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Supplementary appendix

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Supplement to: Zar HJ, Nduru P, Stadler JAM, et al. Early-life respiratory syncytial virus lower respiratory tract infection in a South African birth cohort: epidemiology and effect on lung health. *Lancet Glob Health* 2020; **8**: e1316–25.

Supplement Table 1: Results of unadjusted modelling of risk factors associated with any LRTI (Model A) and RSV-associated LRTI (Model B, C) in the first two years of life in the DCHS.

Risk factor	Model A: LRTI vs no LRTI		Model B: RSV-LRTI vs non-RSV LRTI		Model C: RSV-LRTI vs no LRTI	
	Crude	p-value	Crude	p-value	Crude	p-value
	IRR (95% CI)		IRR (95% CI)		IRR (95% CI)	
Sex: Male (ref: female)	1.53 (1.26-1.85)	<0.0001	0.79 (0.64-0.98)	0.033	1.17 (0.88-1.58)	0.31
Season of birth (ref: Summer):						
Autumn (Mar-May)	1.39 (1.09-1.79)	0.0090	1.10 (0.85-1.43)	0.46	1.48 (1.03-2.11)	0.032
Winter (June-Aug)	0.93 (0.72-1.21)	0.61	0.83 (0.61-1.12)	0.22	0.67 (0.43-1.05)	0.22
Spring (Sept-Nov)	1.07 (0.81-1.40)	0.63	0.59 (0.38-0.90)	0.015	0.47 (0.27-0.81)	0.0067
Socio-economic quartile (ref: high):						
Lowest	1.40 (1.06-1.85)	0.019	0.77 (0.55-1.09)	0.14	1.20 (0.75-1.91)	0.46
Low- moderate	1.51 (1.15-1.99)	0.0032	0.92 (0.69-1.23)	0.58	1.49 (0.97-2.27)	0.068
Moderate- high	1.06 (0.80-1.40)	0.70	1.08 (0.81-1.45)	0.61	1.35 (0.87-2.09)	0.18
HIV Exposed (ref: HIV unexposed)	1.50 (1.22-1.83)	0.0001	0.81 (0.63-1.04)	0.097	1.10 (0.78-1.55)	0.57
Maternal Smoking in pregnancy (Self report):						
Smoker (ref: non-smoker)	1.04 (0.85-1.27)	0.82	1.31 (1.05-1.62)	0.016	1.41 (1.04-1.92)	0.029
Maternal Smoking post birth (Self report):						
Smoker (ref: non-smoker)	1.04 (0.85-1.27)	0.71	1.33 (1.07-1.65)	0.0090	1.33 (0.98-1.80)	0.063
Presence of other children in the household	1.04 (0.77-1.40)	0.79	1.12 (0.81-1.54)	0.49	1.72 (1.03-2.88)	0.039
Lower birth weight (<2.5kg)	1.63 (1.28-2.06)	<0.0001	0.83 (0.63-1.11)	0.21	1.26 (0.85-1.88)	0.25
Exclusive breastfeeding at 6 weeks (ref: no)	0.89 (0.74-1.08)	0.25	1.02 (0.82-1.27)	0.85	0.94 (0.73-1.21)	0.25
Exclusive breastfeeding at 3 months (ref: no)	1.04 (0.84-1.30)	0.70	0.95 (0.74-1.22)	0.71	1.02 (0.77-1.35)	0.91
Infant age (unit increase in years)	0.46 (0.40-0.52)	<0.0001	0.78 (0.64-0.96)	0.020	0.59 (0.53-0.65)	<0.0001
Preterm (<37 weeks' gestation)	1.51 (1.19-1.92)	<0.001	0.88 (0.67-1.14)	0.32	1.14 (0.78-1.68)	0.49

Table notes: Analyses done using generalized estimating equations; results presented as incidence rate ratios with 95% confidence intervals. Abbreviations: LRTI=lower respiratory tract infection; RSV=respiratory syncytial virus; HIV=human immunodeficiency virus; DCHS=Drakenstein Child Health Study

Supplement Table 2: Clinical characteristics of RSV-LRTI compared to non-RSV LRTI cases in the DCHS

	RSV LRTI	Non-RSV LRTI	P-Values
	n=164	n=621	
Median age at onset (IQR) days	198 (92 – 371)	213 (112 – 437)	0.074
Age category at presentation:			
0-1 years	121 (74)	408 (66)	0.050
1-2 years	43 (26)	213 (34)	
Site of recruitment:			
Mbekweni	90 (55)	394 (63)	0.036
TC Newman	74 (45)	227 (37)	
Season of presentation: Autumn (Mar-May)	82 (50)	140 (23)	<0.0001
Winter (June-Aug)	79 (48)	177 (29)	
Spring (Sept-Nov)	3 (2)	196 (32)	
Summer (Dec-Feb)	0 (0)	108 (17)	
Presenting symptoms			
Median temperature (°C) (IQR)	37 (37 – 38)	37 (36 – 37)	0.11
Median heart rate (IQR)	152 (136 – 164)	142 (132 – 160)	<0.0001
Median respiratory rate (bpm) (IQR)	56 (50 – 62)	54 (48 – 60)	0.0012
Oxygen saturation (%) (IQR)	97 (93 – 98)	98 (95 – 99)	<0.0001
Lower chest indrawing present	130 (80)	406 (67)	0.0040
Any oxygen received	32 (20)	56 (9)	<0.0001
Wheezing at time of LRTI	95 (58)	224 (36)	<0.0001
Admitted to hospital	54 (33)	109 (18)	<0.0001
Median days of hospitalisation (IQR)	4 (2-6)	3 (2-5)	0.12

Abbreviations: LRTI=lower respiratory tract infection; RSV=respiratory syncytial virus; IQR=interquartile range; bpm=beats per minute; DCHS=Drakenstein Child Health Study

Supplement Table 3: Incidence of recurrent LRTI following first LRTI in the DCHS

Category of First LRTI	Incidence (e/cy; 95% CI) of 2 or more LRTI episodes after 1st LRTI	P-value
RSV-LRTI	0.32 (0.22-0.48)	<0.0001
Non-RSV LRTI	0.10 (0.07-0.16)	
Hospitalised LRTI	0.14 (0.09 - 0.21)	0.0031
Ambulatory LRTI	0.06 (0.04 - 0.09)	
RSV-hospitalised LRTI	0.12 (0.06 - 0.24)	0.012
RSV- ambulatory LRTI	0.02 (0.01 - 0.09)	
RSV-hospitalised LRTI	0.12 (0.06 - 0.24)	0.012
Non-RSV hospitalised LRTI	0.02 (0.01 - 0.09)	

Abbreviations: LRTI=lower respiratory tract infection; e/cy = episodes per child-year; CI=confidence interval; RSV=respiratory syncytial virus; DCHS=Drakenstein Child Health Study