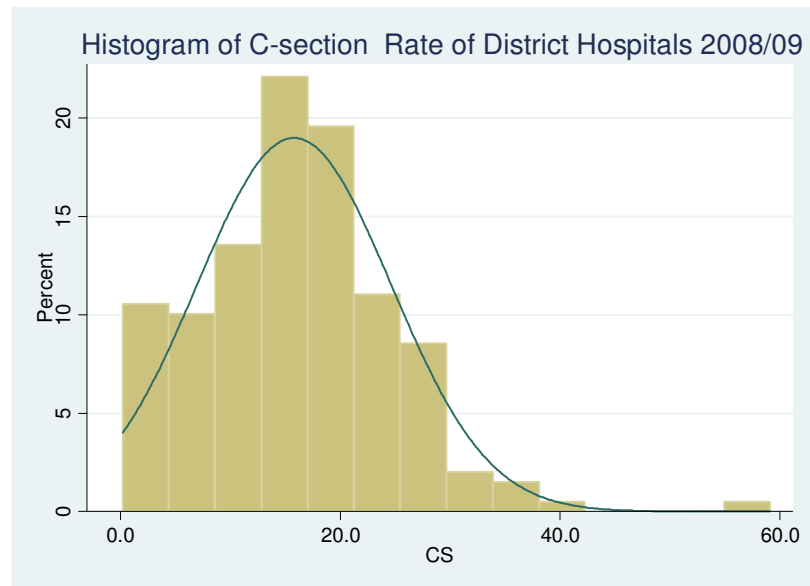
⁴ Mean is weighted by facility

Appendix 9: Graphics of Data Distribution



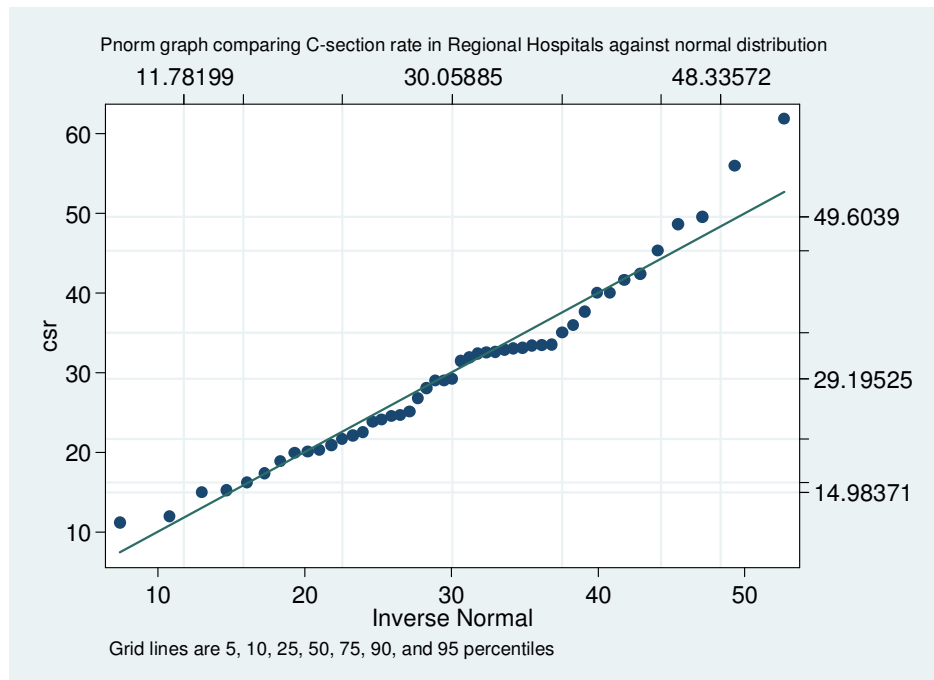
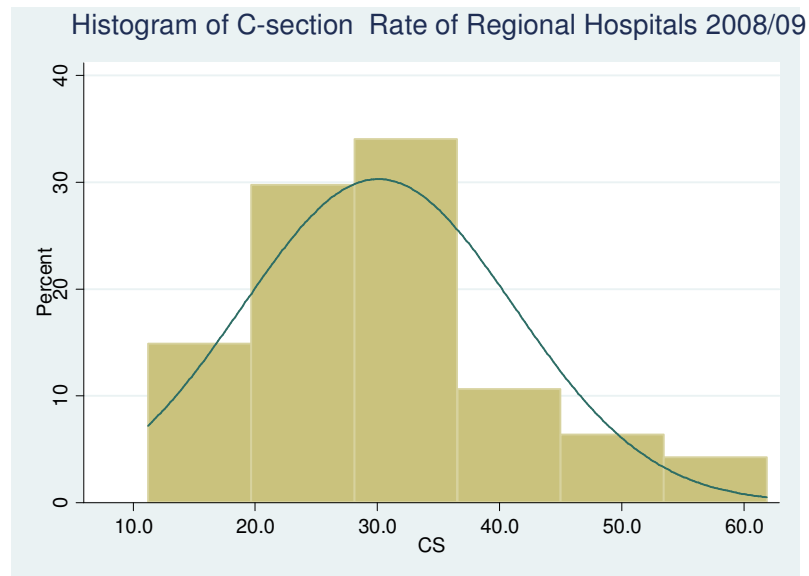
Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
CSR	266	0.0000	0.0000	63.14	0.0000



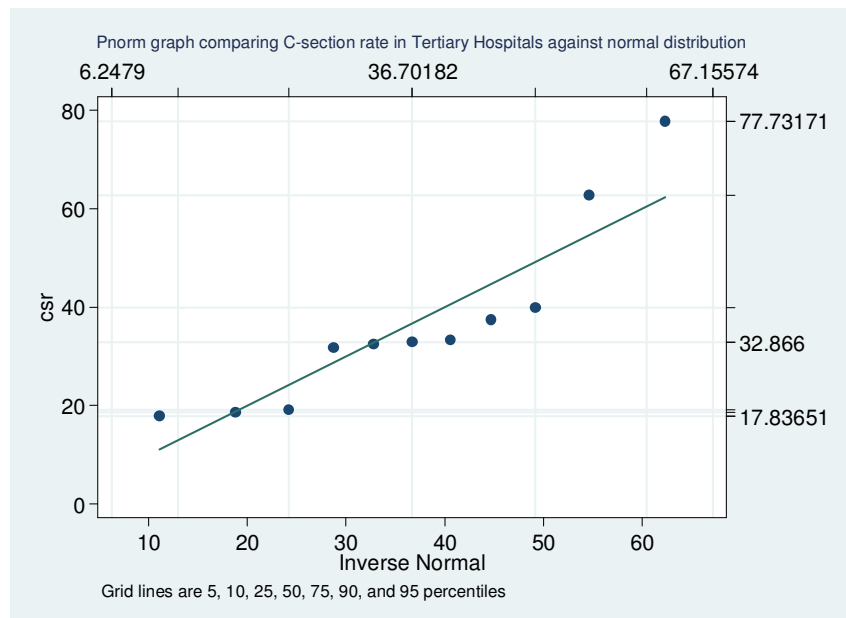
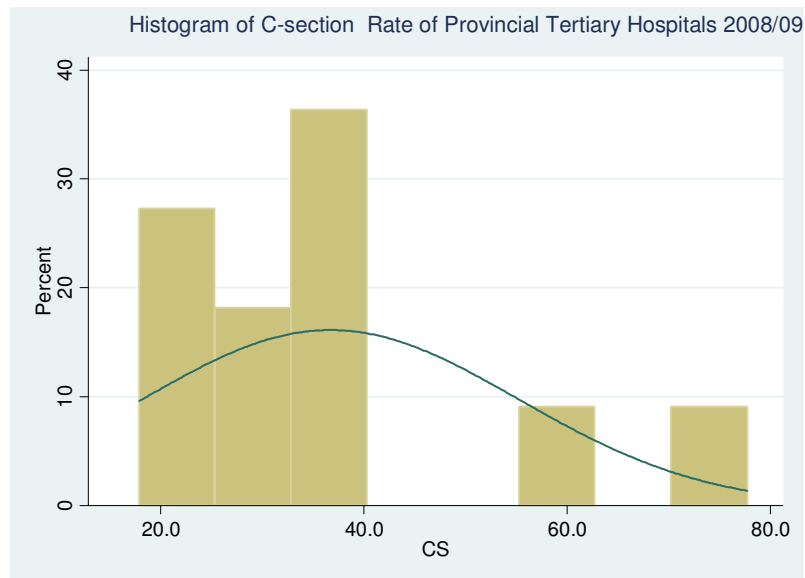
Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
csr	199	0.0003	0.0003	21.03	0.0000



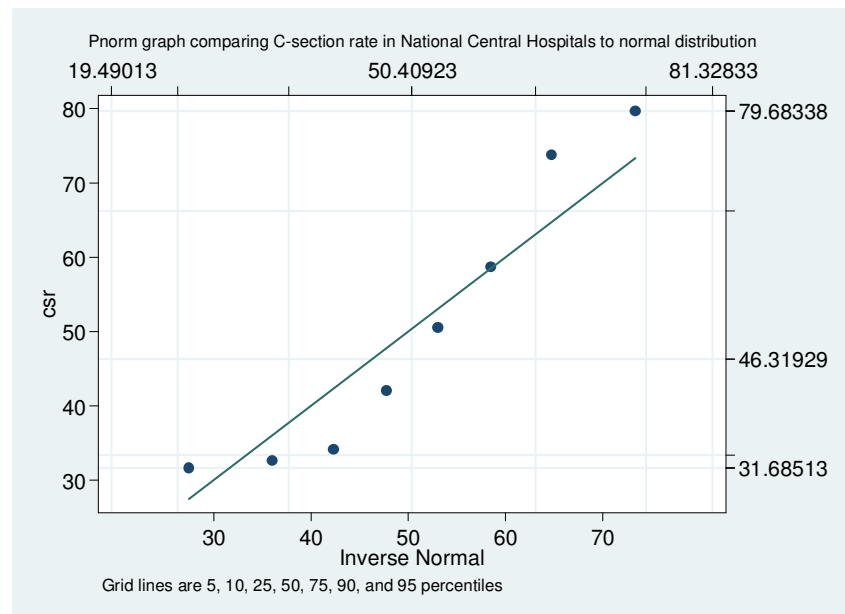
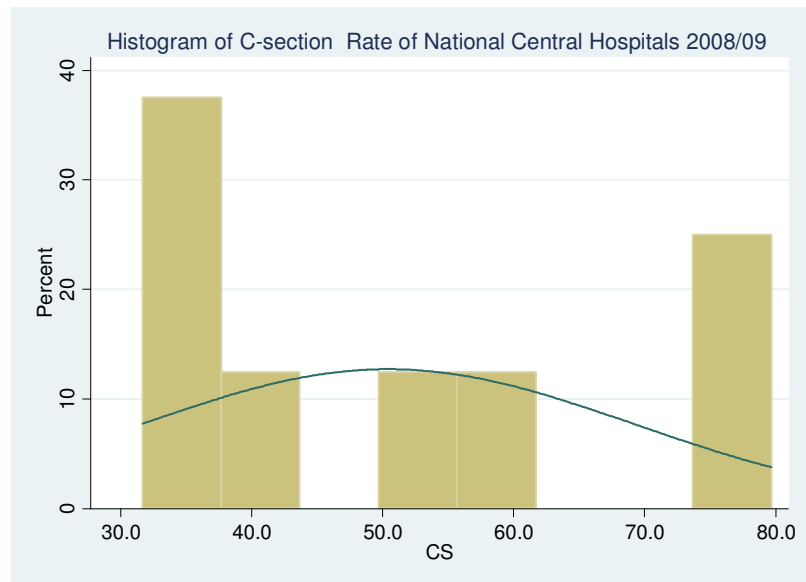
Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adjchi2(2)	Prob>chi2
csr	47	0.0482	0.3291	4.82	0.0897



Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adjchi2(2)	Prob>chi2
csr	11	0.0490	0.2296	5.16	0.0758



Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
csr	8	0.4098	0.3914	1.64	0.4414