

## Supplementary Materials

**Supplementary Table S1.** Association between severity of infection and presence of bacteria.

	Days of hospitalization		Days of oxygen therapy		Mechanical ventilation	
Explanatory variables						
Nutritional status	ON (n=47)	NW (n=69)	ON (n=47)	NW (n=69)	ON (n=37)	NW (n=69)
<i>S. pneumoniae</i>	1.15 (0.9-1.5)	1.27* (1.0-1.6)	1.16 (0.8-1.5)	1.35* (1.1-1.7)	-0.02 (-0.3-0.2)	0.2* (0.1-0.3)
<i>M. catarrhallis</i>	1.36 (0.9-1.9)	1.04 (0.9-1.3)	1.35 (0.9-1.9)	1.04 (0.8-1.3)	- -	-0.01 (-0.1-0.1)
<i>H. influenzae</i>	0.77 (0.5-1.1)	0.88 (0.7-1.0)	0.7 (0.5-1.1)	0.89 (0.7-1.1)	-0.21 (-0.6-0.2)	-0.02 (-0.2-0.1)
<i>S. aureus</i>	1.11 (0.8-1.5)	0.98 (0.8-1.2)	1.07 (0.8-1.5)	0.96 (0.8-1.2)	0.14 (-0.2-0.4)	<0.01 (-0.1-0.1)
Model	P	P	P	P	DP	DP

ON: overnutrition (obese and overweight). NW: normal weight. Cells show expected counts from Poisson models (P) or discrete change of dummy variable from Probit models (DP). -: variable was excluded from model because all individuals were positive for the bacteria. Cells also show, in parenthesis, the 95% confidence intervals. All regressions were controlled for gender, age, and a dummy variable including RSV infection alone, RSV-viral co-infections and no RSV infection. \*p<0.05.

**Supplementary Table S2.** Association between severity of infection and bacterial load.

	Days of hospitalization		Days of oxygen therapy		Mechanical ventilation	
Explanatory variables						
Nutritional status	ON (n=47)	NW (n=69)	ON (n=47)	NW (n=69)	ON (n=37)	NW (n=69)
<i>S. pneumoniae</i>	1.03 (0.9-1.1)	1.04* (1.0-1.1)	1.03 (0.9-1.1)	1.04 (1.0-1.1)	-0.01 (-0.02-0.01)	0.03* (0.01-0.05)
<i>M. catarrhallis</i>	1.04* (1.0-1.1)	1.02 (0.9-0.1)	1.05* (1.0-1.1)	1.02 (0.9-1.1)	0.02* (-0.01-0.01)	0.01 (-0.01-0.03)
<i>H. influenzae</i>	1.0 (0.9-1.1)	0.96* (0.9-1.0)	0.98 (0.9-1.1)	0.96* (0.9-1.0)	<-0.0 (-0.01-0.01)	-0.02 (-0.04-0.0)
<i>S. aureus</i>	1.06 (1.0-1.1)	1.0 (0.9-1.0)	1.05 (0.9-1.1)	0.99 (0.9-1.0)	0.01* (-0.01-0.03)	<0.0 (-0.03-0.02)
Model	P	P	P	P	DP	DP

ON: overnutrition (obese and overweight). NW: normal weight. Cells show expected counts from Poisson models (P) or discrete change of dummy variable from Probit models (DP). Cells also show, in parenthesis, the 95% confidence intervals. All regressions were controlled for gender, age, and a dummy variable including RSV infection alone, RSV-viral co-infections and no RSV infection. \*p<0.05.

**Supplementary Table S3.** Association between severity of infection and presence of >2 bacteria at the same time.

	Days of hospitalization		Days of oxygen therapy		Mechanical ventilation	
Explanatory variables						
Nutritional status	ON (n=47)	NW (n=69)	ON (n=47)	NW (n=69)	ON (n=37)	NW (n=69)
>2 bacteria at the same time	1.13 (0.9-1.5)	1.23 (1-1.5)	1.06 (0.8-1.4)	1.30* (1.03-1.05)	0.01 (-0.01-0.2)	0.19 (<0.0-0.4)
Model	P	P	P	P	DP	DP

ON: overnutrition (obese and overweight); NW: normal weight. Cells show expected counts from Poisson models (P) or discrete change of dummy variable from Probit models (DP). Cells also show, in parenthesis, the 95% confidence intervals. All regressions were controlled for gender, age, and a dummy variable including RSV infection alone, RSV-viral co-infections and no RSV infection.\*p<0.05.