Supplemental Digital Content 1

For more information about the sensitivity priors in the PERCH Integrated Etiology Analysis refer to Appendix Section III B 6 in The PERCH Study Group. Causes of severe pneumonia requiring hospital admission in children without HIV infection from Africa and Asia: the PERCH multi-country case-control study. Lancet. 2019; 6736(19):1-23.

Table: Integrated etiology analysis input values for sensitivity and specificity of laboratory test measures

| Specimen/test | Pathogen | Sensitivity Prior[a] | | Specificity |
		Base[b]	Reduced[b]	
Blood cultures[c]	-*Streptococcus pneumoniae* -*Haemophilus influenzae*	5-20%	1-13%	100%
	-*Moraxella catarrhalis* -*Staphylococcus aureus* -Nonfermentative gram-negative rods -Candida species -Non-pneumococcal streptococci, including enterococci	5-15%	1-10%	
	Salmonella species Enterobacteriaceae *Neisseria meningitidis*	10-50%	1-34%	
NP/OP PCR	-*Streptococcus pneumoniae* -*Haemophilus influenzae*	50-90%	15-55%	1 − Control prevalence (ref SDC Table 4)
	-Salmonella species -Legionella species	0.5-90%	0.5-90%	
	-All other PCR targets	50-90%	50-90%	
Whole blood PCR	- *Streptococcus pneumoniae*	12-65%	12-65%	1 − Control prevalence (ref SDC Table 4)
Induced sputum	-*Mycobacterium tuberculosis*	10-30%	10-30%	100%

Abbreviation: SDC, Supplemental Digital Content.

a. Background information supporting choice of sensitivity priors provided in the all-site PERCH paper.

b. Base: > 1.5 mL blood culture volume (blood culture only) and no evidence of prior antibiotic exposure. Reduced $\leq$ 1.5 mL or evidence of prior antibiotic exposure.

c. Direct evidence of the diagnostic sensitivity for *Streptococcus pneumoniae* and *Haemophilus influenzae* from vaccine probe studies. For all other pathogens we set the base blood culture sensitivity prior to 5-15%, with the exception of Salmonella species, Enterobacteriaceae and *Neisseria meningitidis*, for which we selected wider priors (10-50%) to reflect their greater uncertainty.