



health

Department:
Health
REPUBLIC OF SOUTH AFRICA



NATIONAL COMMITTEE FOR CONFIDENTIAL ENQUIRY INTO MATERNAL DEATHS (NCCEMD) SAVING MOTHERS FACT SHEET FOR 2022

Maternal Deaths and Mortality Rates 2022

Introduction

This fact sheet presents a summary of the NCCEMD Maternal Mortality results for 2022, with key tables and figures. Since 2022 was the final year of the triennium 2020 to 2022, a full interim report has not been produced. The data will be incorporated into the Executive Summary and comprehensive report of the whole 2020 to 2022 triennium.

The methodology used to collect the data was similar to previous years and is described in the 2020 and 2021 interim reports.

Key Findings on Maternal Mortality for 2022

In 2022, 993 deaths during pregnancy, childbirth, and the puerperium (DDPCP) were reported to the NCCEMD and entered in the MAMMAs database. A total of 969 out of the 993 were Maternal Deaths (MDs), after excluding deaths that were from coincidental causes. There were 986 128 live births, reported from public health facilities via DHIS during this period.

Greater numbers of deaths were reported to NCCEMD than to DHIS for most provinces, as in previous years. This is because NCCEMD includes deaths which happened outside health facilities and deaths at private hospitals in addition to public health facility deaths, whereas DHIS only includes public health facility deaths. However, in 2022 more deaths were reported to DHIS than NCCEMD from Gauteng, Limpopo and KwaZulu-Natal. Therefore, a correction was made for these three provinces and the total MDs was increased to match the DHIS number.

Main findings:

- The corrected number of maternal deaths in 2022 was 1 062.
- The corrected Maternal Mortality Ratio (iMMR) was 109.6 maternal deaths per 100 000 live births. This is a decrease from 2021 (148.1) and 2020 (126.1). This shows that the increased iMMR during the first two years of the COVID-19 pandemic has been reversed, with the 2022 iMMR approaching the pre-pandemic level (98.8 in 2019).
- The decreased iMMR in 2022 occurred in all the provinces.
- Non-Pregnancy Related Infections (NPRI), although the leading cause of maternal death, accounted for 180 MDs (18.6% of deaths) which is a marked decrease from 554 (37%) in 2021.
- COVID-19 pneumonia and complications decreased considerably in 2022, accounting for 12 deaths compared to 369 in 2021 and 124 in 2020.
- Hypertensive disorders (HDP) were the second most common cause accounting for 166 (17.1%) of deaths, followed by Obstetric Haemorrhage (OH) which accounted for 162 deaths (16.7%).
- Medical and surgical (M&S) disorders were the fourth most common cause accounting for 140 (14.4%) and Early pregnancy complications (ectopic and miscarriage) accounted for 97 (10%) deaths.

- Of concern is the increase in anaesthetic deaths to 39, from 20 in 2020 and 17 in 2021. Although not a leading cause, most of these deaths were clearly preventable.
- The majority of deaths (88.2%) occurred at public hospitals with less deaths in private hospitals (36 in 2022 compared to 125 in 2021).
- Unlike in previous triennium, a greater percentage of deaths were HIV negative (442,44.5%) compared to 395 (39.8%) that were HIV positive.
- The Caesarean Delivery (CD) rate was 31.1% which is higher than in 2019, 2020 and 2021 (28%). There was notable provincial variation, with the CS rate being 23% in Mpumalanga and 36.8% in KwaZulu-Natal. The CD Case Fatality Rate in 2022 (deaths in women with CD per 100 000 CDs) declined to 118.4 compared to 203.6 in 2021 and is comparable to 2019 (112.5)
- Deaths were assessed to be possibly or probably preventable by the health system for 59% of women who died, the most avoidable being OH, Anaesthetic and HDP deaths, with lesser numbers in the NPRI group.
- Recommendations are not presented in this report. The 2017-2019, 2020 and 2021. Recommendations should be referred to. Comprehensive implementable recommendations are also found in the Triennial 2020-2022 Executive Summary.

Discussion and Conclusion

The marked increases in iMMR noted in 2020, and particularly in 2021, have been reversed in 2022 with the iMMR (109.6) approaching the pre-pandemic level (98.8 in 2019). The decline was mostly due to the decline in COVID-19 pneumonia deaths (12 in 2022 compared to 369 in 2021).

Of concern are the deaths from Hypertension and Haemorrhage which are still the second and third causes of maternal death, followed by Medical and Surgical disorders (the most common subcategory being cardiac). The doubling of anaesthetic deaths in 2022 is particularly worrying and needs to be interrogated further. There have been several case reports in recent years of anaesthetic deaths due to inadvertent intrathecal administration of tranexamic acid instead of bupivacaine.

The trend in iMMR suggests that it is feasible for South Africa to achieve the Sustainable Development Goal (SDG) of 70 maternal deaths per 100 000 live births by 2030. To maintain progress towards this target, it is imperative now to disseminate the 2020, 2021 and 2022 reports, implement the new recommendations arising from the 2020-2022 triennial report and also implement the recommendations of the previous triennial report (2017-19) which were overshadowed by a focus on the pandemic.

KEY TABLES AND FIGURES FROM 2022 NCCEMD DATA BASE (MAMMAS)

Trends in DDPCP and Maternal deaths

Table 1: 2022 Births and deaths during pregnancy childbirth and puerperium (DDPCP), NCCEMD and DHIS Maternal deaths and iMMR per province (UNCORRECTED)

Province	Live births	MaMMAS deaths (DDPCP*)	MaMMAS MD	DHIS MD	MaMMAS iMMR	DHIS iMMR
Eastern Cape	103147	134	133	132	128.9	128.0
Free State	47336	59	55	50	116.2	105.6
Gauteng	218619	216	211	266	96.5	121.7
KwaZulu-Natal	215381	181	176	189	80.8	87.8
Limpopo	124648	119	118	143	94.7	114.7
Mpumalanga	82270	113	113	105	137.4	127.6
Northern Cape	22153	26	26	22	117.4	99.3
North West	59951	72	70	65	116.8	108.4
Western Cape	94623	73	67	63	70.8	66.6
South Africa	968128	993	969	1035	100.1	106.9

*DDPCP are Maternal deaths plus Coincidental deaths

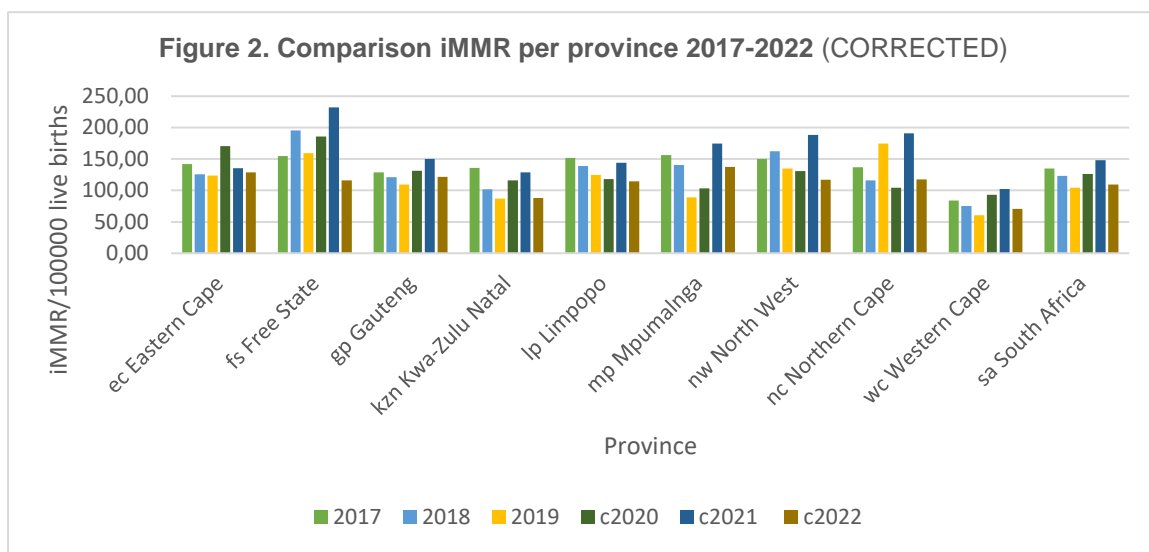
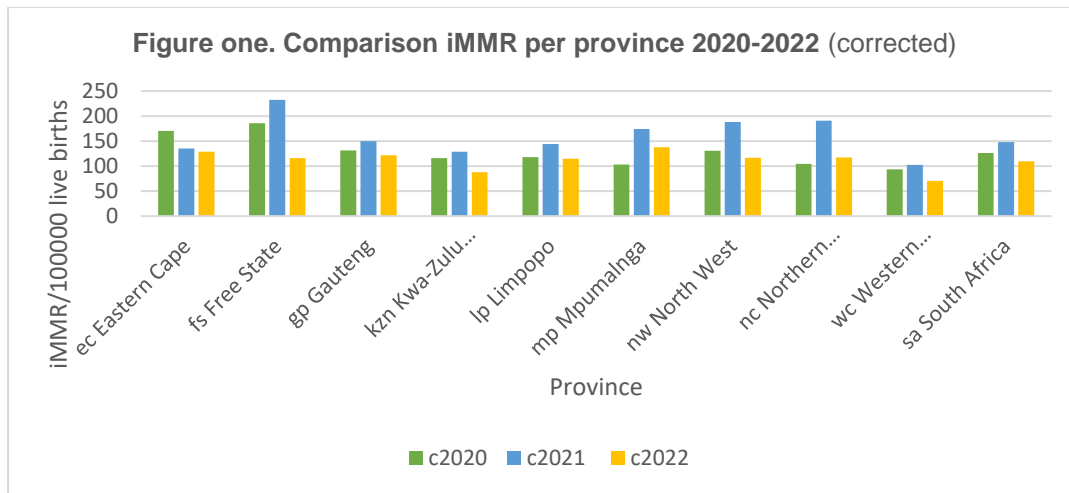
Table 2. Number Maternal Deaths per province 2017-2022 (WITH CORRECTIONS) *

	c2017	c2018	2019	c2020	2021	c2022	DHIS MD 2022	Corrected iMMR 2022
ec Eastern Cape	138	131	118	191	150	133	132	128.9
fs Free State	67	92	74	94	114	55	50	116.2
gp Gauteng	257	267	249	323	341	211 (c266)	266	96.5 (c121.7)
kzn KwaZulu-Natal	239	202	179	251	276	176 (c189)	189	81.7 (c87.8)
l Limpopo	174	152	166	167	196	116 (c143)	143	94.7 (c114.7)
mp Mpumalanga	117	112	70	99	167	113	105	137.4
nw North West	82	95	78	83	116	70	65	116.8
nc Northern Cape	28	25	32	23	43	26	22	117.4
wc Western Cape	73	74	56	105	101	67	63	70.8
sa South Africa	1175	1150	1022	1336	1504	969 (c1062)	1035	100.1 (c109.6)

*Maternal deaths adjusted to DHIS numbers for three provinces and corrected numbers shown in red

Table 3. iMMR per province per year 2017-2022 (corrected)

Province	2017	2018	2019	c2020	c2021	c2022
ec Eastern Cape	132.10	121.94	110.32	170.5	135.25	128.9
fs Free State	139.14	186.78	144.83	185.8	232.31	116.2
(c) gp Gauteng	117.23	110.86	100.54	131.5	150.10	96.5 (c121.7)
kzn KwaZulu-Natal	131.81	99.41	82.22	116	128.84	81.7 (c87.8)
l Limpopo	141.82	134.97	126.20	118.1	144.23	94.7 (c114.7)
mp Mpumalanga	148.11	1349.09	84.07	103.2	174.5	137.4
nw North West	143.07	157.32	124.98	130.6	188.53	116.8
nc Northern Cape	126.98	106.83	133.13	104.3	190.87	117.4
wc Western Cape	73.52	72.09	50.77	93.3	102.28	70.8
sa South Africa	125.89	117.69	98.82	126.06	148.1	100.1 (c 109.6)



Trends in Maternal Deaths and Maternal Mortality Rates

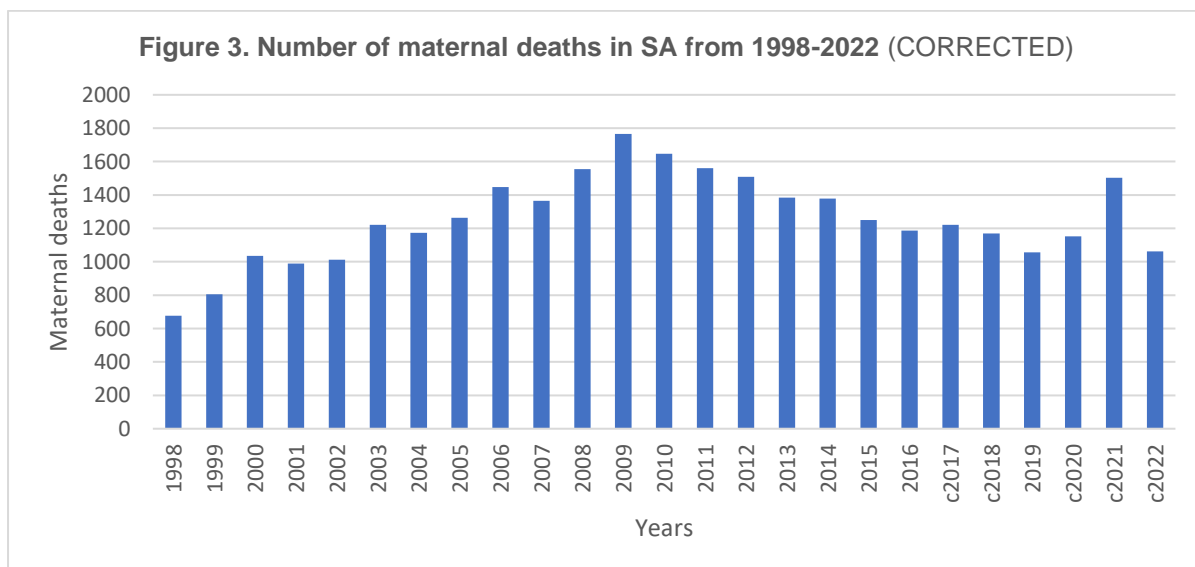


Figure 4. South African iMMR 2005-2022 (CORRECTED)

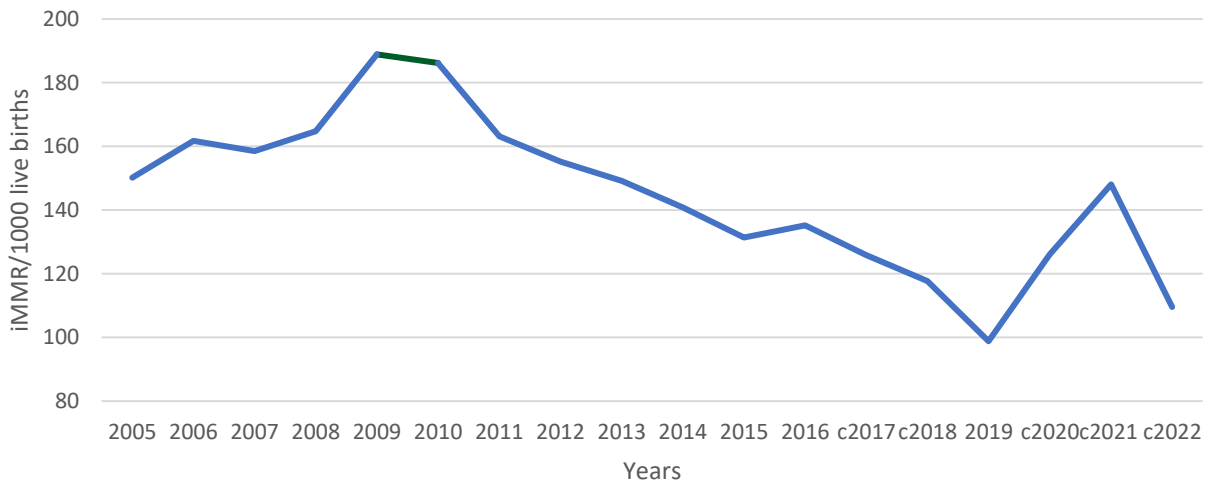
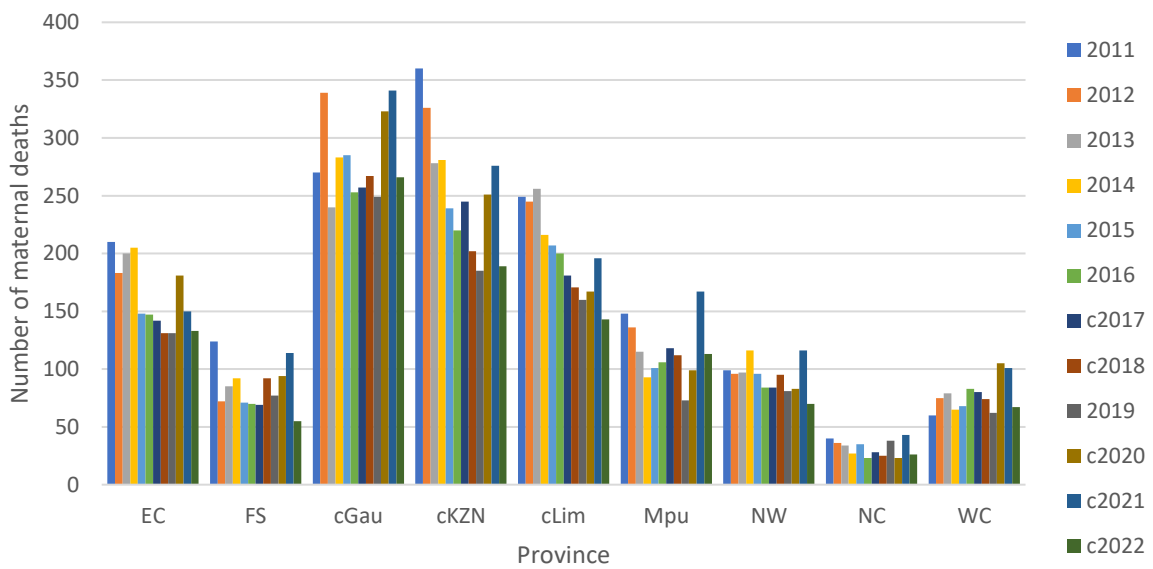
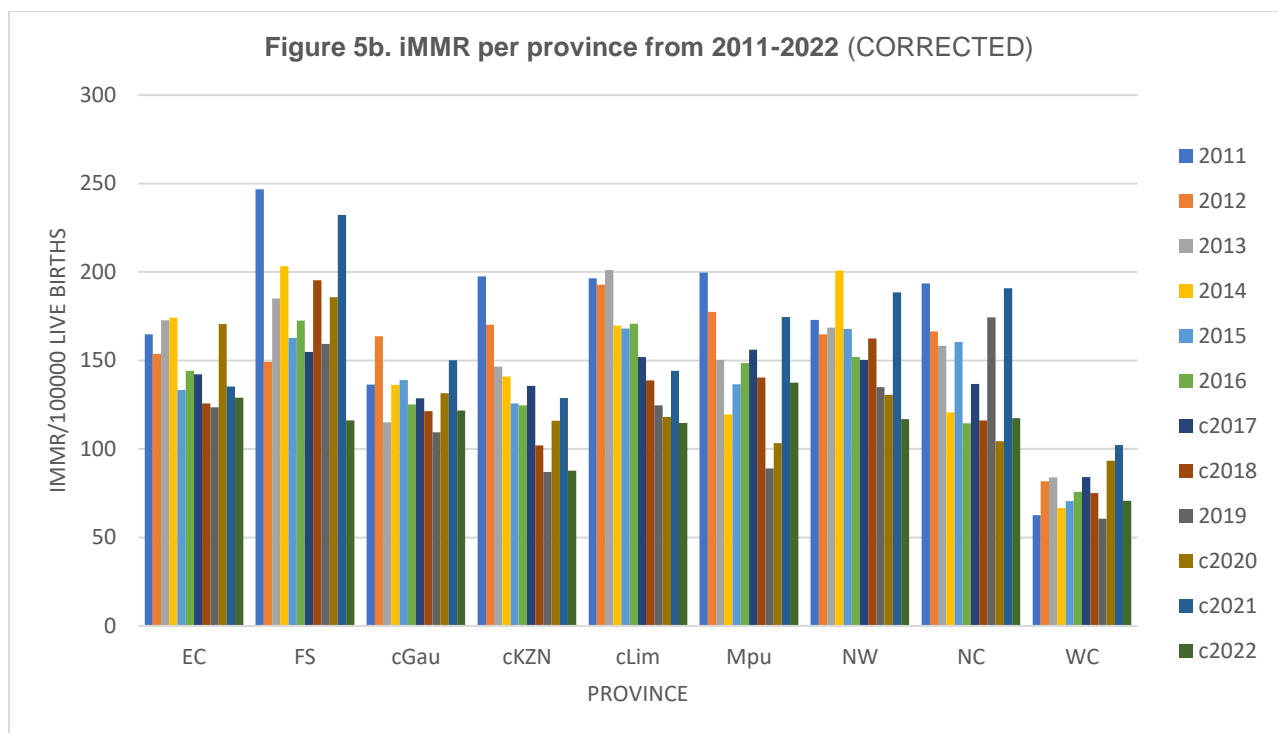


Figure 5a. Number of of maternal deaths per province 2011-2022 (CORRECTED)





Primary Obstetric Causes of Maternal Deaths

Table 4: Primary Obstetric cause of Maternal deaths* and iMMR for 2022 (uncorrected)**

Primary obstetric problem	Number MDs	%	iMMR
INDIRECT			
Medical and surgical disorders	140	14.1	14.5
Non-pregnancy-related infections***	180	18.1	18.6
DIRECT			
Ectopic pregnancy	34	3.4	3.5
Miscarriage	63	6.3	6.5
Pregnancy-related sepsis	56	5.6	5.8
Obstetric haemorrhage	162	16.3	16.7
Hypertension	166	16.7	17.1
Anaesthetic complications	39	3.9	4.0
Adverse drug reactions	7	0.7	0.7
Embolism	40	4	4.1
Acute collapse - cause unknown	21	2.1	2.2
Miscellaneous	8	0.8	0.8
Unknown	53	5.3	5.5
TOTAL:	969**	100	100.1

*NB. Coincidental deaths (n=24) excluded from MMR calculation and breakdown of Maternal deaths. DDPCP=993

** Corrections only made for total numbers and rates of MDs; and not for Causes

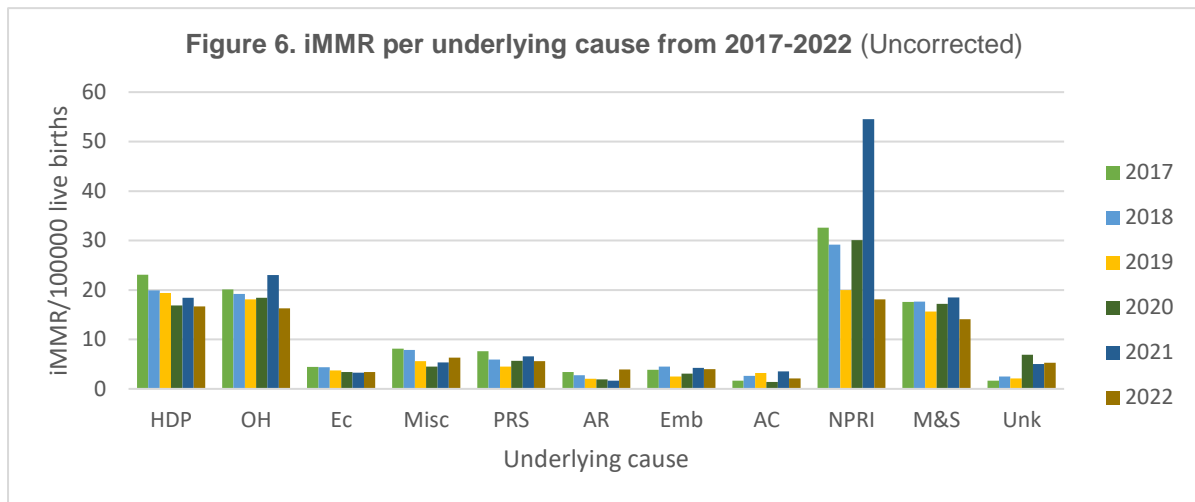
*** Includes 12 deaths from COVID-19 complications.

Table 5. Cause of DDPCP for 2022 compared to the preceding five years (uncorrected)

Primary Obstetric Problem	2017	2018	2019	2020	2021	2022
Coincidental cause	38	34	43	31	24	24
Medical and surgical disorders	161	166	154	178	188	140
Non-pregnancy-related infections	297	276	197	312	554	180
Ectopic pregnancy	41	41	37	35	33	34
Miscarriage	75	73	56	47	54	63
Pregnancy-related sepsis	70	55	45	59	67	56
Obstetric haemorrhage	184	181	179	191	234	162
Hypertension	210	188	192	175	187	166
Anaesthetic complications	30	27	20	20	17	39
Adverse drug reactions	11	5	9	13	5	7
Embolism	35	43	24	32	43	40
Acute collapse - cause unknown	15	25	32	15	36	21
Miscellaneous	5	4	12	4	3	8
Unknown	53	64	45	71	52	53
Maternal deaths (DDPCP)	1225	1182	1045	1183	1497	993

Table 6. Comparison of iMMR for underlying causes per year 2017-2022 (uncorrected)

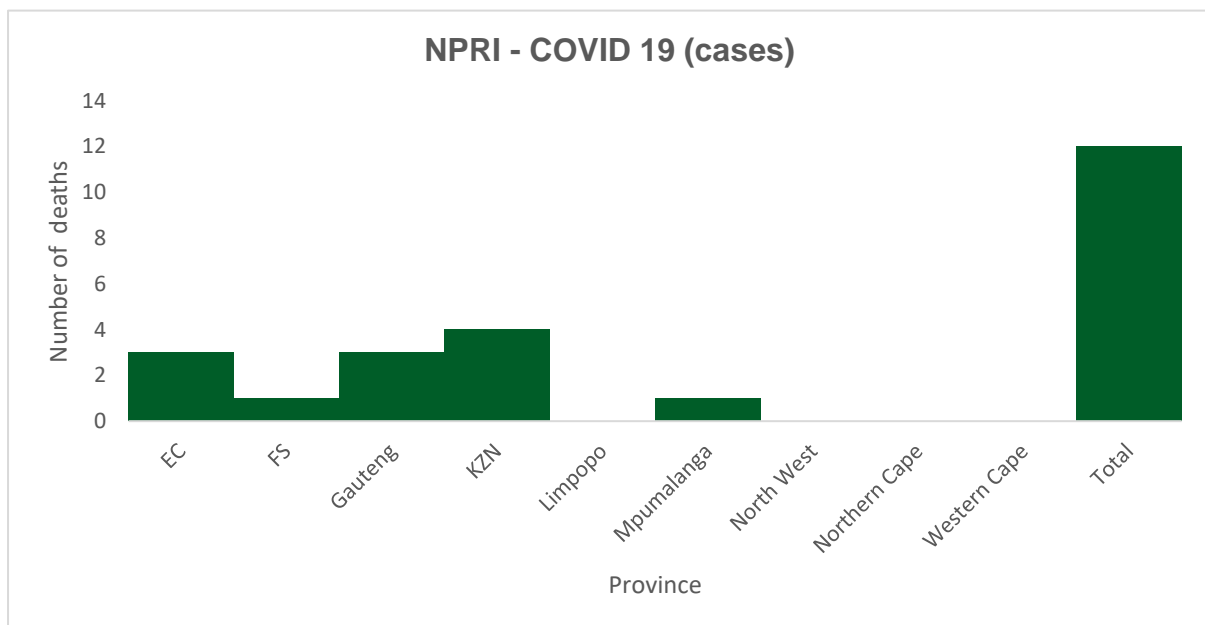
	2017	2018	2019	2020	2021	2022
Hypertension	23.09	19.88	19.39	16.9	18.41	16.7
Obstetric haemorrhage	20.13	19.19	18.09	18.4	23.04	16.3
Ectopic pregnancy	4.46	4.4	3.75	3.4	3.25	3.4
Miscarriage	8.11	7.9	5.63	4.5	5.32	6.3
Pregnancy-related sepsis	7.62	5.95	4.52	5.7	6.60	5.6
Anaesthetic complication	3.4	2.79	2.02	1.9	1.67	3.9
Embolism	3.84	4.53	2.47	3.1	4.23	4
Acute collapse	1.68	2.64	3.21	1.4	3.54	2.1
Non-pregnancy related infection	32.59	29.15	19.95	30.1	54.54	18.1
Medical and surgical disorders	17.57	17.64	15.61	17.2	18.51	14.1
Unknown	1.66	2.52	2.12	6.9	5.02	5.3
iMMR for all maternal deaths	125.89	117.69	98.82	111.3	144.9	100.10



Classification of maternal deaths directly due to COVID-19 complications

Figure 7. Deaths from COVID-19 complications per province 2022

Province	EC	FS	Gauteng	KZN	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape	Total
NPRI - COVID 19 (cases)	3	1	3	4	0	1	0	0	0	12



Primary Obstetric causes of death per province

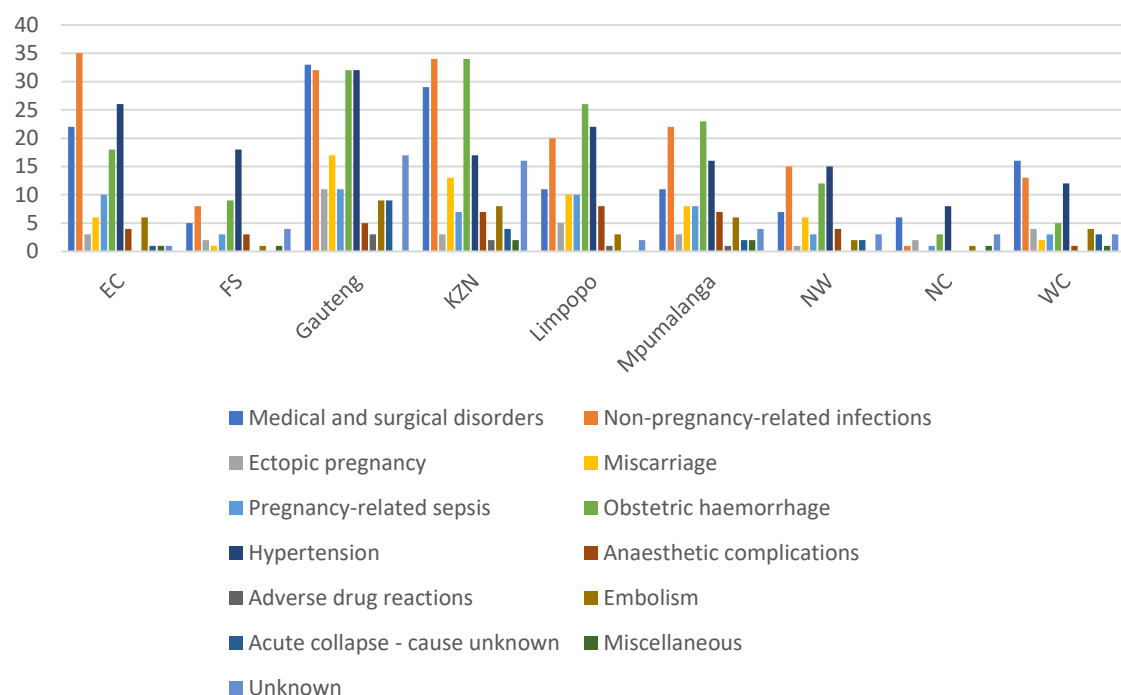
Table 7. Causes of DDPCP per province in 2022

2022	EC	FS	Gauteng	KZN	Limpopo	Mpumalanga	NW	NC	WC	Total
Medical and surgical disorders	22	5	33	29	11	11	7	6	16	140
Non-pregnancy-related infections	35	8	32	34	20	22	15	1	13	180
Ectopic pregnancy	3	2	11	3	5	3	1	2	4	34
Miscarriage	6	1	17	13	10	8	6	0	2	63
Pregnancy-related sepsis	10	3	11	7	10	8	3	1	3	56
Obstetric haemorrhage	18	9	32	34	26	23	12	3	5	162
Hypertension	26	18	32	17	22	16	15	8	12	166
Anaesthetic complications	4	3	5	7	8	7	4	0	1	39
Adverse drug reactions	0	0	3	2	1	1	0	0	0	7
Embolism	6	1	9	8	3	6	2	1	4	40
Acute collapse - cause unknown	1	0	9	4	0	2	2	0	3	21
Miscellaneous	1	1	0	2	0	2	0	1	1	8
Unknown	1	4	17	16	2	4	3	3	3	53
Maternal deaths	133	55	211	176	118	113	70	26	67	969
Coincidental cause	1	4	5	5	1	0	2	0	6	24
DDCP	134	59	216	181	119	113	72	26	73	993
Live births (2022)	103147	47336	218619	215381	124648	82270	59951	22153	94623	968128

Table 8. iMMR per Primary Obstetric Cause per province for 2022 (MDs per 100,000 LBs)

iMMR 2022	EC	FS	Gauteng	KZN	Limpopo	Mpumalanga	NW	NC	WC	Total
Medical and surgical disorders	21.3	10.6	15.1	13.5	8.8	13.4	11.7	27.1	16.9	14.5
Non-pregnancy-related infections	33.9	16.9	14.6	15.8	16.0	26.7	25.0	4.5	13.7	18.6
Ectopic pregnancy	2.9	4.2	5.0	1.4	4.0	3.6	1.7	9.0	4.2	3.5
Miscarriage	5.8	2.1	7.8	6.0	8.0	9.7	10.0	0.0	2.1	6.5
Pregnancy-related sepsis	9.7	6.3	5.0	3.3	8.0	9.7	5.0	4.5	3.2	5.8
Obstetric haemorrhage	17.5	19.0	14.6	15.8	20.9	28.0	20.0	13.5	5.3	16.7
Hypertension	25.2	38.0	14.6	7.9	17.6	19.4	25.0	36.1	12.7	17.1
Anaesthetic complications	3.9	6.3	2.3	3.3	6.4	8.5	6.7	0.0	1.1	4.0
Adverse drug reactions	0.0	0.0	1.4	0.9	0.8	1.2	0.0	0.0	0.0	0.7
Embolism	5.8	2.1	4.1	3.7	2.4	7.3	3.3	4.5	4.2	4.1
Acute collapse - cause unknown	1.0	0.0	4.1	1.9	0.0	2.4	3.3	0.0	3.2	2.2
Miscellaneous	1.0	2.1	0.0	0.9	0.0	2.4	0.0	4.5	1.1	0.8
Unknown	1.0	8.5	7.8	7.4	1.6	4.9	5.0	13.5	3.2	0.8
iMMR (excl. Coincidental deaths)	128.9	116.2	96.5	81.7	94.7	137.4	116.8	117.4	70.8	100.1
Coincidental Cause	1.0	8.5	2.3	2.3	94.7	0.0	3.3	0.0	6.3	5.5
iMMR (incl. coin)	129.9	124.6	98.8	84.0	95.5	137.4	120.1	117.4	77.1	102.6
Live births (2022)	103147	47336	218619	215381	124648	82270	59951	22153	94623	968128

Figure 8. iMMR per province for Primary causes of death in 2022



Levels of Care, HIV, Caesarean delivery

Levels of Care of Maternal deaths

Table 9. Location of death, DDPCP 2022

Primary obstetric problems	In Facility	In Transit	Home/Outside	Total:
Coincidental cause	17	0	7	24
Medical and surgical disorders	134	1	5	140
Non-pregnancy-related infections	177	0	3	180
Ectopic pregnancy	34	0	0	34
Miscarriage	62	1	0	63
Pregnancy-related sepsis	56	0	0	56
Obstetric haemorrhage	152	6	4	162
Hypertension	160	1	5	166
Anaesthetic complications	39	0	0	39
Adverse drug reactions	7	0	0	7
Embolism	36	2	2	40
Acute collapse - cause unknown	21	0	0	21
Miscellaneous	8	0	0	8
Unknown	29	0	24	53
Total:	932 (93.9%)	11 (1.1%)	50 (5%)	993 (100%)

Table 10. DDPCP per level of care and Primary Obstetric cause 2022

Primary obstetric problem	Outside N	CHC N	District hospital N	Regional hospital N	Tertiary/ National hospital N	Private hospital N	Total N
Coincidental cause	7	2	3	5	6	1	24
Medical and surgical disorders	5	2	18	51	62	2	140
Non-pregnancy-related infections	3	2	45	59	67	4	180
Ectopic pregnancy	0	3	12	6	12	1	34
Miscarriage	0	2	10	20	28	3	63
Pregnancy-related sepsis	0	2	8	17	28	1	56
Obstetric haemorrhage	4	8	49	53	42	6	162
Hypertension	5	3	27	56	70	5	166
Anaesthetic complications	0	0	22	7	8	2	39
Adverse drug reactions	0	0	2	0	5	0	7
Embolism	2	1	8	15	7	7	40
Miscellaneous	0	0	2	3	5	0	8
Acute collapse - cause unknown	0	2	10	4	3	0	21
Unknown	24	4	8	8	5	4	53
Total	50 (5.0%)	31 (3.1%)	224 (22.6%)	304 (30.6%)	348 (35.0%)	36 (3.6%)	993 (100%)

HIV status of DDPCP

Table 11. HIV status in DDPCP per cause of death, 2022

Primary obstetric problems	Positive	Negative	Declined	Unknown	Total:
Coincidental cause	7	5	0	12	24
Medical and surgical disorders	46	73	0	21	140
Non-pregnancy-related infections	141	32	0	7	180
Ectopic pregnancy	9	10	0	15	34
Miscarriage	20	19	0	24	63
Pregnancy-related sepsis	22	25	0	9	56
Obstetric haemorrhage	59	88	0	15	162
Hypertension	43	98	0	25	166
Anaesthetic complications	11	28	0	0	39
Adverse drug reactions	4	3	0	0	7
Embolism	12	19	0	9	40
Acute collapse - cause unknown	8	10	0	3	21
Miscellaneous	1	4	0	3	8
Unknown	12	28	0	13	53
Total:	395 (39.8%)	442 (44.5%)	0 (0%)	156 (15.7%)	993

Caesarean delivery and Maternal deaths

Table 12. Caesarean delivery and maternal deaths 2022 (*CD CFR = Number of deaths during or after CD per 100,000 CDs)

Province (2022)	Live births	CD	CD rate (%)	MD with CD	CDCFR 2022
Eastern Cape	103147	34244	33.2	43	125.6
Free State	47336	15858	33.5	25	157.7
Gauteng	218619	70833	32.4	80	112.9
KwaZulu-Natal	215381	79260	36.8	61	77
Limpopo	124648	30663	24.6	46	150
Mpumalanga	82270	18922	23	47	248.4
North West	59951	15407	25.7	22	142.8
Northern Cape	22153	5605	25.3	8	142.7
Western Cape	94623	29995	31.7	24	80
Total:	968128	300,787	31.1%	356	118.4

Overview of Avoidability of maternal deaths and avoidable factors

Table 13. The impact of suboptimal care within the health system on maternal deaths

Impact of suboptimal care*	Total
- No suboptimal care identified	320
- Suboptimal care, no impact on outcome	87
- Suboptimal care, possible impact on outcome	333
- Suboptimal care, probable impact on outcome	253

*59% potentially preventable through better care within the health service

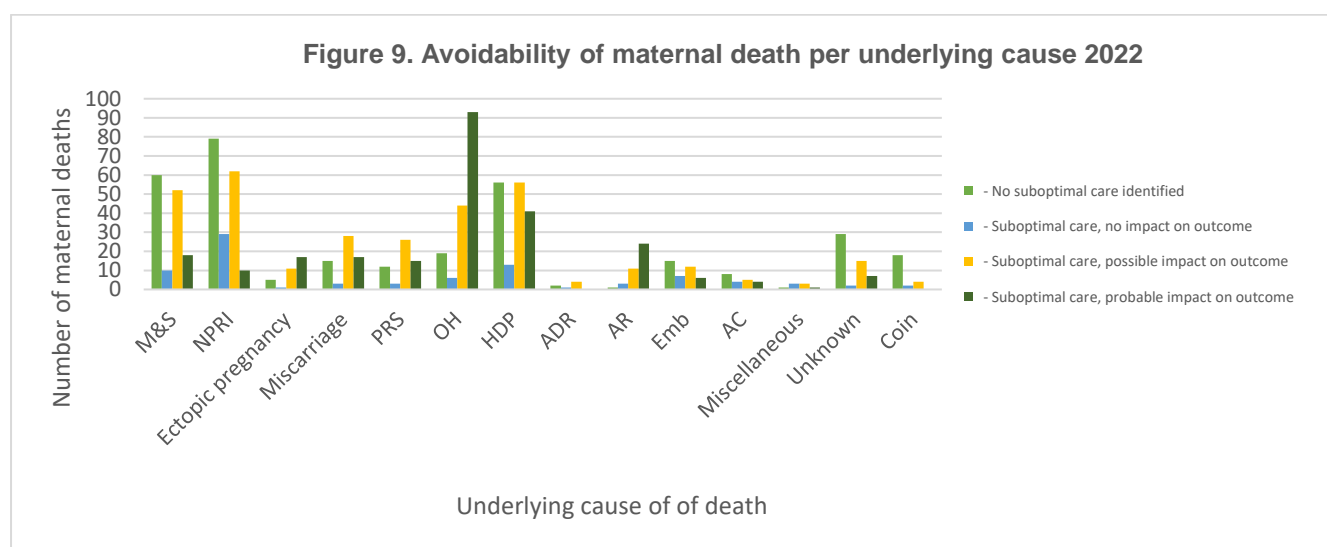


Table 14. Patient/Community level avoidable factors 2022

Description	Number	% of cases
Lack of information	113	11.4
No avoidable factor	385	38.8
No antenatal care	197	19.8
Infrequent antenatal care	45	4.5
Delay in accessing medical help	311	31.3
Declined medication/surgery/advice	83	8.4
Family problem	29	2.9
Community problem	4	0.4
Unsafe abortion	15	1.5
Other	66	6.6
Total cases	993	100%

Table 15. Administrative avoidable factors 2022

Description	Number	% of cases
Lack of information	84	8.5
No avoidable factor	449	45.2
Transport problem: Home to institution	16	1.6
Transport problem: Institution to institution	86	8.7
Lack of accessibility: Barriers to entry	2	0.2
Lack of accessibility: Other	12	1.2
Delay in attending to patient (Overburdened service)	67	6.7
Delay in attending to patient (Reason unknown)	49	4.9
Lack of health care facilities: ICU	76	7.7
Lack of health care facilities: Blood/blood products	29	2.9
Lack of health care facilities: Other	32	3.2
Inadequate numbers of staff on duty	61	6.1
Appropriate skill not available on site / on standby	115	11.6
Communication problems: Technical	23	2.3
Communication problems: Interpersonal	17	1.7
Other	88	8.9
Total cases	993	100%

Table 16 Medical Care avoidable factors by level of care 2022

Description	COMMUNITY HEALTH CENTRE			DISTRICT HOSPITAL			REGIONAL HOSPITAL			TERTIARY HOSPITAL / ABOVE			PRIVATE HOSPITAL		
	Number	% of all cases	% of cases at level	Number	% of all cases	% of cases at level	Number	% of all cases	% of cases at level	Number	% of all cases	% of cases at level	Number	% of all cases	% of cases at level
Managed at this level	412	41.5	100	470	47.3	100	395	39.8	100	362	36.5	100	53	5.3	100
Lack of information	54	5.4	13.1	40	4	8.5	36	3.6	9.1	23	2.3	6.4	11	1.1	20.8
No avoidable factor	191	19.2	46.4	133	13.4	28.3	164	16.5	41.5	198	19.9	54.7	15	1.5	28.3
Initial assessment	89	9	21.6	97	9.8	20.6	55	5.5	13.9	29	2.9	8	6	0.6	11.3
Problem with recognition / diagnosis	83	8.4	20.1	170	17.1	36.2	90	9.1	22.8	57	5.7	15.7	13	1.3	24.5
Delay in referring the patient	40	4	9.7	99	10	21.1	30	3	7.6	3	0.3	0.8	4	0.4	7.5
Managed at inappropriate level	15	1.5	3.6	84	8.5	17.9	21	2.1	5.3	10	1	2.8	2	0.2	3.8
Incorrect management (Wrong diagnosis)	15	1.5	3.6	48	4.8	10.2	31	3.1	7.8	12	1.2	3.3	3	0.3	5.7
Sub-standard management (Correct diagnosis)	53	5.3	12.9	115	11.6	24.5	110	11.1	27.8	80	8.1	22.1	9	0.9	17
Not monitored / Infrequently monitored	8	0.8	1.9	45	4.5	9.6	25	2.5	6.3	15	1.5	4.1	3	0.3	5.7
Prolonged abnormal monitoring with no action taken	12	1.2	2.9	62	6.2	13.2	41	4.1	10.4	19	1.9	5.2	8	0.8	15.1

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