

Supplimentary Appendix A : **Clinical criteria used to diagnose sepsis<sup>1</sup>**

<b>A. Criteria used from 1996 to 1998</b>
1. Previously normal cry became weak/stopped or previously active baby became drowsy/unconscious or previous normal sucking became weak/stopped
2. Baby cold to touch or fever (skin temperature > 99°F)
3. Skin infection or umbilical infection
4. Vomiting or diarrhea or abdominal distension
5. Respiratory rate > 60 breaths per minute
6. Grunt or chest in-drawing
<b>B. Criteria used from 1998 to 2019</b>
1. Previously normal cry became weak/stopped
2. Previously active baby became drowsy/unconscious
3. Previously normal sucking became weak/stopped
4. Baby cold to touch or fever (> 99°F)
5. Skin infection or umbilical infection
6. Abdominal distension or vomiting
7. Grunt <sup>2</sup> or chest in-drawing

<sup>1</sup>Simultaneous presence of any two or more criteria in a neonate denoted sepsis.

<sup>2</sup>Grunting was deleted as a criterion starting in 2003

**Supplementary Appendix B :**  
**Maternal and Neonatal Characteristics of neonates with Sepsis**  
**( N=1177), 1996-2019**

Maternal age <sup>1</sup> (year), mean (SD)	22.7 (3.3)
Parity, Median(IQR)	1 (1)
Maternal Education <sup>2</sup> , n(%)	
No schooling	270 (23.7)
1-4 years	97 (8.5)
5-7 years	129 (11.3)
8-10 years	461 (40.4)
11-12 years	154 (13.5)
> 12 years	30 (2.6)
At least 1 Antenatal care visit, n(%)	902 (76.6)
Place of delivery , n(%)	
Home	811 (68.9)
Health Facility	366 (31.1)
Newborn Sex <sup>3</sup> , n(%)	
Male	677 (57.6)
Female	498 (42.4)
Gestational Age at Birth <sup>4</sup> (weeks)	
Median, (IQR)	38.5 (2.4)
< 32 weeks	29 (2.5)
33-34 weeks	35 (3.0)
35-36 weeks	133 (11.3)
Total preterm	197 (16.8)
Full term	975 (83.2)
Birthweight <sup>5</sup> (grams)	
Mean (SD)	2390 (510)
<=1250 g	21 (1.8)
1251 -1499 g	28 (2.4)
1500 - 1749 g	73 (6.2)
1750 - 1999 g	94 (8.0)
2000 - 2499 g	385 (32.9)
>= 2500 g	568 (48.6)

<sup>1</sup>n=1138

<sup>2</sup>n=1141

<sup>3</sup>n=1175

<sup>4</sup>n=1172

<sup>5</sup>n=1169

## Supplementary Appendix C : Morality Rates by Treatment type and characteristics , (1996-2019)

Variables	Home-based treatment ( n= 929 )			Hospital referral (n= 80 )			Refused all treatment (n= 42 )			CHW missed the diagnosis (n=126 )		
	Alive at 28th day	Neonatal death	Mortality (%)	Alive at 28th day	Neonatal death	Mortality (%)	Alive at 28th day	Neonatal death	Mortality (%)	Alive at 28th day	Neonatal death	Mortality (%)
<b>Total</b>	870	59	6.4	58	22	27.5	32	10	23.8	104	22	17.5
<b>Place of delivery</b>												
Home	585	47	7.4	35	12	25.5	30	9	23.1	74	19	20.4
Facility	285	12	4.0	23	10	30.3	2	1	33.3	30	3	9.1
<b>Mother's Education</b>												
None	187	21	10.1	3	4	57.1	15	3	16.7	26	10	27.8
Primary	69	3	4.2	4	0	0.0	5	5	50.0	5	6	54.5
Secondary and above	587	31	5.0	51	18	26.1	12	2	14.3	68	5	6.8
<b>Estimated gestational age</b>												
< 32 weeks	12	7	36.8	0	1	100.0	0	1	100.0	1	7	87.5
33-36 weeks	117	15	11.4	8	2	20.0	6	2	25.0	14	4	22.2
>=37 weeks	739	35	4.5	50	18	26.5	26	7	21.2	89	11	11.0
<b>Birth weight</b>												
very low( <=1500 g)	35	17	32.7	1	3	75.0	2	4	66.7	7	12	63.2
Low (1501 to 2449 g)	393	30	7.1	29	9	23.7	10	6	37.5	36	7	16.3
Normal ( ≥ 2500g )	435	11	2.5	28	10	26.3	20	0	0.0	61	3	4.7
<b>Day of diagnosis</b>												
1st week	282	46	14.0	34	16	32.0	4	8	66.7	46	17	27.0
2-4 weeks	588	13	2.2	24	6	20.0	28	2	6.7	58	5	7.9
<b>Time periods (years)</b>												
1996-2000	193	13	6.3	5	1	16.7	18	4	18.2	26	10	27.8
2000-2004	251	22	8.1	5	2	28.6	12	3	20.0	23	7	23.3
2004-2008	175	7	3.8	23	6	20.7	2	0	0.0	23	1	4.2
2008-2012	134	10	6.9	13	5	27.8	0	1	100.0	17	1	5.6
2012-2016	88	7	7.4	7	5	41.7	0	2	100.0	11	2	15.4
2016-2019	29	0	0.0	5	3	37.5	0	0	0.0	4	1	20.0

**Supplementary Appendix D :**  
**Unadjusted and Adjusted Odds Ratio for death in the four type of treatment of neonates with sepsis,(1996-2019)**

Variables	Un-Adjusted OR			Adjusted OR*		
	Odds Ratio	p-value	95 % CI	Odds Ratio	p-value	95 % CI
<b>Neonatal sepsis</b>						
Home-based treatment sepsis	<b>Reference</b>			<b>Reference</b>		
Referred to hospital	<b>5.58</b>	<0.001	(3.16, 9.83)	<b>5.45</b>	<0.001	(2.74, 10.87)
Refused treatment	<b>4.86</b>	<0.001	(2.22, 10.64)	<b>5.27</b>	0.001	(1.91, 14.58)
CHWs Missed the diagnosis	<b>3.25</b>	<0.001	(1.87, 5.64)	<b>2.17</b>	0.032	(1.07, 4.41)
<b>Place of delivery</b>						
Home	<b>Reference</b>			<b>Reference</b>		
Facility	0.62	0.044	(0.38, 0.98)	0.59	0.135	(0.29, 1.17)
<b>Mother's Education</b>						
None	2.11	0.001	(1.35, 3.29)	1.98	0.032	(1.06, 3.69)
Primary	2.21	0.015	(1.17, 4.20)	2.07	0.093	(0.88, 4.86)
Secondary and above	<b>Reference</b>			<b>Reference</b>		
<b>Gestational Age</b>						
< 32 weeks	18.37	<0.001	(8.05, 41.92)	6.21	0.002	(2.01, 19.18)
33-36 weeks	2.05	0.006	(1.23, 3.41)	0.83	0.584	(0.43, 1.60)
>=37 weeks	<b>Reference</b>			<b>Reference</b>		
<b>Day of diagnosis</b>						
1st week	6.57	<0.001	(4.13,10.45)	4.72	<0.001	(2.75, 8.07)
2-4 weeks	<b>Reference</b>			<b>Reference</b>		
<b>Birth Weight</b>						
very low( <=1500 g)	18.60	<0.001	(10.11, 34.29)	12.51	<0.001	(5.62, 27.85)
Low (1501 to 2449 g)	2.55	<0.001	(1.54, 4.22)	2.24	0.006	(1.26, 3.96)
Normal ( ≥ 2500g )	<b>Reference</b>					
<b>Time period (6)</b>	1.00	0.971	(0.87,1.15)	1.27	0.041	(1.01, 1.59)

\* : Adjusted for neonatal sepsis treatment, place of delivery , Mother's education,Gestaional age , day of sepsis diagnosis , birth weight , time periods using Mixed effect logistic regression model