

TB and maternal mortality

Findings from the Saving Mothers' Report

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Background

- Approximately one-third of deaths due to tuberculosis occur among women of childbearing age.
- In SSA - the majority of infectious causes of maternal deaths were due to malaria (43/145 [30%]), tuberculosis (36/145 [25%]), respiratory infections (32/145 [22%]), and other HIV-associated opportunistic infections.
- In the 2015 report (2012-2014), 91% of NRPI were HIV infected

TB and HIV

Diagnosis of TB is more difficult in HIV positive patients

- TB presents atypically in HIV positive patients with low CD4 counts,
- TB may present with respiratory symptoms, or as a non-specific febrile or wasting illness.
- is often disseminated,
- may progress rapidly can be difficult to prove.
- Sputum microscopy is more often negative,
- GeneXpert has a lower sensitivity.
- chest xray may be normal, or may have a similar appearance to an acute bacterial pneumonia.
- Extra-pulmonary TB is more common,

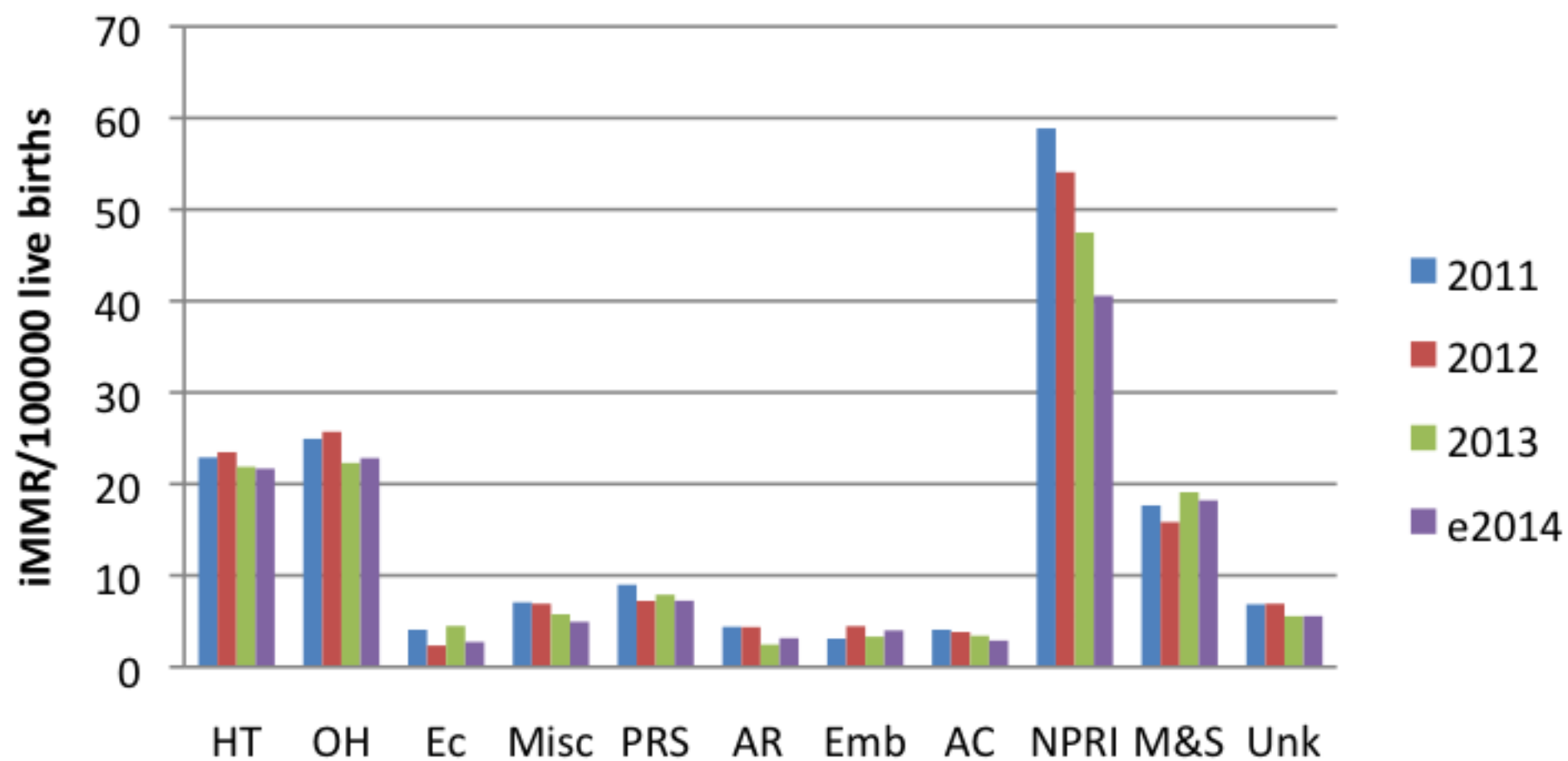
It is important to look for TB at other sites that can be sampled; including pleural fluid, lymph nodes, ascites and CSF.

“The big 5”

Table 6. Comparison of the underlying cause of death from 2011-2014

	iMMR	2011-13	2011	2012	2013	e2014
Direct	76.62	79.74	78.41	71.71	72.53	
Hypertension	22.75	22.9	23.48	21.88	21.68	
Obstetric haemorrhage	24.32	24.94	25.71	22.3	22.83	
Ectopic pregnancy	3.63	4.07	2.34	4.48	2.73	
Miscarriage	6.58	7.06	6.91	5.76	4.93	
Pregnancy-related sepsis	8.04	8.99	7.22	7.9	7.24	
Anaesthetic complications	3.73	4.39	4.36	2.45	3.15	
Embolism	3.63	3.1	4.46	3.31	3.99	
Acute collapse - cause unknown		3.77	4.07	3.82	3.41	2.89
Adverse drug reactions	2.26					
Miscellaneous	0.18	0.21	0.11	0.21	0.84	
Indirect	71	76.53	69.91	66.59	58.78	
Non-pregnancy-related infections		53.47	58.87	54.08	47.49	40.57
Medical and surgical disorders		17.53	17.66	15.83	19.1	18.21
Unknown	6.44	6.85	6.91	5.55	5.56	
Total	154.06	163.11	155.23	143.85	136.87	

Figure 5. Comparison of pattern of underlying causes of maternal death from 2011-2014



NRPI

Table 1.8 Distribution of the sub-categories of Non-pregnancy related infections Underlying causes sub-categories

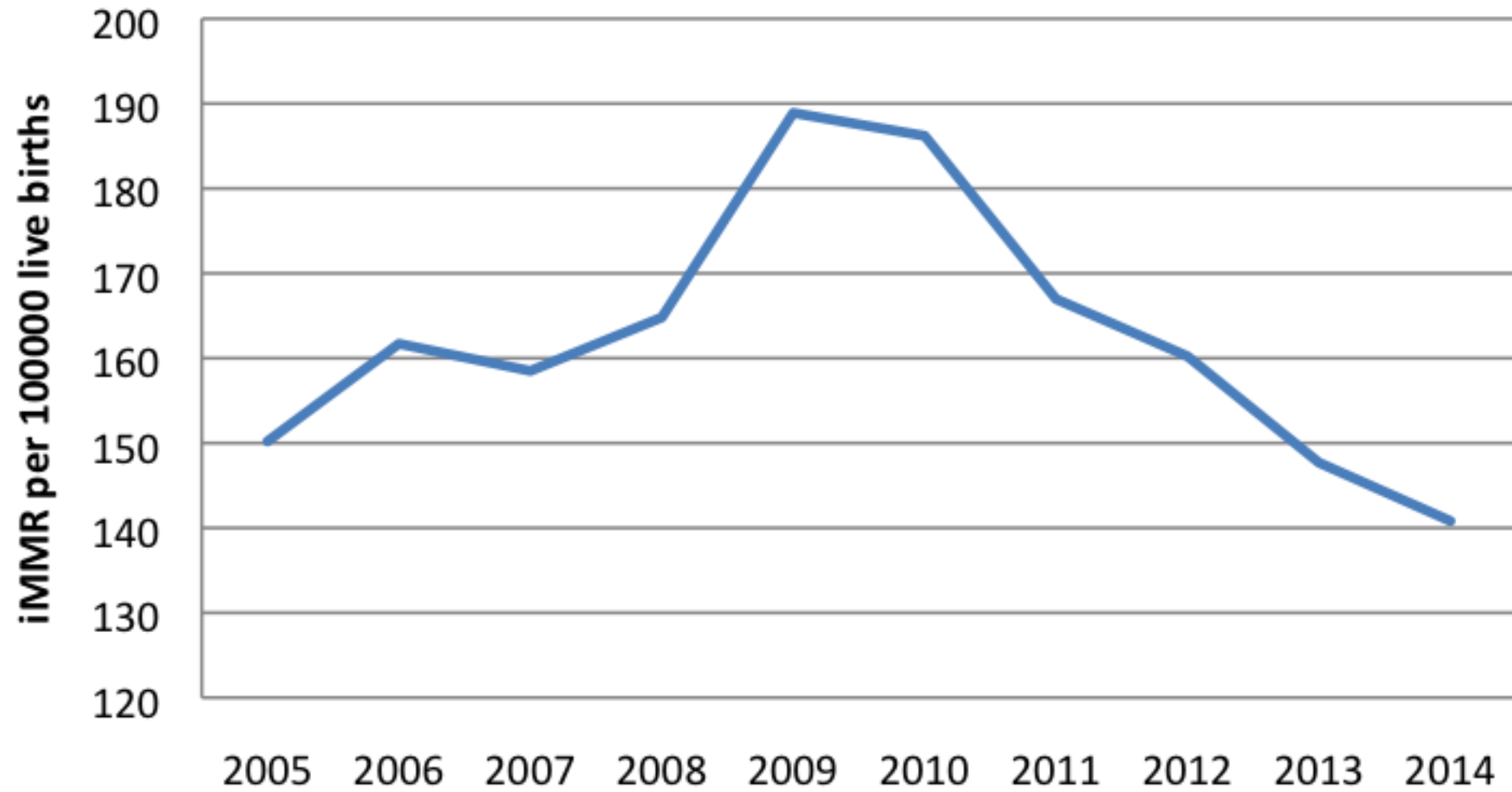
	2011	2012	2013	Total	Distribution (%)	
- PCP pneumonia	72	77	77	226	15.0	
- Other pneumonia	127	92	91	310	20.6	
- TB	139	119	138	396	26.3	
- Endocarditis	2	1	1	4	0.3	
- UTI	3	6	0.4			
- Malaria	2	6	4	12	0.8	
- Cryptococcal meningitis		18	22	16	56	3.7
- Other meningitis	37	58	34	129	8.6	
- Kaposi's sarcoma	10	8	8	26	1.7	
- Hepatitis	5	6	9	20	1.3	
- Gastroenteritis	17	23	23	63	4.2	
- Wasting syndrome	23	26	8	57	3.8	
- Complications of antiretroviral therapy			64	49	17	130
- Other	31	22	16	69	4.6	8.6
Non-pregnancy-related infections	550	509	509	445	1504	100.0

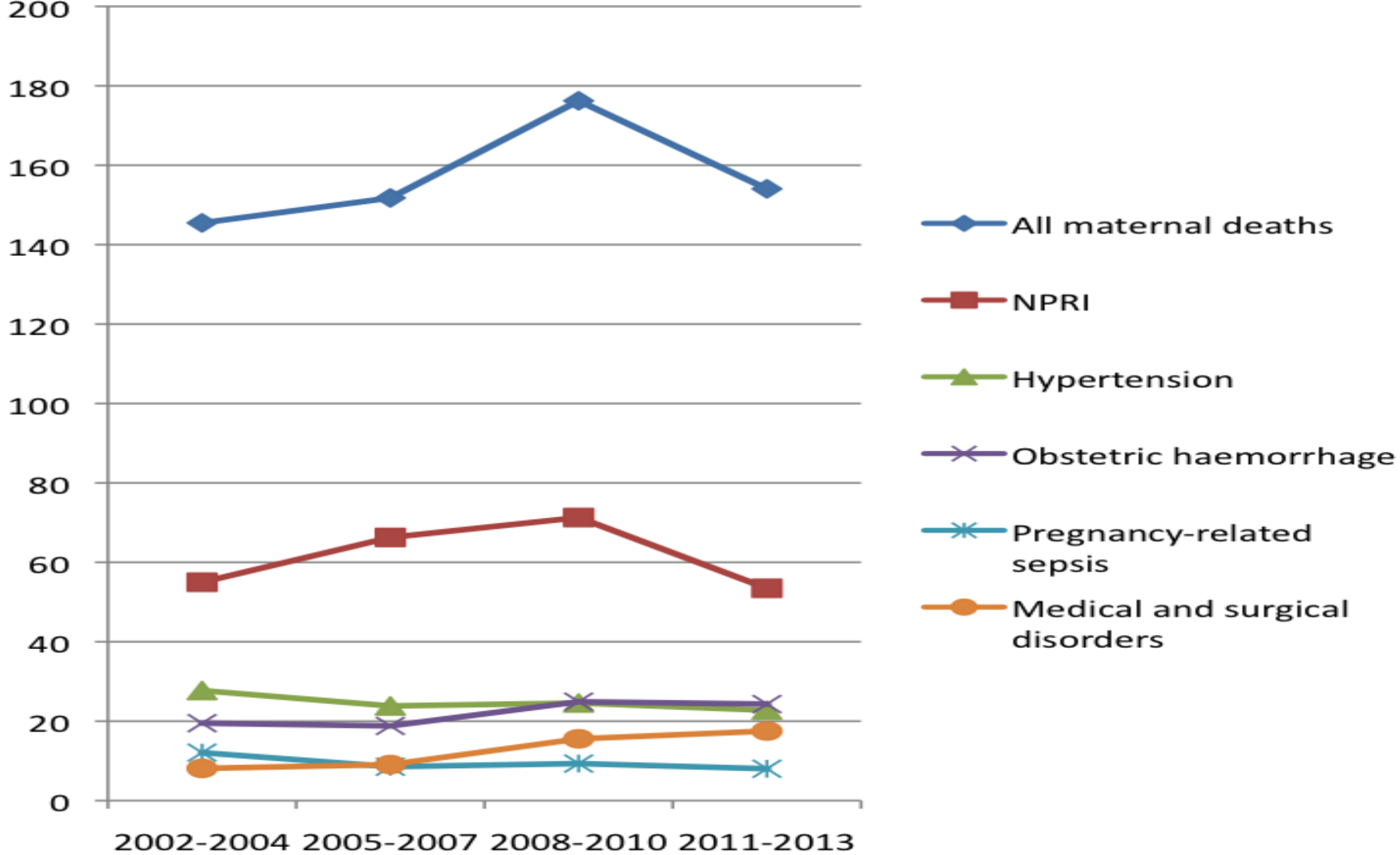
TB and HIV relationship

Table 1.9 HIV status and NPRI

	Neg	Pos	- AIDS not on HAART	- AIDS on HAART		
Declined testing	Unknown					
- PCP pneumonia	1	21	89	113	2	226
- Other pneumonia	36	42	96	111	1	24
310						
- TB	29	35	118	201	3	10
396 (total)						
- Endocarditis	1	2	4			
- UTI	2	2	1	6		
- Malaria	4	2	1	12		
- Cryptococcal meningitis	2	23	30	1	56	
- Other meningitis	15	6	40	62	6	129
- Kaposi's sarcoma	8	18	26			
- Hepatitis	3	4	5	8	20	
- Gastroenteritis	4	6	17	36	63	
- Wasting syndrome	1	3	32	21	57	
- Complications of antiretroviral therapy		13	8	109	130	
- Other	9	12	19	5	69	
Non-pregnancy-related infections		100	149	462	739	4
50	1504					
Distribution of HIV status (%)	6.6	9.9	30.7	49.1	0.3	3.3
100.0						

Figure 3 iMMR from 2005 to 2014





Maternal mortality due to Tuberculosis

- TB is the single most common cause of death from NPRI, (and probably underestimated), most common sub-category of maternal death overall (38.1%).
- There were 384 deaths attributed to TB during the triennium (2012-2014); which is 26% of all non-pregnancy related infections.
- The number of maternal deaths classified as TB has fallen from 529 since the last triennium; a **decrease of 24.6%**.
- Overall 87.6% of maternal death had an HIV test and of all maternal deaths tested for HIV status 57.4% were positive. This is a decrease from 65.3% maternal deaths in 2011-2013 who tested HIV positive
 - The scale up of HAART, TB screening at antenatal visits, and increased IPT are factors which have likely contributed to this fall.

NRPI and HAART

Table 16. Subcategories of NPRI and HAART

Primary obstetric problems	Total	Total positive	Positive not AIDS	AIDS not on HAART	Aids on HAART	Total AIDS
	no.	no.	no.	no.	no.	no.
• Non-pregnancy related infections	1504	1350	149	462	739	1201
• - PCP pneumonia	226	223	21	89	113	202
• - Other pneumonia	310	249	42	96	111	207
• - TB	396	354	35	118	201	319
• - Endocarditis	4	3	0	2	3	100
• - UTI	6	4	0	2	4	100
• - Malaria	12	11	5	4	6	54.5
• - Cryptococcal meningitis	56	55	2	23	30	53
• - Other meningitis	129	108	6	40	62	102
• - Kaposi's sarcoma	26	26	0	8	18	26
• - Hepatitis	20	17	4	5	8	13
• - Gastroenteritis	63	59	6	17	36	53
• - Wasting syndrome	57	56	3	32	21	53
• - Complications of ART	130	130	13	8	109	117
• - Other	69	55	12	19	24	43
						78.2

Room for improvement

- In all maternal deaths 57.3% were considered potentially preventable within the health system
- The most common areas of substandard care were in problem recognition or diagnosis (24.1%) and not following standard protocols (25.7%)

Preventing TB deaths in HIV infected women

- **Symptom screen** for at each antenatal visit, when presenting in labour, and at postnatal and EPI visits: this includes both HIV positive and HIV negative women.
- If the symptom **screen is positive, sputum samples** should be obtained the same day, and an appointment made for follow-up of results. **2 samples should be obtained; one for GeneXpert and one for TB microscopy culture and sensitivity.**
- All pregnant women who are acutely or chronically unwell need repeat HIV testing and investigating for TB: this particularly includes women with respiratory symptoms, constitutional symptoms, meningitis and other CNS symptoms.

Preventing TB deaths

- There should be a **low threshold for starting empiric TB treatment for pregnant women** where there is a high clinical suspicion and TB cannot readily be confirmed.
 - Doctors experienced in TB and HIV management should be consulted early if there is ongoing uncertainty, and the patient transferred to a higher level of care if further expertise is needed.
- Systems need to be in place to ensure continuity of care, so that pregnant women continue to receive TB treatment following hospital discharge and referral.
- IPT for all screen negative women

Conclusion

- TB is an important and most significant contributor to maternal deaths in SA.
- If properly addressed, we can expect a greater reduction in deaths
- **Lack of problem recognition is the major avoidable factor in terms of preventing deaths from TB.**

Deaths attributed to other causes include deaths that were likely due to underlying TB, which had not been considered or investigated. These include deaths from wasting syndrome and meningitis, as well as deaths from respiratory causes, where TB may be an additional or alternative diagnosis.



**The correct way to cough,
follow the leaders!!**

Thank you

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