INTERNATIONAL CONFERENCE ON MATHEMATICAL AND STATISTICAL SCIENCES 2021 (ICMSS 2021)
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
UNIVERSITAS LAMBUNG MANGKURAT
A. Yani Street KM 35.8, Banjarbaru, South Borneo, 70714 Phone (0511) 4773112

No : 015/ICMSS/ULM/2021 Banjarbaru, March 25th 2021
Subject : ICMSS 2021 Invited Speaker Invitation

Dewi Anggraini, Ph.D
Coordinator of Statistics Study Program
Universitas Lambung Mangkurat
Banjarbaru, Indonesia

Dear Mrs. Dewi Anggraini

The Mathematics Study Program and Statistics Study Program FMIPA ULM will be held the International Conference on Mathematical and Statistical Sciences (ICMSS) 2021 on September 15th-16th, 2021 virtually. The theme of the conference will be "Mathematical and Statistical Sciences in Multidisciplinary Research."

On behalf of the conference organizing committee, we would like to invite you to be one of the Invited Speaker for 30 minutes presentation. The participants and organizers will benefit a lot from your expertise.

We sincerely appreciate if we are able to receive your statement of willingness, the abstract of your presentation and your photo (in JPEG) enclosed with your short CV.

We would like to take this opportunity to thank you for your participation in ICMSS 2021. Please do not hesitate to contact us for further information.

You can find the Term of Reference (TOR) of this conference and the Statement of Willingness Form in the attachment. Please complete the form with full details and send it to icmss.fmipa@ulm.ac.id.

Sincerely,
Chief Executive

Dr. Muhammad Ahsar K., S.Si., M.Sc.
NIP. 198202082005011003

INTERNATONAL CONFERENCE ON MATHEMATICAL AND STATISTICAL SCIENCES 2021
"Mathematical and Statistical Sciences in Multidisciplinary Research"

CHALLENGES OF STATISTICAL RESEARCH IN INDONESIA TO REDUCE THE MATERNAL AND NEONATAL MORTALITY

Dewi Anggraini
Program Studi Statistika, Fakultas MIPA, Universitas Lambung Mangkurat, Indonesia

Correspondence: dewi.anggraini@ulm.ac.id

Thursday, 16 September 2021

Why is maternal and child health important and one of the priorities of health development in Indonesia?

- Within the family component, mothers and children are a vulnerable group.
  - ✓ Phase of pregnancy (mother)
  - ✓ Phase of labor (mother)
  - ✓ Puerperal phase (mother)
  - ✓ Growth phase (children)

❖ Maternal Mortality Rate (MMR) is one indicator **to see the success of maternal health efforts**.

MMR is the ratio of maternal deaths during pregnancy, childbirth, and the puerperium caused by pregnancy, childbirth, and the puerperium or its management but not due to other causes such as accidents or incidents in every 100,000 live births.

In addition to assessing maternal health programs, MMR is also used to **assess the health status of the community**, because of its sensitivity to improving health services, both in terms of accessibility and quality.

Reference: Profil Kesehatan Indonesia Tahun 2019, Kemenkes RI 2020

Child Health

- ✓ The Regulation of the Minister of Health of the Republic of Indonesia Number 25 of 2014 concerning Child Health Efforts states that **every child has the right to survival, growth, and development and has the right to protection from violence and discrimination** so that it is necessary to carry out child health efforts in an integrated, comprehensive, and sustainable manner.
- ✓ **Child health efforts** are carried out **from the fetus in the womb until the child is 18 (eighteen) years old**.
- ✓ One of the goals of child health efforts is **to ensure the survival of children through efforts to reduce the mortality rate of newborns (neonatal), infants and toddlers**.

Reference: Profil Kesehatan Indonesia Tahun 2019, Kemenkes RI 2020

In the **World**:

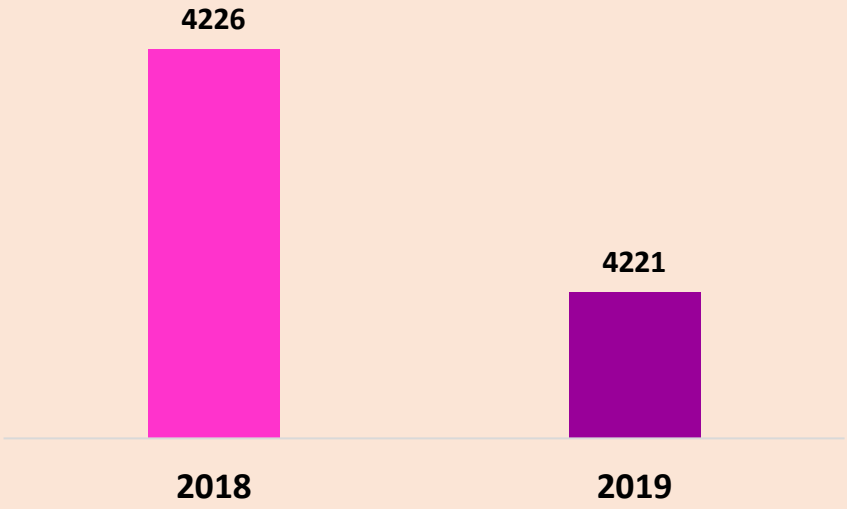
- ± **4 million newborns die** < 4 weeks old
- > **500,000 pregnant women die** every year
- > **95% of these deaths** occur in **developing countries**

In **Indonesia**:

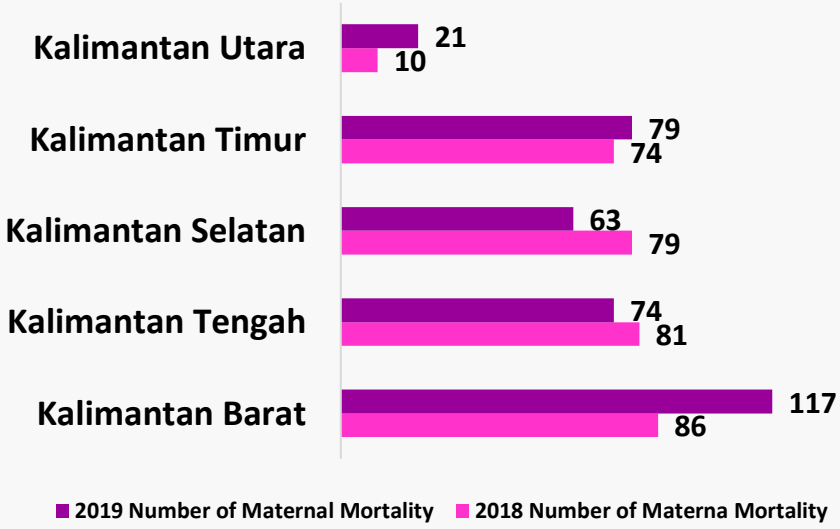
- **1 under five child dies every 3 minutes:** prematurity, low birth weight, and growth restrictions
- **1 woman dies every hour:** pregnancy complications

References: WHO, 2005; Lozano et. al 2011; Mondal et. al 2014), Archadi (Bappenas, 2014

Number of Maternal Mortality in Indonesia and Kalimantan in 2019

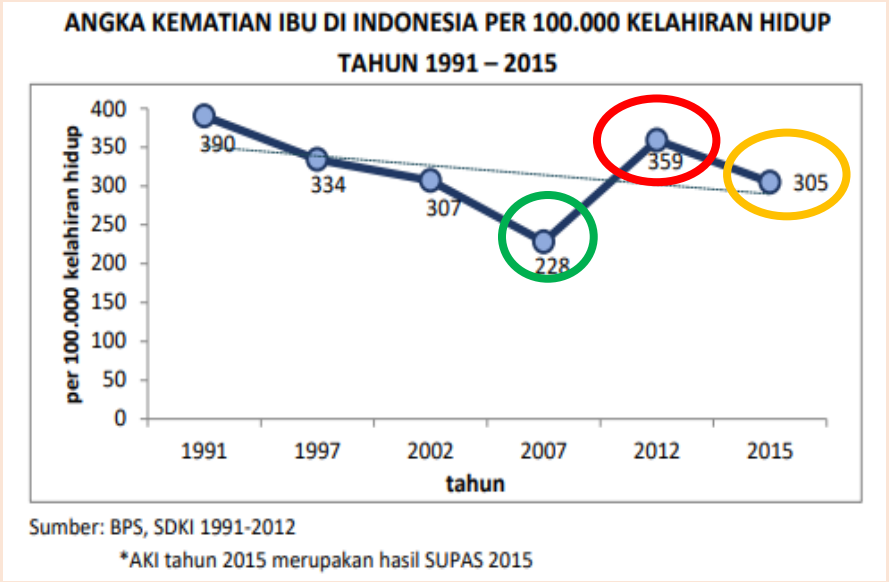


There was **a decrease** in the number of maternal deaths **by 0.12%**, **from 4,226** (in 2018) **to 4,221** (in 2019) based on data from the Directorate General of Public Health, Ministry of Health, RI, as of 27 March 2020.



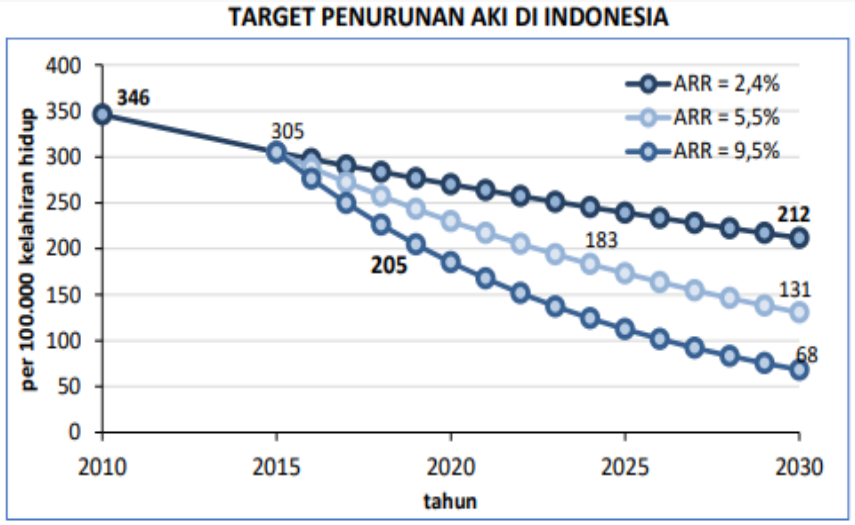
In Kalimantan, **the highest number of maternal deaths** occurred in **West Kalimantan Province** and **the lowest** in **North Kalimantan Province**. In these two provinces, there was also **an increase** in the number of **maternal deaths from 2018 to 2019**, by **36%** and **1%**, respectively.

Reference: Ditjen Kesehatan Masyarakat, Kemenkes RI, 2020 (data per 27 Maret 2020)



Sumber: BPS, SDKI 1991-2012

*AKI tahun 2015 merupakan hasil SUPAS 2015

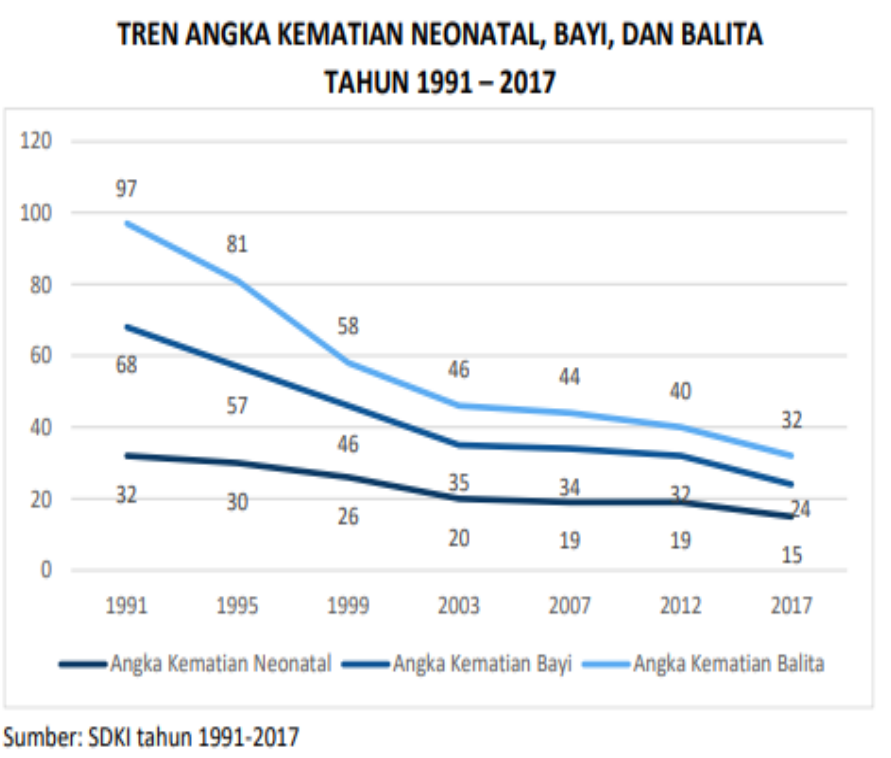


Sumber: Ditjen Kesehatan Masyarakat, Kemenkes RI, 2019

In general, there was **a decrease** in maternal mortality during the period **1991-2015 from 390 to 305 per 100,000 live births**. Although there is a tendency to decrease maternal mortality, **the MDGs target** that must be achieved is **102 per 100,000 live births in 2015**. The results of the 2015 SUPAS show that **the maternal mortality rate is three times higher than the MDGs target**.

The target for reducing MMR is determined through three models of the Annual Average Reduction Rate (ARR). Of the three models, the Ministry of Health uses the second model with an average decline of 5.5% per year as a performance target. Based on this model, **it is estimated that in 2024 the MMR in Indonesia will fall to 183 per 100,000 live births and in 2030 it will decrease to 131 per 100,000 live births.**

Reference: Profil Kesehatan Indonesia Tahun 2019, Kemenkes RI 2020



Sumber: SDKI tahun 1991-2017

The results of the 2017 Indonesian Demographic and Health Survey (IDHS) show:

1. Neonatal Mortality Rate (NMR) of **15 per 1,000 live births**;
2. Infant Mortality Rate (IMR) **24 per 1,000 live births**; and
3. Under-five Mortality Rate **32 per 1,000 live births**.

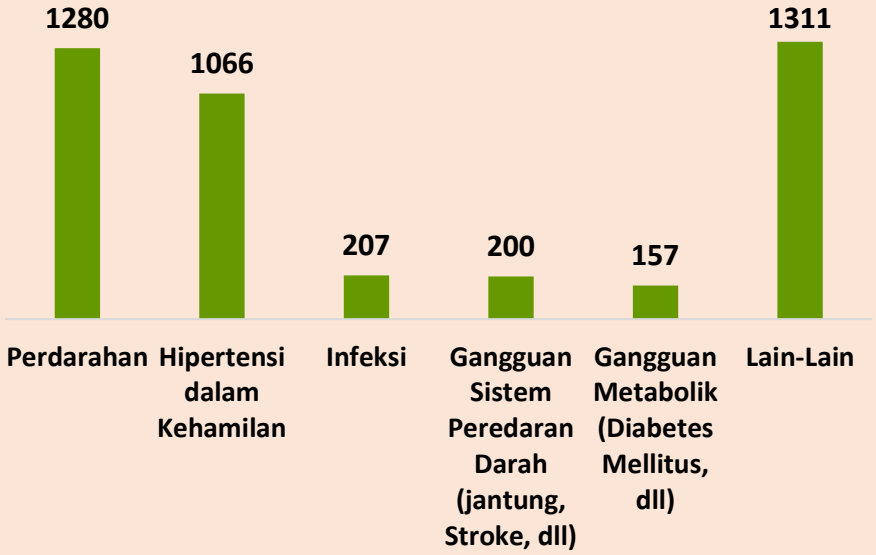
Nevertheless, the mortality rate for neonates, infants, and toddlers is expected to continue to decline with the targets:

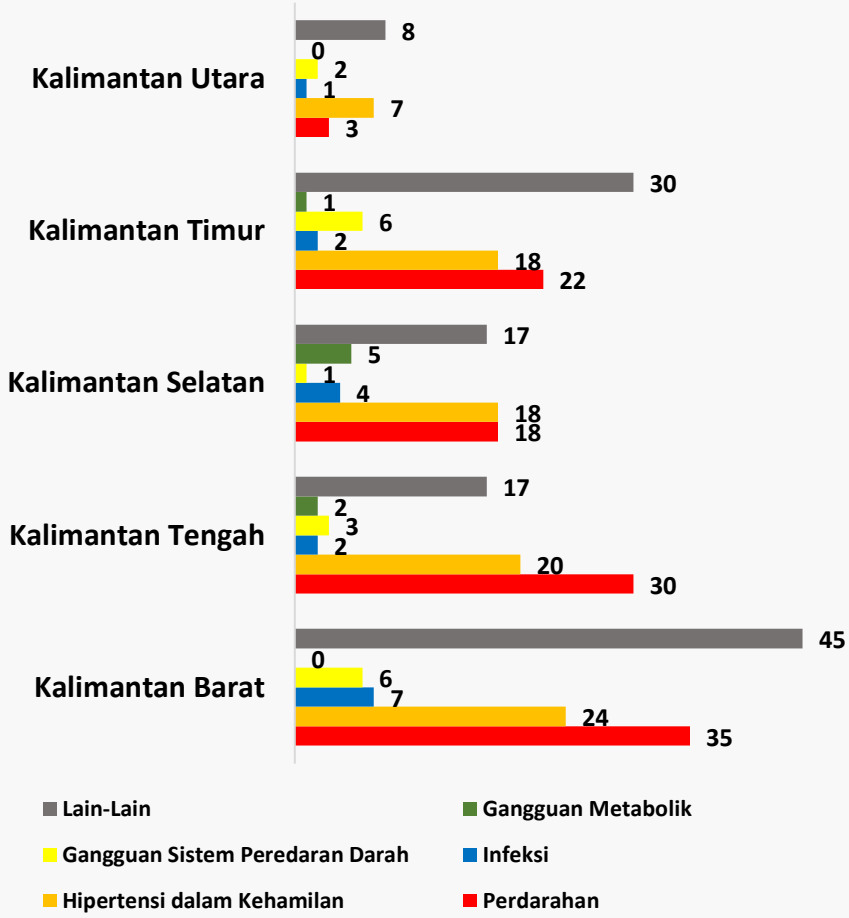
1. NMR to **10 per 1,000 live births (2024)**;
2. IMR to **16 per 1,000 live births (2024)**; and
3. Under-five Mortality Rate to be **18.8 per 1000 live births in 2030**

(Sustainable Development Target).

Reference: Profil Kesehatan Indonesia Tahun 2019, Kemenkes RI 2020

Causes of Maternal Deaths in Indonesia and Kalimantan in 2019





In 2019, the three most common causes of maternal death in Indonesia were:

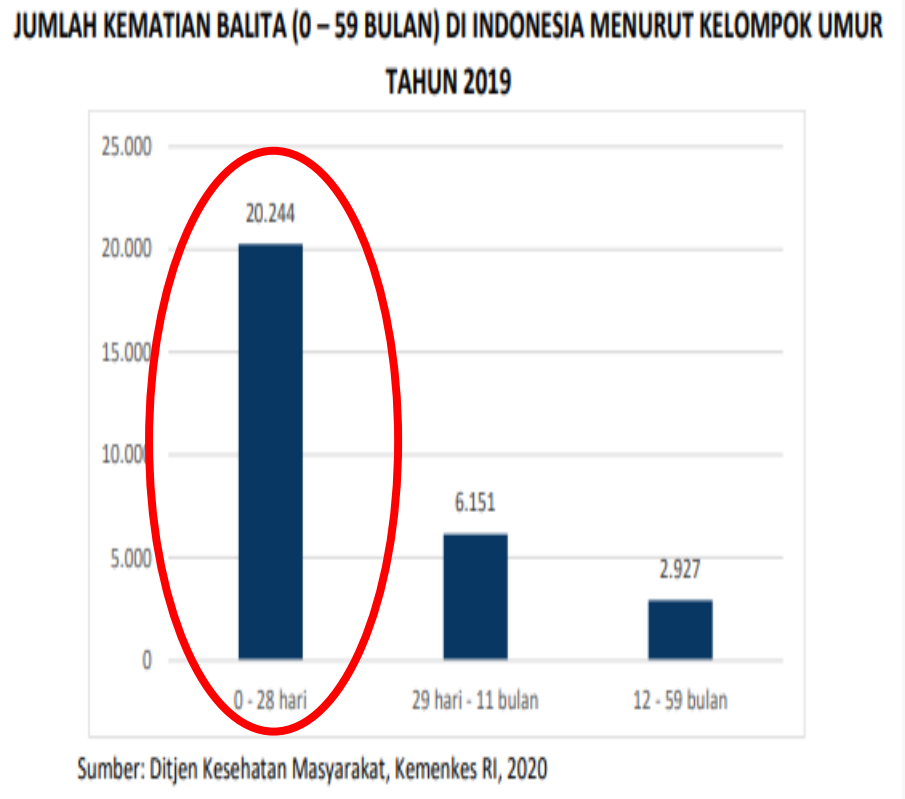
- bleeding (1,280 cases),
- hypertension in pregnancy (1,066 cases), and
- infection (207 cases).

Reference: Profil Kesehatan Indonesia Tahun 2019, Kemenkes RI 2020

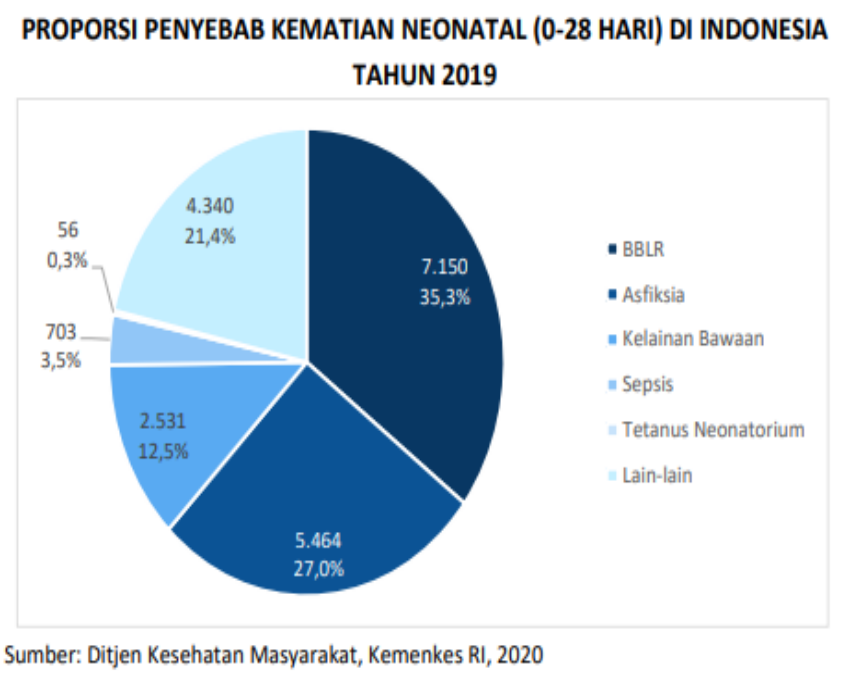
Based on data reported to the Directorate of Family Health (2019), out of 29,322 under-five deaths, **69% (20,244 deaths)** of them occurred in the **neonatal period**.

Of all reported neonatal deaths, **80% (16,156 deaths)** occurred during **the first six days of life**.

Meanwhile, **21% (6,151 deaths)** occurred at **the age of 29 days – 11 months** and **10% (2,927 deaths)** occurred at **the age of 12 – 59 months**.



Reference: Profil Kesehatan Indonesia Tahun 2019, Kemenkes RI 2020



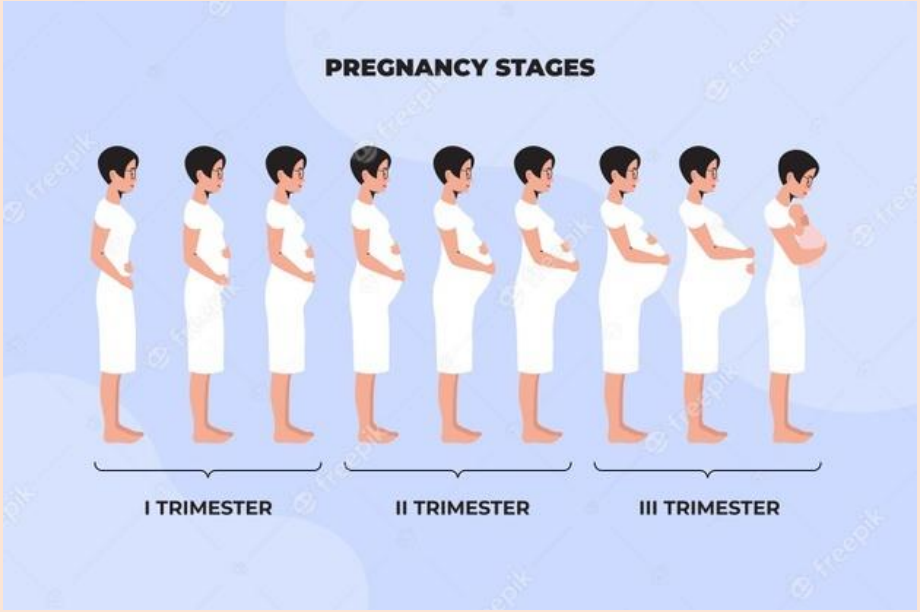
In 2019, the most common causes of neonatal death were:

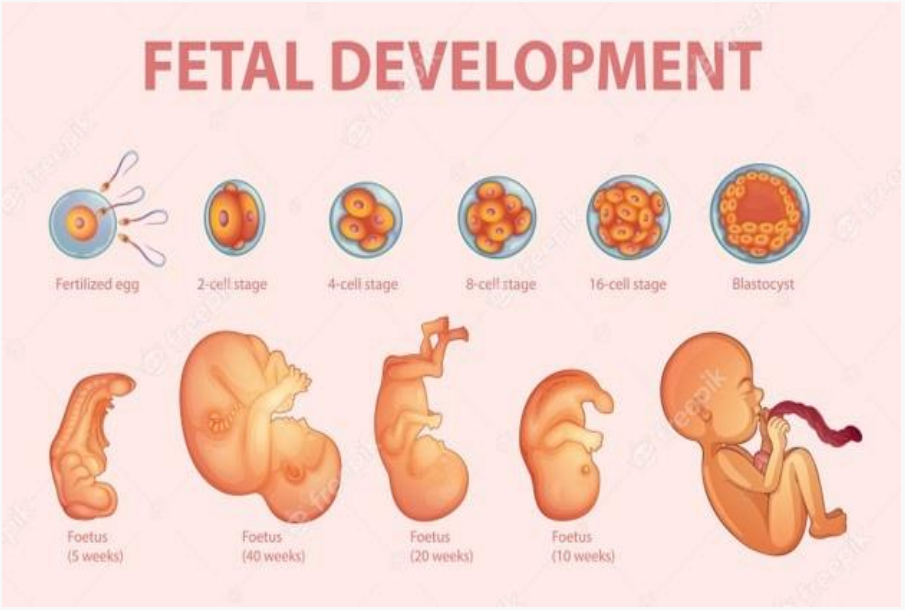
- **Low birth weight (LBW) (35.3%)**;
- Asphyxia (27.0%);
- Congenital abnormalities (12.5%);
- Sepsis (3.5%);
- Neonatal tetanus (0.3%); and
- Others (21.4%).

Reference: UNICEF, 2019

Health interventions/programs

Antenatal Care (ANC)





The period of the first 1,000 days of life from pregnancy to the first two years of a child's life is an important period in **determining the nutritional status of children** (**preventive actions for stunting**) including **the process of monitoring and evaluating the growth and development of the fetus/child**.

Real World Problems

Lack of individual maternal and foetal **data and risk assessment tools to detect the signs of abnormality** during pregnancy

Antenatal data documentation

Basic Midwifery Care (APN)	Hospital	Puskesmas
Completing medical history	68,6%	61,4%
Completing general and obstetric physical examination	52,1%	57,3%
Using partograph	41,0%	68,3%
Using cardiotocography (CTG)	19,0%	2,5%
Implementing first stage of labor care	73,8%	83,8%
Observe the sign and symptoms of 2nd stage of labor	80,0%	85,0%
Prepare delivery care	60,6%	65,8%
Ensure complete dilatation	72,5%	77,5%
Ensure that the fetal condition is good	77,5%	75,0%
Documenting the results of examination	20,0%	42,5%

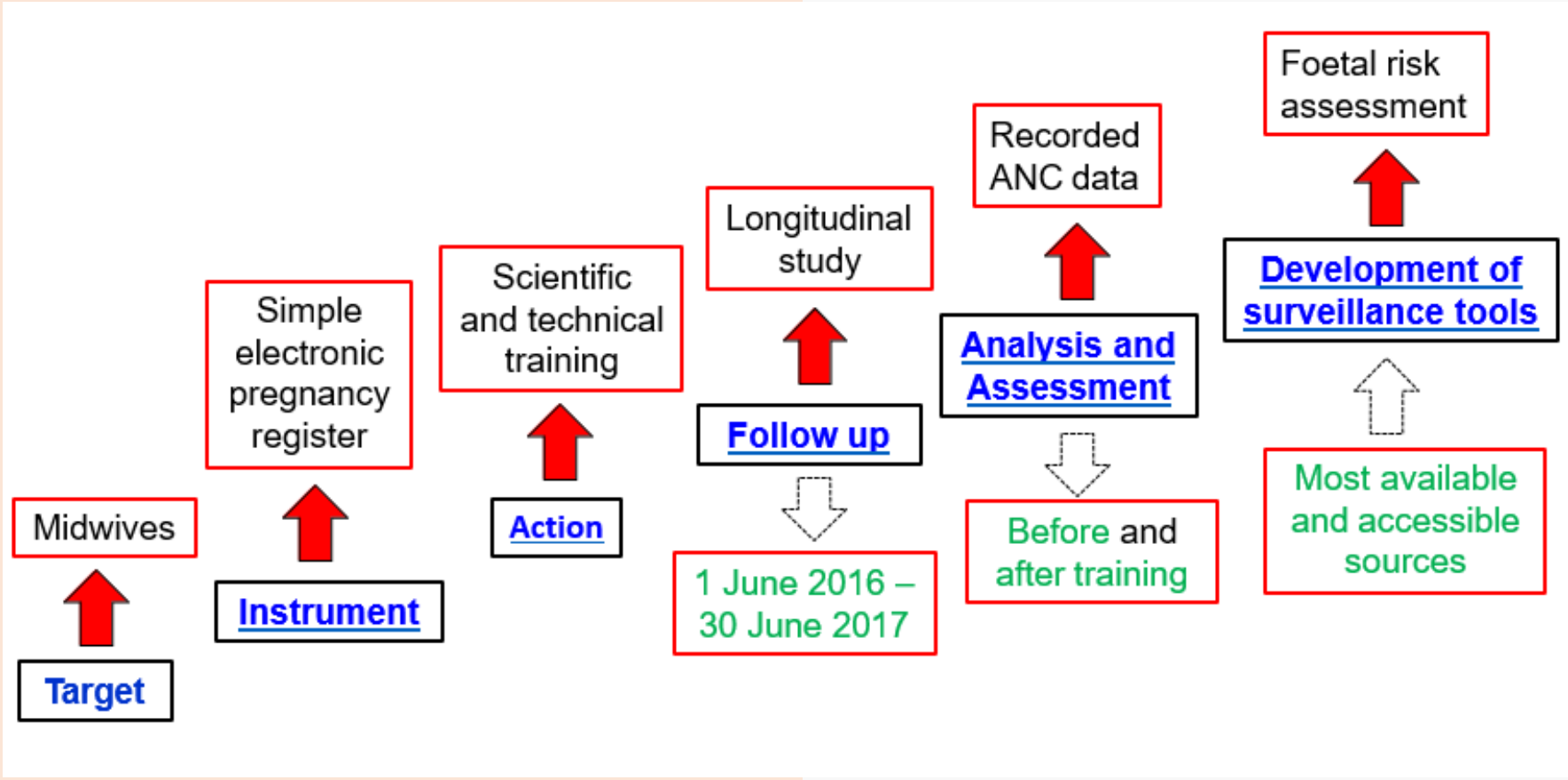
Referensi: Bappenas (2014)

Antenatal risk assessment tools

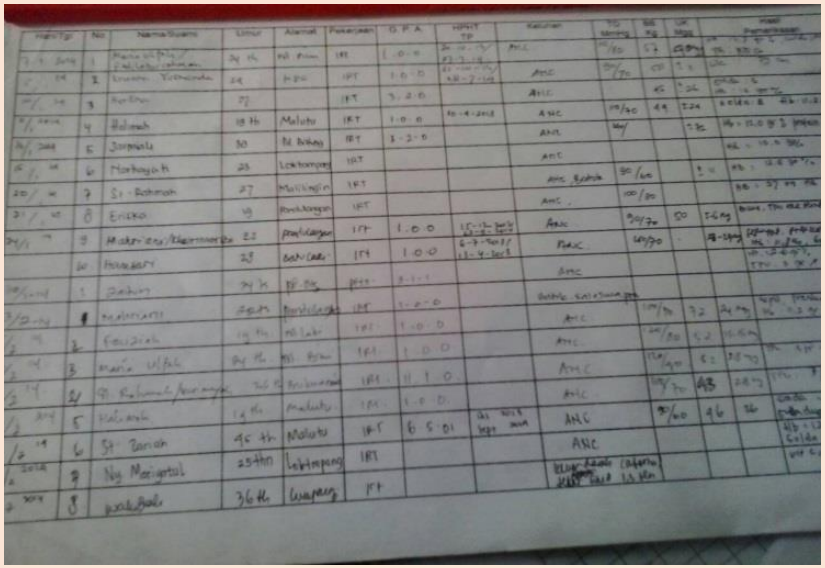
Surveillance tools are **missing** in the current health systems

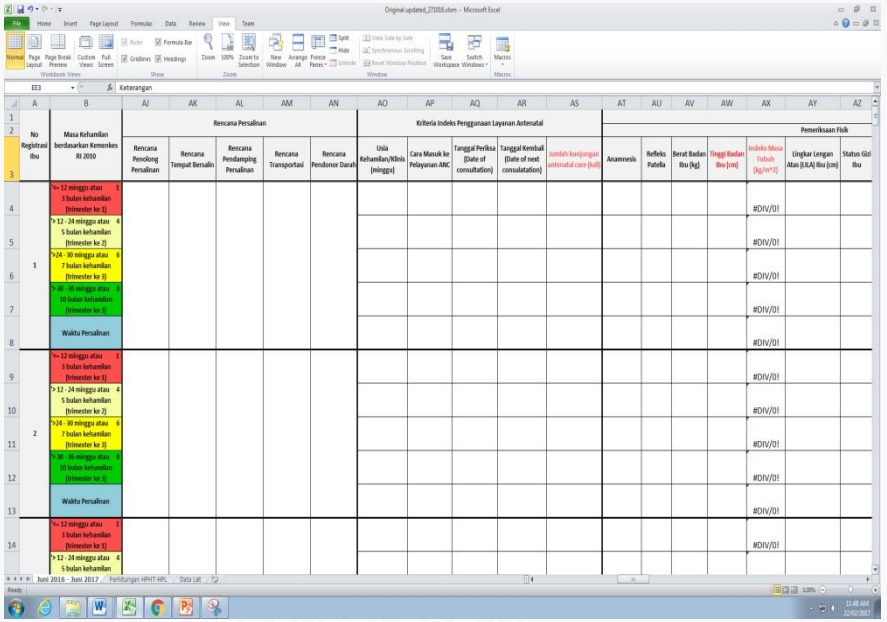
References: Alisjahbana et. al (1994); Gardosi (2011, 2012); Moxon et. al (2015); Kerber et. al (2015)

Pathways for Impact



Manual pregnancy register





Electronic pregnancy register

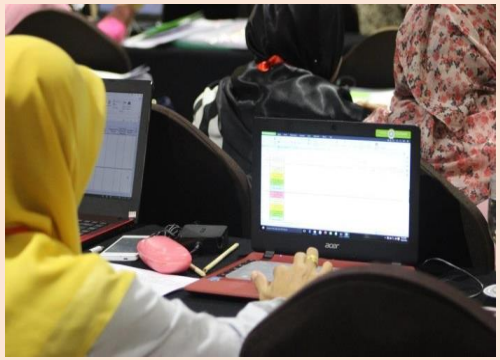
Solution 1: Scientific training among midwives

Scientific introduction highlights:

1. The importance of monitoring maternal and foetal characteristics during pregnancy;
2. The review of several standard measurements (coverage) of ANC;
3. The review of the current literatures on causes of newborn mortality;
4. The review of existing weight prediction models; and
5. The importance of accurate estimation of birth weight during antenatal care.

Outcome: equip midwives with the knowledge on the importance of monitoring and measuring the key characteristics and recording the results timely from the start of pregnancy to delivery time.

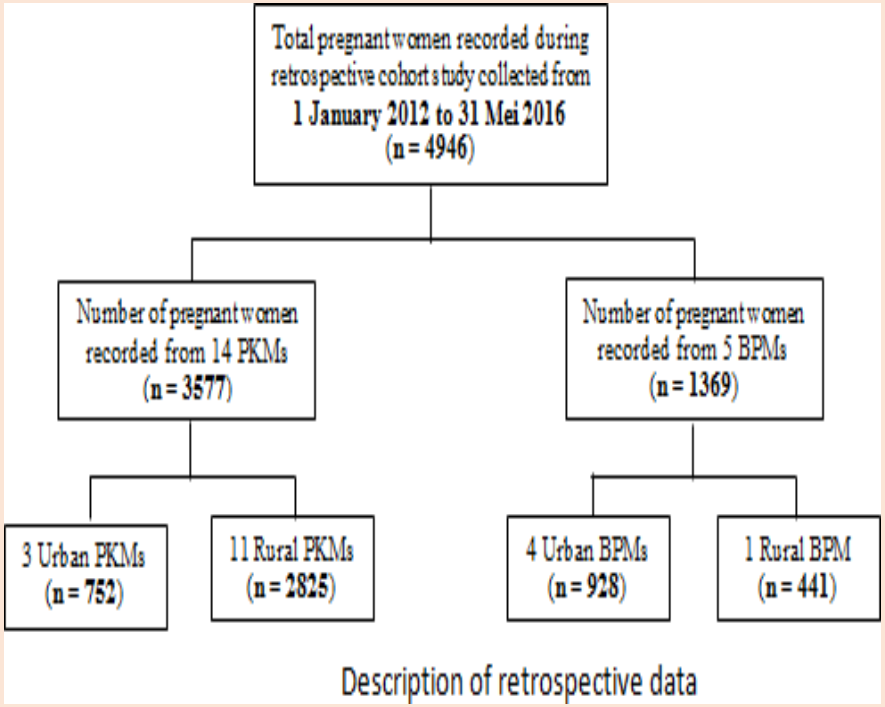
Solution 2: Technical training among midwives



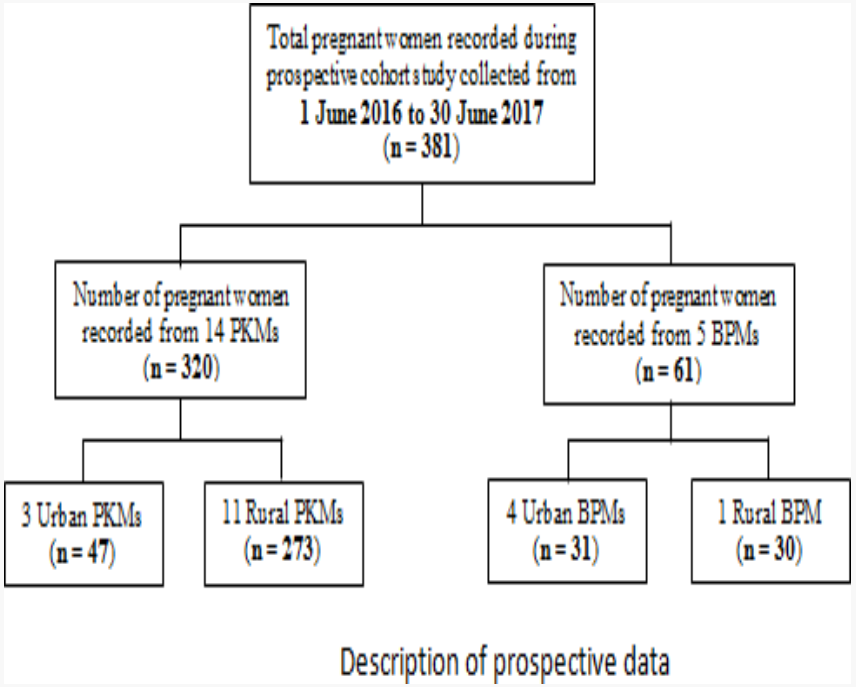
- **Technical training highlights:**
  1. The introduction of the developed electronic ANC cohort;
  2. The installation of the cohort on midwives' personal laptops and/or cell phones;
  3. The explanation of each component involved in the questionnaire and how to appropriately record and manage the data; and
  4. Two-way communications between the principal investigator and the participating midwives to achieve a consensus or same perception between scientific evidence or academic literature and the practitioners.

Outcome: provide the technical ability to replace the current paper-based data collection system with an electronic data recording system.

Results



4.946 retrospective study



381 prospective/longitudinal study

12 recommended ANC components	Before training	After training
Personal information (PI)	35.2	93.4
Obstetric history (OH)	44.0	68.1
Delivery plan (DP)	0.8	99.2
Antenatal care utilisation criteria (ANCUC)	47.9	88.6
Maternal measurements (MM)	**32.3**	**80.7**
Laboratory tests (LT)	1.6	23.0
Supplementary (S)	5.0	67.9
Maternal risk detection (MRD)	**2.5**	**10.0**
Clinical foetal measurements (CFM)	**18.0**	**63.2**
Ultrasonic foetal measurements (UFM)	0.0	12.6
Foetal risk detection (FRD)	**0.0**	**4.1**
Delivery time (DT)	14.0	79.5
Total average	**16.8**	**57.5**

Hindawi
Journal of Pregnancy
Volume 2018, Article ID 9240157, 13 pages
https://doi.org/10.1155/2018/9240157

Hindawi

Research Article

The Impact of Scientific and Technical Training on Improving Routine Collection of Antenatal Care Data for Maternal and Foetal Risk Assessment: A Case Study in the Province of South Kalimantan, Indonesia

Dewi Anggraini,[1,2,3] Mali Abdollahian,[1] Kaye Marion,[1] Supri Nuryani,[4,5] Fadly Ramadhan,[2] Rezky Putri Rahayu,[2] Irfan Rizki Rachman,[2] and Widya Wurianto[2]

Two-sample T for Before training vs After training

	N	Mean	StDev	SE Mean
Before training	12	16.8	18.3	5.3
After training	12	57.5	35.1	10

Difference = μ (Before training) - μ (After training)
Estimate for difference: -40.8
95% CI for difference: (-64.5, -17.0)
T-Test of difference = 0 (vs ≠): T-Value = -3.56 P-Value = 0.002 DF = 22
Both use Pooled StDev = 28.0248

Based on **4,946 retrospective study** and
381 prospective/longitudinal study

Maternal measurements

ANC category	PKMs				BPMs			
	Urban areas %		Rural areas %		Urban areas %		Rural areas %	
	Before training	After training	Before training	After training	Before training	After training	Before training	After training
Total Pregnancy	752	47	2825	273	928	31	441	30
Maternal measurements (MM)								
Weight (kg)	90.2	97.9	72.2	98.1	76.5	71.7	69.6	100.0
Height (cm)	79.4	97.9	56.7	98.1	55.5	71.7	5.2	100.0
BMI (kg/m²)	78.5	97.9	70.8	98.1	53.3	71.7	5.2	98.6
Middle upper arm circumference (MUAC) (cm)	77.8	97.9	57.9	83.9	63.8	72.4	3.2	100.0
Nutritional status	77.7	97.9	59.2	83.9	63.8	73.2	3.2	100.0
Blood pressure (systole)* (mmHg)	88.0	97.3	68.8	97.8	76.5	70.9	69.6	100.0
Blood pressure (diastole)* (mmHg)	88.0	97.3	67.9	97.8	76.5	70.9	69.6	100.0
Body temperature*(°C)	0.0	72.9	0.0	97.8	8.2	70.1	0.0	100.0
Pulse*	0.0	76.1	0.0	97.8	14.7	70.1	0.0	100.0
Breath*	0.0	76.1	0.0	97.7	14.7	70.1	0.0	100.0
Abdominal palpation (Leopold I)*	0.0	96.8	0.9	89.1	26.6	71.7	0.0	100.0
Abdominal palpation (Leopold II)*	0.0	58.5	1.3	66.9	26.4	45.7	44.7	99.1
Abdominal palpation (Leopold III)*	0.0	56.9	0.6	69.2	19.4	44.9	34.9	66.7
Abdominal palpation (Leopold IV)*	0.0	55.3	0.5	66.9	14.2	43.3	36.7	67.1
Fundal height (cm)	0.0	62.2	16.5	65.8	62.0	42.5	69.8	63.5

*Currently not available in the current manual ANC register

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Hindawi

Research Article

The Impact of Scientific and Technical Training on Improving Databases' Adequacy for Fetal Growth Chart Development in Limited-Resource Settings: A Case Study in the Province of South Kalimantan, Indonesia

Dewi Anggraini,[1,2,3] Mali Abdollahian,[1] Kaye Marion,[1] Supri Nuryani,[4,5] Fadly Ramadhan,[2] Rezky Putri Rahayu,[2] Irfan Rizki Rachman,[2] and Widya Wurianto[2]

Based on **4,946 retrospective study** and
381 prospective/longitudinal study

ANC category	PKMs				BPMs			
	Urban areas %		Rural areas %		Urban areas %		Rural areas %	
	Before training	After training	Before training	After training	Before training	After training	Before training	After training
Total Pregnancy	**752**	**47**	**2825**	**273**	**928**	**31**	**441**	**30**
Foetal measurements: clinical method (CFM)								
Number of gestation	0.0	56.4	25.5	78.5	0.0	62.3	0.0	100.0
Foetal weight estimation (g)	0.0	33.5	4.4	57.3	0.3	26.8	50.6	63.9
Foetal heart rate	0.0	50.0	20.9	65.6	28.6	41.7	61.0	77.2
Foetal presentation	0.0	43.6	24.4	61.1	12.2	40.2	54.4	70.3
Foetal station/descent level	0.0	50.0	24.2	58.7	0.1	40.2	54.2	70.8
Foetal measurements: ultrasonic method (UFM)								
Gestational age (GA) based on ultrasound scanning* (weeks)	0.0	0.0	0.0	3.7	0.0	1.6	0.0	70.4
Crown-rump length* (mm)	0.0	0.0	0.0	0.3	0.0	0.0	0.0	18.3
Head circumference* (mm)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	55.3
Abdominal circumference* (mm)	0.0	0.0	0.0	0.4	0.0	0.0	0.0	57.1
Biparietal diameter* (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.8
Femur length* (mm)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	49.8
Humerus length* (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
Placenta localisation*	0.0	0.0	0.0	1.1	0.0	1.6	0.0	58.9
Foetal presentation*	0.0	0.0	0.0	2.8	0.0	2.4	0.0	54.8
Amniotic fluid index*	0.0	0.0	0.0	0.7	0.0	1.6	0.0	0.9
Foetal heart rate*	0.0	0.0	0.0	1.2	0.0	2.4	0.0	50.7
Foetal weight estimation* (g)	0.0	0.0	0.0	2.6	0.0	2.4	0.0	39.3

*Currently not available in the current manual ANC register

Hindawi
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Hindawi

Research Article

The Impact of Scientific and Technical Training on Improving Databases' Adequacy for Fetal Growth Chart Development in Limited-Resource Settings: A Case Study in the Province of South Kalimantan, Indonesia

Dewi Anggraini,[1,2,3] Mali Abdollahian,[1] Kaye Marion,[1] Supri Nuryani,[4,5] Fadly Ramadhan,[2] Rezky Putri Rahayu,[2] Irfan Rizki Rachman,[2] and Widya Wurianto[2]

Foetal Weight Estimation: Maternal Fundal Height versus Ultrasound Measurements

Anggraini et al. BMC Pregnancy and Childbirth (2018) 18:436
https://doi.org/10.1186/s12884-018-2047-z

BMC Pregnancy and Childbirth

RESEARCH ARTICLE Open Access

Foetal weight prediction models at a given gestational age in the absence of ultrasound facilities: application in Indonesia

Dewi Anggraini[1,2*], Mali Abdollahian[1] and Kaye Marion[1]

Maternal Fundal Height Measurement using Conventional Non-Elastic Tape

Foetal Biometric Measurement using Ultrasound

PLOS ONE

RESEARCH ARTICLE

The development of an alternative growth chart for estimated fetal weight in the absence of ultrasound: Application in Indonesia

Dewi Anggraini[1☯a*], **Mali Abdollahian**[2☯b], **Kaye Marion**[2☯]

1 Study Program of Statistics, Faculty of Mathematics and Natural Sciences, Lambung Mangkurat University, Banjarbaru, South Kalimantan, Indonesia, 2 School of Science, College of Science, Engineering, and Health, RMIT University, Melbourne, Victoria, Australia

☯ These authors contributed equally to this work.
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☯b Current address: School of Science, College of Science, Engineering, and Health, RMIT University, Melbourne, Victoria, Australia
* dewi.anggraini@ulm.ac.id

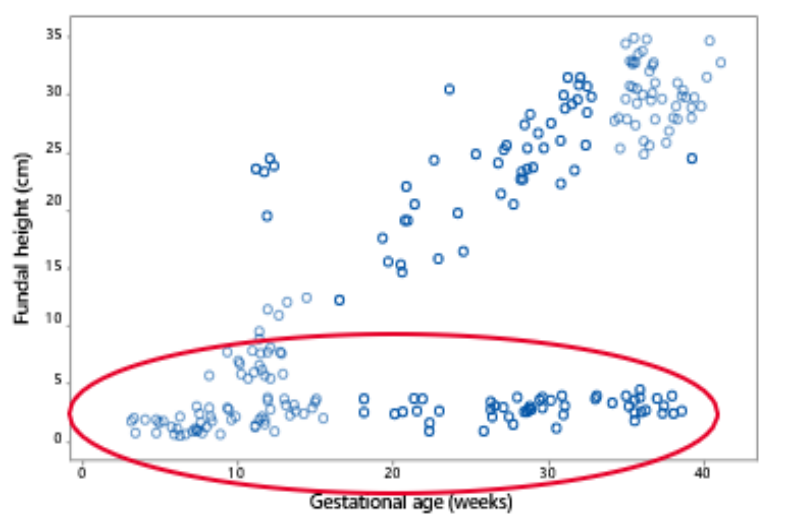
Table 2. Accuracy of the existing and proposed models (33–40 weeks).

Number of pregnant women = 19 (19 observations)							
Prediction error (ABW–EFWp)	Mean (ME) (g)	Mean percentage (MPE) (%)	Mean absolute percentage (MAPE) (%)	Median percentage (MEDPE) (%)	Median absolute percentage (MEDAPE) (%)	Number of estimates within 10% of ABWs (%)	Number of estimates within 20% of ABWs (%)
Proposed clinical model							
Dewi, Mali, and Kaye (2019): FH	235.09	7.08	11.44	10.52	11.09	42	84
Existing ultrasound models							
Campbell and Wilkin (1975): AC	272.18	8.46	11.69	11.61	12.03	42	89
Hadlock (1985) I: AC and FL	269.76	8.28	15.24	12.34	15.06	26	84
Hadlock (1985) II: AC, BPD, and FL	247.37	7.58	14.86	11.00	12.45	26	79
Hadlock (1985) III: AC, HC, and FL	338.45	10.50	15.36	13.59	14.72	26	84
Hadlock (1985) IV: AC, BPD, HC, and FL	299.07	9.24	15.12	12.98	13.07	26	79
Stirnemann (2017): HC and AC	503.58	16.04	17.61	18.55	18.55	21	58

https://doi.org/10.1371/journal.pone.0240436.t002

Improvement of Data Documentation

Before training



Relationship between gestational age and fundal height (**Retrospective data**, 1 January 2012-31 May 2016, n = 2515 of 4946)

Open Access Full Text Article
ORIGINAL RESEARCH

Improving the Information Availability and Accessibility of Antenatal Measurements to Ensure Safe Delivery: A Research-Based Policy Recommendation to Reduce Neonatal Mortality in Indonesia

This article was published in the following Dove Press journal:
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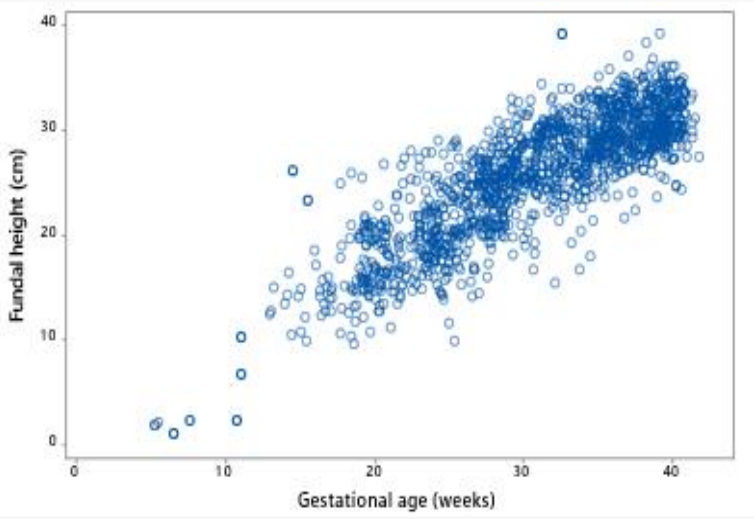
Dewi Anggraini[1]
Mali Abdollahian[2]
Kaye Marion[2]
Asmu'i[3]
Gusti Tasya Meilania[1]
Auliya Syifa Annisa[1]

Purpose: Assessing the risks and preventable causes of maternal and neonatal mortality requires the availability of good-quality antenatal information. In Indonesia, however, access to reliable information on pregnancy-related results remains challenging. This research has proposed a research-based policy recommendation to improve availability and accessibility to vital information on antenatal examinations.
Patients and Methods: Descriptive statistics were used to characterize midwives' capabilities in routinely gathering and recording antenatal information during pregnancy. The investiga-

After training



Relationship between gestational age and fundal height (**Prospective data**, 1 June 2016–30 June 2017, n = 435)

The patterns of fundal height at recommended critical periods

Open Access Full Text Article ORIGINAL RESEARCH

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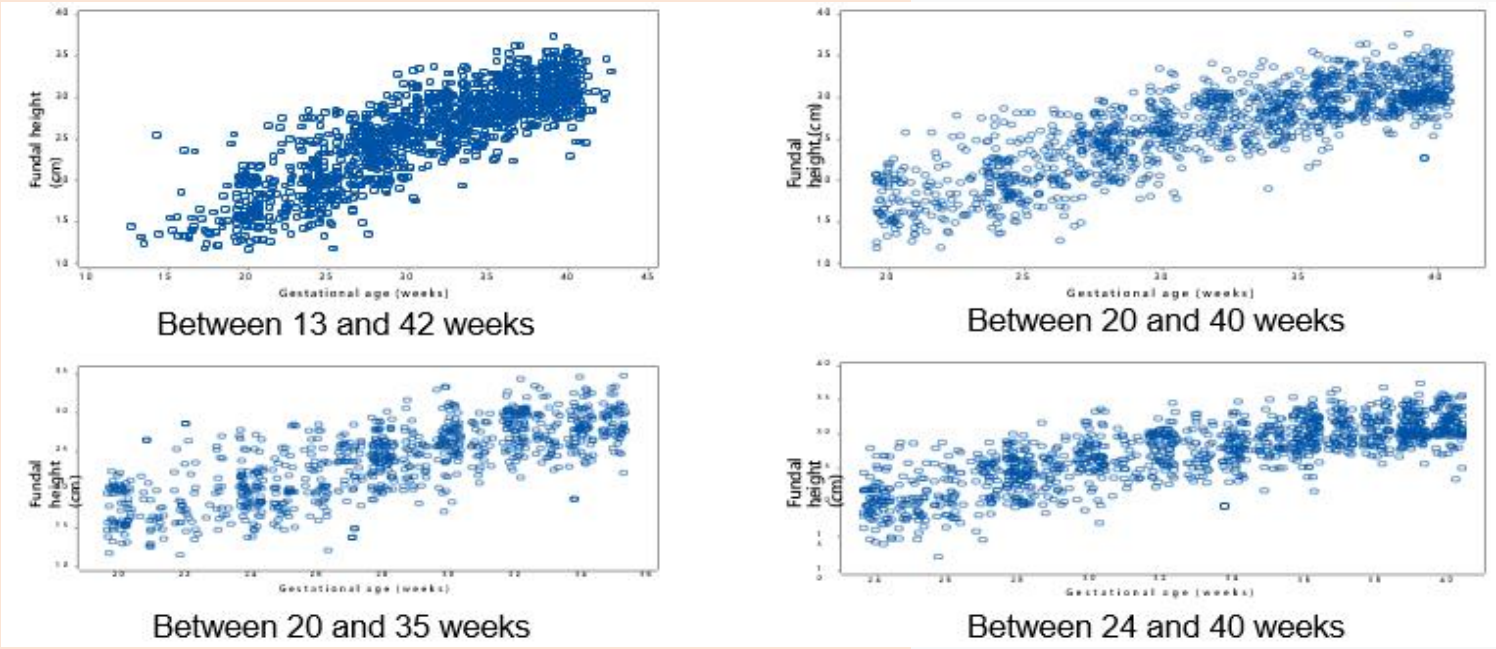

PLOS ONE

RESEARCH ARTICLE

The development of an alternative growth chart for estimated fetal weight in the absence of ultrasound: Application in Indonesia

Dewi Anggraini[1☯]*, Mali Abdollahian[2☯a,b], Kaye Marion[2☯]

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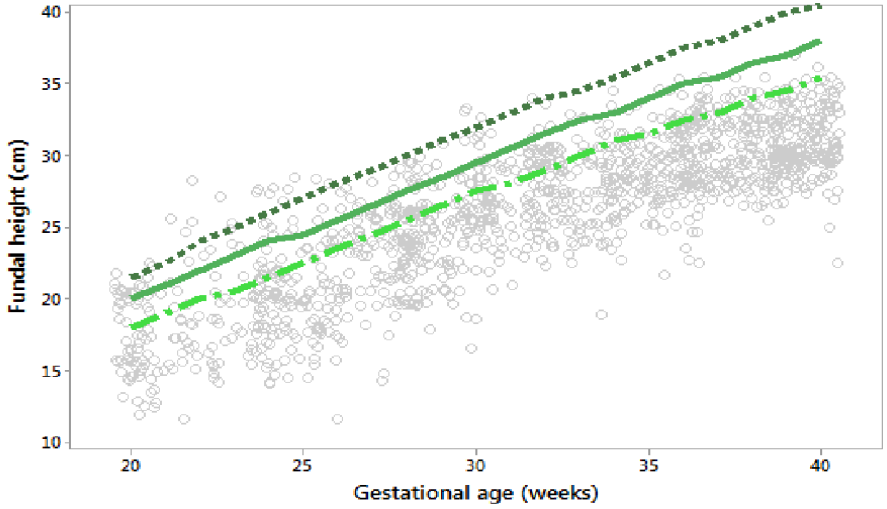
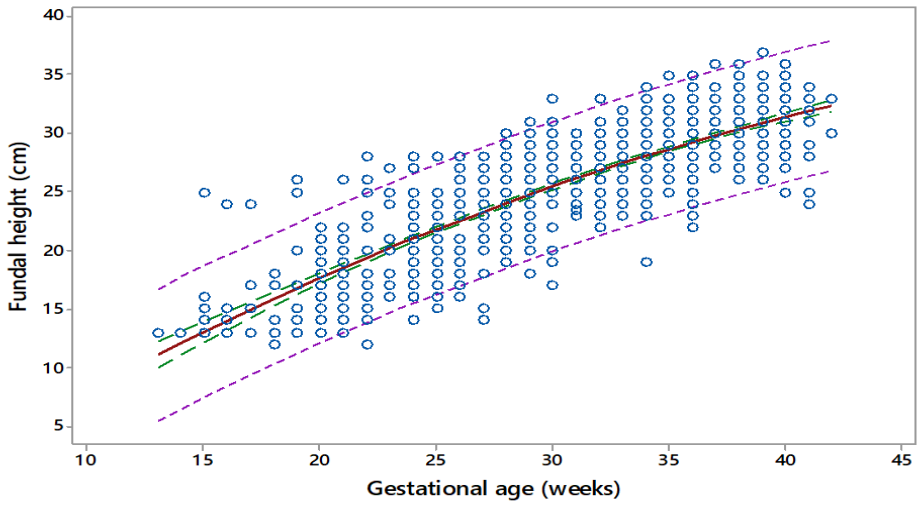


Our local Indonesian data superimposed by the International standards for FH (The Intergrowth 21st Project) (Papageoughiou, et al., 2016)



Our local Indonesian data performance for FH growth chart

$$EFW = 137.173GA - 1.035GA^2 - 675.199$$

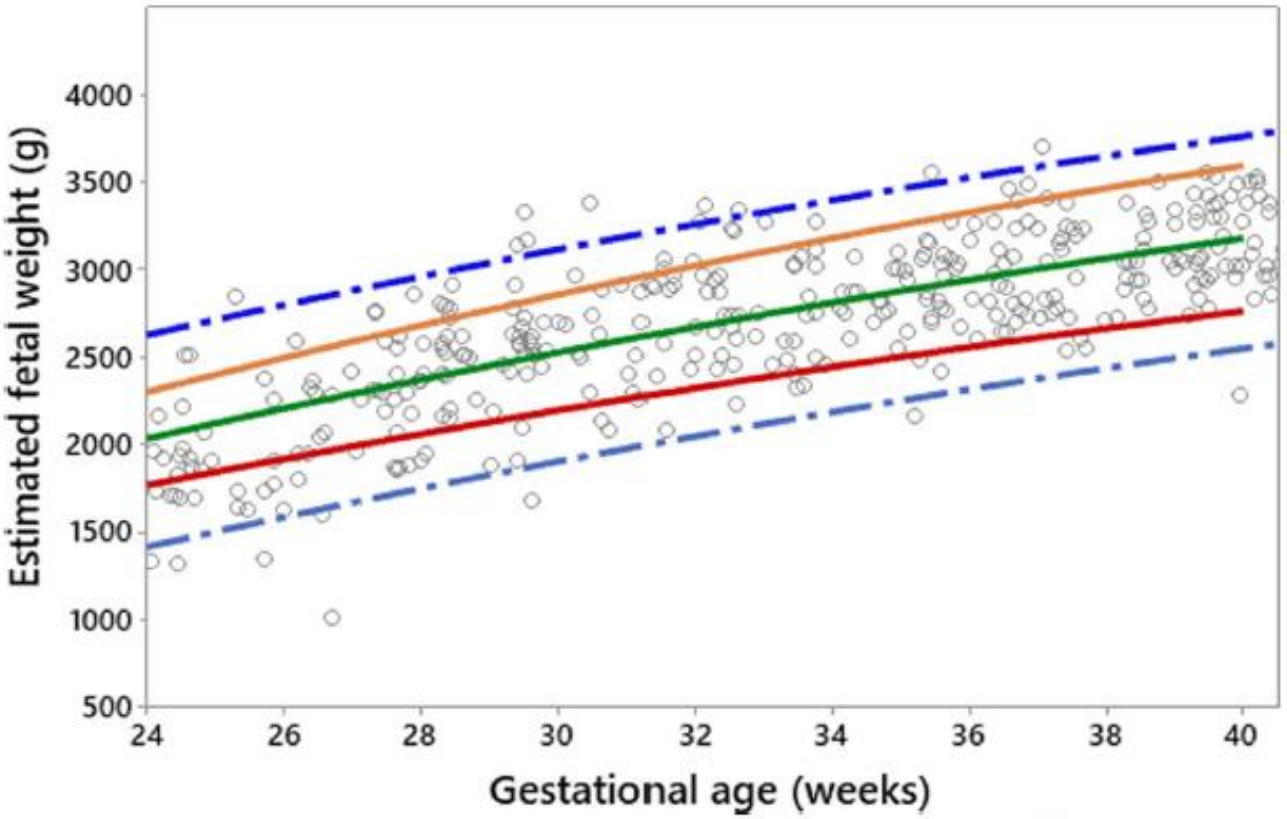


Fig 8. Proposed fetal weight chart with test data superimposed. Key: ---- = 10th percentile, ---- = 50th percentile, —— = 90th percentile, ---- = 95% confidence intervals.

https://doi.org/10.1371/journal.pone.0240436.g008

PLOS ONE

RESEARCH ARTICLE

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RESEARCH ARTICLE

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Table 5. Estimated fetal weights for an Indonesian population.

Gestational age (weeks)	Percentiles of estimated fetal weight (g)										
	1st	3rd	5th	10th	25th	50th (mean)	75th	90th	95th	97th	99th
20	1271	1346	1386	1448	1551	1666	1781	1884	1946	1986	2062
21	1343	1423	1466	1531	1640	1762	1883	1992	2057	2100	2180
22	1415	1499	1544	1612	1727	1855	1983	2097	2166	2211	2295
23	1484	1573	1619	1692	1812	1946	2080	2201	2273	2320	2408
24	1552	1645	1694	1769	1895	2035	2175	2301	2377	2426	2518
25	1619	1715	1766	1845	1976	2122	2268	2400	2479	2530	2626
26	1683	1784	1837	1919	2055	2207	2359	2496	2578	2631	2731
27	1747	1851	1906	1991	2133	2290	2448	2590	2675	2730	2834
28	1808	1916	1973	2061	2208	2371	2534	2681	2769	2826	2934
29	1868	1980	2039	2129	2281	2450	2618	2770	2861	2920	3031
30	1927	2042	2102	2196	2353	2526	2700	2857	2951	3011	3126
31	1984	2102	2165	2261	2422	2601	2780	2941	3038	3100	3218
32	2039	2160	2225	2324	2490	2674	2858	3023	3122	3187	3308
33	2093	2217	2283	2385	2555	2744	2933	3103	3204	3271	3395
34	2145	2273	2340	2445	2619	2812	3006	3180	3284	3352	3480
35	2195	2326	2395	2502	2680	2878	3077	3255	3362	3431	3562
36	2244	2378	2449	2558	2740	2943	3145	3327	3436	3507	3641
37	2291	2428	2500	2612	2798	3005	3211	3398	3509	3581	3718
38	2337	2477	2550	2664	2854	3065	3276	3465	3579	3653	3792
39	2381	2523	2598	2714	2908	3123	3337	3531	3647	3722	3864
40	2424	2568	2645	2763	2960	3178	3397	3594	3712	3788	3933
41	2465	2612	2690	2809	3010	3232	3455	3655	3775	3852	3999

https://doi.org/10.1371/journal.pone.0240436.t005

Translation Timeline

Past

- **19 midwives** from rural and urban primary health care centers have been trained in 2016.

Present

- The **prospective study** shows their abilities to document the results of antenatal examination during pregnancy has improved from **17%** to **63%**.

Future

- The **trained midwives will train other midwives** to get access to more reliable data.
- **Train midwives** to use the **developed surveillance tools** to **detect signs of abnormalities** during pregnancy.
- The **project** can be **adopted** in other **low-resource settings/developing countries** with the same challenges to **improve public health awareness**.

Conclusion

Scientific and technical training among urban and rural midwives has led to better and reliable provision of local antenatal care data that can be used for:

- developing appropriate, Indonesia specific charts and protocols for the surveillance of foetal growth to improve patients' safety.
- promoting evidence-based maternal and foetal risk assessment, pregnancy outcome audit as well as resource planning and allocation.
- improving the quality of healthcare services.

Source:
(WHO, 2005; Lozano et. al 2011; Bappenas, 2014)

Project Team

Team Members

Dr. Mali Abdollahian
- Senior Supervisor
- Senior Lecturer in Mathematical Sciences
- Program Manager, Master of Analytics, Statistics and Operations Research

Kaye Marion
- Joint Supervisor
- Senior Lecturer in Mathematical Sciences

Supri Nuryani
- Senior Midwife
- Midwifery Academia
- Manager of Midwifery Service Excellence Program

Supporting Team

Dr. Andy Yussianto, M.Epid
- Epidemiologist
- Team Members of the development of National Maternal and Child Health Surveillance (sponsored by AusAID-AIPMNH 2012)

Dr. Bambang Abimanyu, SpOG, KM
- Obstetrician
- Foetal and Maternal Health Specialist

Trainer of Trainer Team

Midwives' Representatives of Urban and Rural Primary Health Care Centres in South Kalimantan, Indonesia
- Senior midwives (29-56 years old)
- Experience midwives (6-36 years) in antenatal care and midwifery services

Reducing Maternal and Neonatal Mortality in Indonesia

"Saving **Lives,** Saving the **Future**"

(Bulletin of Indonesian Economic Studies, 2015)

Thank You

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CERTIFICATE

This Certificate is Proudly Presented to

Dewi Anggraini, S.Si., M.App.Sci., Ph.D

as

Invited Speaker

with the Title

Challenges of Statistical Research in Indonesia to Reduce The Maternal and Neonatal Mortality

in International Conference on Mathematical and Statistical Sciences (ICMSS) 2021.
Organized by the Study Program of Mathematics and the Study Program of Statistics,
Faculty of Mathematics and Natural Sciences – Universitas Lambung Mangkurat,
South Kalimantan, Indonesia. 15-16 September 2021

Dean of
Faculty of Mathematics and Natural Sciences
Universitas Lambung Mangkurat

Abdul Gafur, M.Si., M.Sc., Ph.D.

Executive Chairman of
ICMSS 2021

Dr. Muhammad Ahsar Karim, M.Sc.