

Table 1 Blood cultures from pneumonia patients in clinical studies (%)

Pathogen	Madhi SA ^{6,§}		Graham SM ⁷		Nathoo KJ ^{8,π}		McNally LM ^{9,ψ}		Zar HJ ^{10,x}		Total [∂]	
	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ N (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)
No of patients	548	617	93	57	219	485	242	116	151	99	1102	1275
Age (months)	2-60	2-60	2-60	2-60	1-60	1-60	1-59	1-59	3-23•	2-7•		
Gram +ve												
<i>S. pneumoniae</i>	41 (7.5)	17(2.8)	4 (4.3)	4 (7.0)	12(5.5)	13 (2.7)	24 (9.9)	2 (1.7)			81 (7.4)	36 (2.8)
<i>S. aureus</i>	10 (1.8)	4 (0.6)			5 (2.3)	5 (1.0)	11 (4.5)	5 (4.3)			26 (2.4)	14 (1.1)
Group B strep	1 (0.2)	1 (0.2)	1 (1.1)	0 (0)							2 (0.2)	1 (0.1)
Other Gram +ve					4 (1.8)	8 (1.6)	18 (7.4)	14(12.1)			22 (2.0)	22 (1.7)
Total Gram +ve	52 (9.5)	22 (3.6)	5 (5.4)	4 (7.0)	21(9.6)	26 (5.4)	53 (21.9)	21 (18.1)	11(7.3)	8 (8.1)	131 (11.9)	73 (5.7)
Gram -ve												
<i>H. influenzae</i>	19 (3.5)	11(1.8)			0 (0)	3 (0.6)	1 (0.4)	1 (0.9)			20 (1.8)	15 (1.2)
<i>E. coli</i>	7 (1.3)	1 (0.2)					2 (0.8)	1 (0.9)			9 (0.8)	2 (0.2)
<i>Salmonella spp</i>	3 (0.5)	3 (0.5)	3 (3.2)	4 (7.0)	1 (0.5)	3 (0.6)	1 (0.4)	0 (0)			8 (0.7)	10 (0.8)
Coliforms					6 (2.7)	21 (4.3)					6 (0.5)	21 (1.6)
<i>Klebsiella spp</i>	0 (0)	2 (0.3)			2 (0.9)	8 (1.6)	1 (0.4)	1 (0.9)			3 (0.3)	11 (0.9)
<i>H. influenzae B</i>			2 (2.2)	1 (1.8)							2 (0.2)	1 (0.1)
<i>Pseudomonas spp</i>					1 (0.5)	2 (0.4)	0 (0)	1 (0.9)			1 (0.1)	3 (0.2)
<i>N. meningitidis</i>	1 (0.2)	2 (0.3)									1 (0.1)	2 (0.2)
Other Gram -ve			2 (2.2)	0 (0)	1 (0.5)	4 (0.8)	3 (1.2)	0 (0)			6 (0.5)	4 (0.3)
Total Gram -ve	30 (5.5)	19 (3.1)	7 (7.5)	5 (8.8)	11 (5.0)	41 (8.5)	8 (3.3)	4 (3.4)	9 (6.0)	7 (7.1)	56 (5.1)	69 (5.4)
Fungi												
<i>C. albicans</i>							0 (0)	1 (0.9)			0 (0)	1 (0.1)

§ Study excluded 50 children with 'indeterminate HIV-status'

π HIV diagnosed on clinical grounds

ψ HIV negative includes 41 children that were HIV exposed but uninfected.

x Study did not give specific blood culture results according to HIV status, but stated that findings were similar in both groups. Overall, they found *S. pneumoniae* in 12 children (4.8%) and *S. aureus* in 5 children (2.0%).

• 25th-75th percentile

∂ Excluding the Zar study as this only provided blood culture results grouped as total Gram +ve and Gram -ve

Table 2 Respiratory samples from pneumonia patients in clinical studies (%)

	Zar HJ ^{10,x}		Madhi SA ^{11,λ}		Graham SM ^{7, λ}		McNally LM ^{9,δ}		Ruffini DD ^{12,∞}		Bakeera-Kitaka S ^{13,∞}		Total	
Pathogen	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)
No of patients	151	99	442	548	93	57	87	23	105	0	43	78	921	805
Age (months)	3-23•	2-7•	2-60	2-60	2-60	2-60	1-59	1-59	2-24		2-60	2-60		
M. tuberculosis	11 (7.3)	8 (8.1)					18 (20.7)	6 (26.1)					29 (3.1)	14 (1.7)
Gram +ve														
S. aureus	22 (14.6)	3 (3.0)					15 (17.2)	5 (21.7)					37 (4.0)	8 (1.0)
S. pneumoniae	2 (1.3)	4 (4.0)					10 (11.5)	2 (8.7)					12 (1.3)	6 (0.7)
Other Gram +ve							8 (9.2)	1 (4.3)					8 (0.9)	1 (0.1)
Gram -ve														
Klebsiella spp	16 (10.9)	14 (14.1)					8 (9.2)	1 (4.3)					24 (2.6)	15 (1.9)
H. Influenzae	13 (8.6)	12 (12.1)					5 (5.7)	4 (17.4)					18 (2.0)	16 (2.0)
Pseudomonas spp	12 (7.9)	3 (3.0)											12 (1.3)	3 (0.4)
E. coli							7 (8.0)	1 (4.3)					7 (0.8)	1 (0.1)
M. catarrhalis	4 (2.6)	5 (5.1)											4 (0.4)	5 (0.6)
Salmonella spp							2 (2.3)	0 (0)					2 (0.2)	0 (0)
Legionella spp							1 (1.1)	0 (0)					1 (0.1)	0 (0)
Other Gram -ve	2 (1.3)	8 (8.1)					10 (11.5)	3 (13.0)					12 (1.3)	11 (1.4)
Virus														
CMV	21 (13.9)	10 (10.1)					40 (46.0)	4 (17.4)					61 (6.6)	14 (1.7)
RSV			23 (5.2)	90 (16.4)			8 (9.2)	5 (21.7)					31 (3.4)	95 (11.8)
Influenza virus			22 (5.0)	48 (8.8)									22 (2.4)	48 (6.0)
Parainfluenza			17 (3.8)	32 (5.8)									17 (1.8)	32 (4.0)
Adenovirus			7 (1.6)	10			6 (6.9)	3					13 (1.4)	13

Other virus	2 (1.3)	4 (4.0)	(1.8)		9 (10.3)	2 (8.7)	(13.0)		11 (1.2)	6 (0.7)	(1.6)	
Fungi												
P. jiroveci	15 (9.9)	4 (4.0)		16 (17.0)	0 (0)	26 (29.9)	3 (13.0)	51 (48.6)	18 (41.9)	2 (2.6)	126 (13.7)	9 (1.1)
Aspergillus spp						1 (1.1)	0 (0)				1 (0.1)	0 (0)
Other fungi						2 (2.3)	0 (0)				2 (0.2)	0 (0)

• 25th-75th percentile

χ Bacteria isolated from IS and BAL. Viral/ /mycobacterium culture from combination of NPA, IS and BAL.

λ Isolated from NPA

∂ Only includes the subset of study population that failed to respond to therapy. Combined results from blood culture, NPA, gastric washing, non-bronchoscopic BAL, lung aspirate, pleural aspirate. Excluded bacterial isolates from nasopharyngeal swabs and IS.

∞ Isolated from NPA and IS

Table 3 Pathogens identified from lung in post mortem studies (%)

Pathogen	Chintu C ^{14,§}		Nathoo KJ ^{15,π}		Wolf BH ^{16,β}		Jeena PM ^{17,ψ}		Lucas SB ^{18,§}		Ansari NA ^{19,§}		Rennert WP ^{20,§}		Ikeogu MO ^{21,γ}		Ruffini DD ^{12,π}		Total			
	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)	HIV+ n (%)	HIV- n (%)		
No of patients	130*	61*	24	0	122	90	36	36	36**	29**	35	12	93	0	122	62	18	0	616	290		
Age (months)	1-17	1-17	<6		0-60	0-60	1-18	1-18	1-14	1-14	1m-13y ^λ	1m-13y ^λ	1-70		1-55	1-42	2-24					
M. tuberculosis	22 (16.9)	13 (21.3)	0 (0)	0 (0)					1 (2.7) [§]	0 (0) [§]	0 (0)	0 (0)	4 (11.4)	1 (8.3)	4 (4.3)	-	6 (4.9)	2 (3.2)	1 (5.6)	-	38 (6.2)	16 (5.5)
Gram +ve																						
S. aureus			3 (12.5)	-	2 (1.6)	3 (3.3)	1 (2.8)	4 (11.1)							8 (6.6)	4 (6.5)					14 (2.3)	11 (3.8)
S. pneumoniae					3 (2.5)	1 (1.1)	0 (0)	1 (2.8)							10 (8.2)	4 (6.5)	1 (5.6)				14 (2.3)	6 (2.1)
Group A strep					3 (2.5)	2 (2.2)									3 (2.5)	2 (3.2)					6 (1.0)	4 (1.4)
Group B strep					1 (0.8)	0 (0)															1 (0.2)	0 (0)
Other Gram +ve					12 (9.8)	6 (6.7)	2 (5.6)	0 (0)							5 (4.1)	3 (4.8)					19 (3.1)	9 (3.1)
Gram -ve																						
Klebsiella spp			2 (8.3)	-	19 (15.6)	12 (13.3)	2 (5.6)	1 (2.8)							28 (23.0)	16 (25.8)					51 (8.3)	29 (10.0)
Pseudomonas spp					7 (5.7)	1 (1.1)	6 (16.7)	4 (11.1)							6 (4.9)	1 (1.6)					19 (3.1)	6 (2.1)
E. coli			4 (16.6)	-	11 (9.0)	4 (4.4)	1 (2.8)	0 (0)													16 (2.6)	4 (1.4)
Coliforms															8 (6.6)	7 (11.2)					8 (1.3)	7 (2.4)
H. influenzae					0 (0)	3 (3.3)	0 (0)	1 (2.8)							2 (1.6)	3 (4.8)	1 (5.6)	-			3 (0.5)	7 (2.4)
Salmonella spp					3 (2.5)	0 (0)	0 (0)	1 (2.8)									1 (5.6)				4 (0.6)	1 (0.3)
Salmonella typhi					1 (0.8)	0 (0)															1 (0.2)	0 (0)
H. influenzae B							0 (0)	1 (2.8)													0 (0)	1 (0.3)
Other Gram -ve					2 (1.6)	2 (2.2)	2 (5.6)	2 (5.6)							2 (1.6)	1 (1.6)					6 (1.0)	5 (1.7)
Virus																						
CMV	39 (30.0)	2 (3.3)	2 (8.3)	-			16 (44.4) [§]	1 (2.8) [§]	16 (44.4)	3 (10.3)	8 (22.9)	0 (0)	18 (19.4)	-	9 (7.4)	0 (0)	8 (44.4)	-			115 (18.7)	6 (2.1)
RSV							2 (5.6)	1 (2.8)			4 (11.4)	0 (0)					1 (5.6)				7 (1.1)	1 (0.3)
Parainfluenza							3 (8.3)	1 (2.8)													3 (0.5)	1 (0.3)
Adenovirus							2 (5.6) [§]	5 (13.8) [§]	0 (0)	1 (3.4)	1 (2.9)	0 (0)									3 (0.5)	6 (2.1)
Other virus							7 (19.4)	12 (33.3)					13 (14.0)								20 (3.2)	12 (4.1)

Fungi	Subset of cohort (age 1-17months)		Subset of cohort (age 1-14months)		Post mortem biopsy		Post mortem blood culture		Post mortem biopsy/blood culture		Post mortem biopsy/percutaneous lung aspirate		Ante mortem blood culture		Total		
<i>P. jiroveci</i>	47 (36.2)	6 (9.8)	6 (25.0)	-	16 (44.4) [§]	0 (0) [§]	11 (30.6)	0 (0)	10 (28.6)	0 (0)	10 (10.7)	-	19 (15.6)	0 (0)	8 (44.4)	127 (20.6)	6 (2.1)
<i>C. albicans</i>			1 (0.8)	0 (0)	1 (2.8) [§]	0 (0) [§]									2 (0.3)	0 (0)	

* Subset of cohort (age 1-17months)

** Subset of cohort (age 1-14months)

§ Post mortem biopsy

β Post mortem blood culture

π Post mortem biopsy/blood culture

γ Post mortem biopsy/percutaneous lung aspirate

ψ Ante mortem blood culture

λ Median age 10 month