



**Figure 4-figure supplement 1** - Association of variants in the Dutch cohort with carriage age 0 – 24 months, A. minus log transformed p-value on the y-axis and position of unitig and snp variants on the *S. pneumoniae* genome on the x-axis (Manhattan plot); B. minus log transformed p-value on the y-axis and sorted lowest to highest p-value for rare variant burden in genes (purple) and clusters of orthologous genes (COGs, blue) on the x-axis. Variants of interest have annotations added.