Appendix 1. PubMed session results (1 April 2021)

Search	Query
#7	**#4 OR #6**
#6	**#3 AND #5**
#5	**"Near Miss, Healthcare"[Mesh] OR near miss*[tiab] OR close call*[tiab]**
#4	**#1 AND #2 AND #3**
#3	**"South Africa"[Mesh] OR South Africa*[tiab]**
#2	**"Maternal Mortality"[Mesh] OR maternal morbidity[tiab] OR maternal mortality[tiab] OR maternal death[tiab]**
#1	**"Pregnancy Complications"[Mesh] OR "Delivery, Obstetric/complications"[Mesh] OR "Hysterectomy"[Mesh] OR hysterectom*[tiab] OR uterine ruptur*[tiab] OR HELLP[tiab] OR ((pregnan*[tiab] OR obstetric*[tiab] OR prenatal[tiab] OR perinatal[tiab] OR intranatal[tiab] OR antenatal[tiab] OR prepartum[tiab] OR peripartum[tiab] OR intrapartum[tiab] OR antepartum[tiab] OR pre-natal[tiab] OR peri-natal[tiab] OR intra-natal[tiab] OR ante-natal[tiab] OR pre-partum[tiab] OR peri-partum[tiab] OR intra-partum[tiab] OR ante-partum[tiab]) AND (complication*[tiab])) OR ectopic pregnanc*[tiab] OR extrauterine pregnanc*[tiab] OR miscarria*[tiab] OR spontaneous abortion*[tiab] OR early pregnancy loss*[tiab] OR hyperemesis gravidarum[tiab] OR pregnancy related sepsis[tiab] OR preeclampsia[tiab] OR pre-eclampsia[tiab] OR eclampsia[tiab] OR obstetric haemorrhag*[tiab] OR obstetric hemorrhag*[tiab] OR postpartum haemorrhag*[tiab] OR postpartum hemorrhag*[tiab] OR hypertension[tiab] OR anaesthetic complication*[tiab] OR anesthetic complication*[tiab] OR embolism*[tiab] OR acute collaps*[tiab] OR non pregnancy related infection*[tiab] OR underlying medical disease*[tiab]**

Embase.com Session Results

Search	Query
#7	**#4 OR #6**

Search	Query
#6	**#3 AND #5**
#5	**'near miss (health care)'/exp OR 'near miss*':ab,ti,kw OR 'close call*':ab,ti,kw**
#4	**#1 AND #2 AND #3**
#3	**'South Africa'/exp OR 'South African'/exp OR 'South Africa*':ab,ti,kw**
#2	**'maternal mortality'/exp OR 'maternal morbidity'/exp OR 'maternal death'/exp OR 'maternal morbidity':ab,ti,kw OR 'maternal mortality':ab,ti,kw OR 'maternal death':ab,ti,kw**
#1	**'pregnancy complication'/exp OR ('obstetric delivery'/exp AND 'complication'/lnk) OR 'hysterectomy'/exp OR 'uterine rupture in pregnancy'/exp OR 'HELLP syndrome'/exp OR 'pregnancy disorder'/exp OR hysterectom*:ab,ti,kw OR 'uterus ruptur*':ab,ti,kw OR 'uterine ruptur*':ab,ti,kw OR HELLP:ab,ti,kw OR ((pregnan*:ab,ti,kw OR obstetric*:ab,ti,kw OR prenatal:ab,ti,kw OR perinatal:ab,ti,kw OR intranatal:ab,ti,kw OR antenatal:ab,ti,kw OR prepartum:ab,ti,kw OR peripartum:ab,ti,kw OR intrapartum:ab,ti,kw OR antepartum:ab,ti,kw OR 'pre-natal':ab,ti,kw OR 'peri-natal':ab,ti,kw OR 'intra-natal':ab,ti,kw OR 'ante-natal':ab,ti,kw OR 'pre-partum':ab,ti,kw OR 'peri-partum':ab,ti,kw OR 'intra-partum':ab,ti,kw OR 'ante-partum':ab,ti,kw) AND (complication*:ab,ti,kw)) OR 'ectopic pregnanc*':ab,ti,kw OR 'extrauterine pregnanc*':ab,ti,kw OR miscarria*:ab,ti,kw OR 'spontaneous abortion*':ab,ti,kw OR 'early pregnancy loss*':ab,ti,kw OR 'hyperemesis gravid arum':ab,ti,kw OR 'pregnancy related sepsis':ab,ti,kw OR preeclampsia:ab,ti,kw OR 'pre-eclampsia':ab,ti,kw OR eclampsia:ab,ti,kw OR 'obstetric haemorrhag*':ab,ti,kw OR 'obstetric hemorrhag*':ab,ti,kw OR 'postpartum haemorrhag*':ab,ti,kw OR 'postpartum hemorrhag*':ab,ti,kw OR hypertension:ab,ti,kw OR 'anaesthetic complication*':ab,ti,kw OR 'anesthetic complication*':ab,ti,kw OR embolism*:ab,ti,kw OR 'acute collaps*':ab,ti,kw OR 'non pregnancy related infection*':ab,ti,kw OR 'underlying medical disease*':ab,ti,kw**

Ebsco / CINAHL Session Results

Search	Query
#7	**#4 OR #6**
#6	**#3 AND #5**
#5	**TI ("near miss*" OR "close call*") OR AB ("near miss*" OR "close call*") OR SU ("near miss*" OR "close call*")**
#4	**#1 AND #2 AND #3**
#3	**(MH "South Africa") OR TI ("South Africa*") OR AB ("South Africa*") OR SU ("South Africa*")**
#2	**(MH "Maternal Mortality") OR TI ("maternal morbidity" OR "maternal mortality" OR "maternal death") OR AB ("maternal morbidity" OR "maternal mortality" OR "maternal death") OR SU ("maternal morbidity" OR "maternal mortality" OR "maternal death")**
#1	**(MH "Pregnancy Complications+") OR (MH "Delivery, Obstetric+") OR (MH "Hysterectomy+") OR (MH "Uterine Rupture") OR TI (hysterectom* OR "uterus ruptur*" OR "uterine ruptur*" OR "HELLP" OR ((pregnan* OR obstetric* OR "prenatal" OR "perinatal" OR "intranatal" OR "antenatal" OR "prepartum" OR "peripartum" OR "intrapartum" OR "antepartum" OR "pre-natal" OR "peri-natal" OR "intra-natal" OR "ante-natal" OR "pre-partum" OR "peri-partum" OR "intra-partum" OR "ante-partum") AND (complication*)) OR "ectopic pregnanc*" OR "extrauterine pregnanc*" OR miscarria* OR "spontaneous abortion*" OR "early pregnancy loss*" OR "hyperemesis gravid arum" OR "pregnancy related sepsis" OR "preeclampsia" OR "pre-eclampsia" OR "eclampsia" OR "obstetric haemorrhag*" OR "obstetric hemorrhag*" OR "postpartum haemorrhag*" OR "postpartum hemorrhag*" OR "hypertension" OR "anaesthetic complication*" OR "anesthetic complication*" OR embolism* OR "acute collaps*" OR "non pregnancy related infection*" OR "underlying medical disease*") OR AB (hysterectom* OR "uterus ruptur*" OR "uterine ruptur*" OR "HELLP" OR ((pregnan* OR obstetric* OR "prenatal" OR "perinatal" OR "intranatal" OR "antenatal" OR "prepartum" OR "peripartum" OR "intrapartum" OR "antepartum" OR "pre-natal" OR "peri-natal" OR "intra-natal" OR "ante-natal" OR "pre-partum" OR "peri-partum" OR "intra-partum" OR "ante-partum") AND (complication*)) OR "ectopic pregnanc*" OR "extrauterine pregnanc*" OR miscarria* OR "spontaneous abortion*" OR "early pregnancy loss*" OR "hyperemesis gravid arum" OR "pregnancy related sepsis" OR "preeclampsia" OR "pre-eclampsia" OR "eclampsia" OR "obstetric**

Search	Query
	haemorrhag*" OR "obstetric hemorrhag*" OR "postpartum haemorrhag*" OR "postpartum hemorrhag*" OR "hypertension" OR "anaesthetic complication*" OR "anesthetic complication*" OR embolism* OR "acute collaps*" OR "non pregnancy related infection*" OR "underlying medical disease*") OR SU (hysterectom* OR "uterus ruptur*" OR "uterine ruptur*" OR "HELLP" OR ((pregnan* OR obstetric* OR "prenatal" OR "perinatal" OR "intranatal" OR "antenatal" OR "prepartum" OR "peripartum" OR "intrapartum" OR "antepartum" OR "pre-natal" OR "peri-natal" OR "intra-natal" OR "ante-natal" OR "pre-partum" OR "peri-partum" OR "intra-partum" OR "ante-partum") AND (complication*)) OR "ectopic pregnanc*" OR "extrauterine pregnanc*" OR miscarria* OR "spontaneous abortion*" OR "early pregnancy loss*" OR "hyperemesis gravid arum" OR "pregnancy related sepsis" OR "preeclampsia" OR "pre-eclampsia" OR "eclampsia" OR "obstetric haemorrhag*" OR "obstetric hemorrhag*" OR "postpartum haemorrhag*" OR "postpartum hemorrhag*" OR "hypertension" OR "anaesthetic complication*" OR "anesthetic complication*" OR embolism* OR "acute collaps*" OR "non pregnancy related infection*" OR "underlying medical disease*")

Scopus Session Results

Search	Query
#7	#4 OR #6
#6	#3 AND #5
#5	TITLE-ABS ("near miss*" OR "close call*") OR AUTHKEY ("near miss*" OR "close call*")
#4	#1 AND #2 AND #3
#3	TITLE-ABS ("South Africa*") OR AUTHKEY ("South Africa*")
#2	TITLE-ABS ("maternal morbidity" OR "maternal mortality" OR "maternal death") OR AUTHKEY ("maternal morbidity" OR "maternal mortality" OR "maternal death")
#1	TITLE-ABS (hysterectom* OR "uterus ruptur*" OR "uterine ruptur*" OR "HELLP" OR ((pregnan* OR obstetric* OR "prenatal" OR "perinatal" OR

Search	Query
	"intranatal" OR "antenatal" OR "prepartum" OR "peripartum" OR "intrapartum" OR "antepartum" OR "pre-natal" OR "peri-natal" OR "intra-natal" OR "ante-natal" OR "pre-partum" OR "peri-partum" OR "intra-partum" OR "ante-partum") AND (complication*)) OR "ectopic pregnanc*" OR "extrauterine pregnanc*" OR miscarria* OR "spontaneous abortion*" OR "early pregnancy loss*" OR "hyperemesis gravid arum" OR "pregnancy related sepsis" OR "preeclampsia" OR "pre-eclampsia" OR "eclampsia" OR "obstetric haemorrhag*" OR "obstetric hemorrhag*" OR "postpartum haemorrhag*" OR "postpartum hemorrhag*" OR "hypertension" OR "anaesthetic complication*" OR "anesthetic complication*" OR embolism* OR "acute collaps*" OR "non pregnancy related infection*" OR "underlying medical disease*") OR AUTHKEY (hysterectom* OR "uterus ruptur*" OR "uterine ruptur*" OR "HELLP" OR ((pregnan* OR obstetric* OR "prenatal" OR "perinatal" OR "intranatal" OR "antenatal" OR "prepartum" OR "peripartum" OR "intrapartum" OR "antepartum" OR "pre-natal" OR "peri-natal" OR "intra-natal" OR "ante-natal" OR "pre-partum" OR "peri-partum" OR "intra-partum" OR "ante-partum") AND (complication*)) OR "ectopic pregnanc*" OR "extrauterine pregnanc*" OR miscarria* OR "spontaneous abortion*" OR "early pregnancy loss*" OR "hyperemesis gravid arum" OR "pregnancy related sepsis" OR "preeclampsia" OR "pre-eclampsia" OR "eclampsia" OR "obstetric haemorrhag*" OR "obstetric hemorrhag*" OR "postpartum haemorrhag*" OR "postpartum hemorrhag*" OR "hypertension" OR "anaesthetic complication*" OR "anesthetic complication*" OR embolism* OR "acute collaps*" OR "non pregnancy related infection*" OR "underlying medical disease*")

Appendix 2. Interview guide

Introduction:

Hi, welcome to the interview! Thank you again for participating and for agreeing to share your experiences and perceptions. To introduce myself, my name is JeeHee Suh, and I am a graduate student doing research on the experiences of healthcare workers and researchers involved in creating and maintaining a maternal near miss database in their respective health facilities. This research is part of my internship placement at VU University in Amsterdam, for the Global Health master's program. Through this interview I hope to gain valuable insight on the practicalities, challenges and added benefits of having a maternal near miss database in health facilities and/or districts in South Africa, especially with regard to using the WHO near-miss tool.

Just as a reminder, this interview will be anonymous and anything that could identify you will be removed or altered in the transcript in order to protect your privacy. Also, if you no longer wish to participate in this interview you may opt out at any time.
Would you mind if I record this interview as an audio file? It would be so that I can transcribe and analyze the interview at a later time for my research, although it is informal and not for publication.

~ switching on the device ~

For formal reasons and the assurance of informed consent, I am going to re-ask the question if it is okay to record this interview, now/while the device is actually running. Could you confirm that I can record the audio of this interview for our research?

Background (optional)

1.   Great, thank you! In order to get the ball rolling, could you please tell me a bit about your profession and where you work, as well as a glimpse of what your everyday life is in your professional setting?

Motivation/MNM-specific role(s)

Background on MNM:

Are you familiar with the term "maternal near-miss"?

Just to provide some background information, I am doing research about maternal near-misses in South Africa, as defined by the WHO, which is "a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy".

Are you familiar with the WHO near-miss tool? In 2009, WHO created a standardized maternal near-miss tool to help health facilities in collecting data about these near-miss cases. This includes a checklist, so to speak, to help identify women with MNM.

2.   Do you know if there is a current, or if there was ever, a near-miss database in your health facility using the WHO criteria?

a.   If yes, go to question 4.

b.   If no: Is/was there one not using the WHO-MNM criteria?

 i.   If yes, go to question 4.

 ii.   If no: The next few questions will then ask about your own personal opinion about potentially implementing such a database in your facility. Go to question 9.

3.   Were you or are you currently involved in creating/maintaining a maternal near-miss database in your health facility? This could be in any capacity, such as a health worker, technical support, oversight, etc.

a.   Yes: What was/is your role specific to this project/database?

 i.   If possible, could you give some insight into how the project was organized?

 ii.   What were the roles required for this project?

iii.   Was training or recruiting of staff required specifically for this project?

b.   No: go to question 9.

4.   (If "yes" to question 4) Were your expectations regarding the database before starting your involvement different from reality?

a.   Yes: How so?

b.   No: What factors do you believe played a role in you maintaining realistic expectations?

5.   (If "yes" to question 4) Specific to the WHO-MNM tool, did you have prior experience using it in different settings?

Challenges

6. Specific to using the WHO near-miss criteria, what were the challenges that the project faced, in your opinion?

7. Were there any specific strategies used to mitigate these challenges?

For Question 9

More background, if needed:

WHO made this MNM-tool as a way to ultimately improve the quality of maternity care for women, as well as guide policy decisions to further decrease rates of maternal deaths and morbidity. However, because it is standardized, there has been evidence of certain countries or settings facing difficulties in implementing WHO-MNM criteria, particularly those in low-resource settings.

Added Benefits/other considerations

8. What do you believe the added benefits were, in implementing a maternal near miss database?

a. Are there any specific added benefits with using the WHO-MNM tool?

9. What changes do you suggest to improve the database/current system in place?

10. What was done with the audit/project afterwards?

11. With all the pros and cons involved in implementing and maintaining such a database, do you believe a national database is something that is needed? Why or why not?

a. If country does not yet have national database: If the level of need is there, what is your opinion on the applicability of using the WHO tool for the entire country?

12. Finally, to wrap things up, do you have any questions or anything you would like to add?

Once again, thank you very much for participating in this study, and for offering your valuable insight and perspective!

APPENDIX 3. QUALITATIVE CODE BOOK

CODE GROUP	Code	CODE GROUP	Code
PROFESSION	Previous Position(s)	**ADVANTAGES OF HAVING NATIONAL DATABASE**	Pros of MNM data collection
	Current Position		Pros of WHO NM tool
LOCATION	Location: Rural		Reasoning: Need for National Database
	Location: Urban	**CHALLENGES IN MATERNAL CARE/FEASIBILITY OF NATIONAL DATABASE**	Challenges of Maternal Care
IMPLEMENTATION OF NATIONAL DATABASE	Data Collection Process		Challenges: Coronavirus/Timing
	Feasibility of Database		Challenges: Lack of Management
	Training		Challenges: Lack of Resources
	Roles Required		Challenges: No Funding
	High-income vs. Low-income		Challenges: Rural vs. Urban
	Implementation Strategy		Cons of WHO tool
	Modifications		Subjectivity
	Yes to National Database		
	No to National Database		
EXPERIENCE	Experience with MNM Data Collection		
	Experience with SAMM		
	Experience with WHO tool		

TABLE 3: CODE FREQUENCIES

CODE GROUP	Code	Frequency of Codes Used*
PROFESSION	Previous Position(s)	4
	Current Position	7
LOCATION	Location: Rural	1
	Location: Urban	5
IMPLEMENTATION OF NATIONAL DATABASE	Data Collection Process	12
	Feasibility of Database	5
	Training	9
	Roles Required	3
	High-income vs. Low-income	6
	Implementation Strategy	6
	Modifications	10
	Yes to National Database	7
	No To National Database	3
EXPERIENCE	Experience with MNM Data Collection	8
	Experience with SAMM	3
	Experience with WHO tool	5
ADVANTAGES OF HAVING NATIONAL DATABASE	Pros of MNM data collection	5
	Pros of WHO NM tool	3
	Reasoning: Need for National Database	9
CHALLENGES IN MATERNAL CARE/FEASIBILITY OF NATIONAL DATABASE	Challenges of Maternal Care	6
	Challenges: Coronavirus/Timing	3
	Challenges: Lack of Management	2
	Challenges: Lack of Resources	13

	Challenges: No Funding	3
	Challenges: Rural vs. Urban	5
	Cons of WHO tool	10
	Subjectivity	4
	Total	**157**