

**(a) Nasal passages**

| Controls and patients with an RTI (n = 304)                                       |                              | Controls (n = 152) |                              | Patients with an RTI (n = 152) |                              |
|---|------------------------------|--------------------|------------------------------|--------------------------------|------------------------------|
| Top 10 most abundant genera/families (fraction of total reads)                    |                              |                    |                              |                                |                              |
| 1   | <i>Corynebacterium</i> (28%) | 1                  | <i>Corynebacterium</i> (29%) | 1                              | <i>Corynebacterium</i> (25%) |
| 2   | <i>Staphylococcus</i> (24%)  | 2                  | <i>Staphylococcus</i> (22%)  | 2                              | <i>Staphylococcus</i> (25%)  |
| 3   | <i>Moraxella</i> (12%)       | 3                  | <i>Moraxella</i> (13%)       | 3                              | <i>Moraxella</i> (10%)       |
| 4   | <i>Dolosigranulum</i> (7%)   | 4                  | <i>Dolosigranulum</i> (8%)   | 4                              | <i>Streptococcus</i> (7%)    |
| 5   | <i>Streptococcus</i> (5%)    | 5                  | <i>Peptoniphilus</i> (3%)    | 5                              | <i>Dolosigranulum</i> (7%)   |
| 6   | <i>Haemophilus</i> (3%)      | 6                  | <i>Cutibacterium</i> (3%)    | 6                              | <i>Haemophilus</i> (5%)      |
| 7   | <i>Peptoniphilus</i> (3%)    | 7                  | <i>Streptococcus</i> (3%)    | 7                              | <i>Peptoniphilus</i> (3%)    |
| 8   | <i>Cutibacterium</i> (2%)    | 8                  | <i>Anaerococcus</i> (2%)     | 8                              | Enterobacteriaceae (2%)      |
| 9   | <i>Anaerococcus</i> (2%)     | 9                  | <i>Neisseria</i> (2%)        | 9                              | <i>Pseudomonas</i> (2%)      |
| 10  | Enterobacteriaceae (2%)      | 10                 | <i>Haemophilus</i> (1%)      | 10                             | <i>Prevotella</i> (2%)       |
| Other genera with ≥ 50% relative abundance in at least one swab (number of swabs) |                              |                    |                              |                                |                              |
| 12  | <i>Pseudomonas</i> (1)       | 11                 | Enterobacteriaceae (1)       |                                |                              |
| 14  | <i>Neisseria</i> (2)         |                    |                              |                                |                              |

**(b) Oropharynx**

| Controls and patients with an RTI (n = 304)                                       |                            | Controls (n = 152) |                            | Patients with an RTI (n = 152) |                            |
|---|----------------------------|--------------------|----------------------------|--------------------------------|----------------------------|
| Top 10 most abundant genera/families (fraction of total reads)                    |                            |                    |                            |                                |                            |
| 1   | <i>Prevotella</i> (26%)    | 1                  | <i>Prevotella</i> (27%)    | 1                              | <i>Prevotella</i> (24%)    |
| 2   | <i>Veillonella</i> (16%)   | 2                  | <i>Veillonella</i> (16%)   | 2                              | <i>Veillonella</i> (16%)   |
| 3   | <i>Streptococcus</i> (11%) | 3                  | <i>Streptococcus</i> (10%) | 3                              | <i>Streptococcus</i> (12%) |
| 4   | <i>Neisseria</i> (7%)      | 4                  | <i>Fusobacterium</i> (7%)  | 4                              | <i>Neisseria</i> (7%)      |
| 5   | <i>Fusobacterium</i> (6%)  | 5                  | <i>Neisseria</i> (6%)      | 5                              | <i>Leptotrichia</i> (5%)   |
| 6   | <i>Leptotrichia</i> (5%)   | 6                  | <i>Leptotrichia</i> (6%)   | 6                              | <i>Haemophilus</i> (4%)    |
| 7   | <i>Haemophilus</i> (5%)    | 7                  | <i>Haemophilus</i> (5%)    | 7                              | <i>Fusobacterium</i> (4%)  |
| 8   | <i>Rothia</i> (3%)         | 8                  | <i>Porphyromonas</i> (3%)  | 8                              | <i>Rothia</i> (3%)         |
| 9   | <i>Porphyromonas</i> (3%)  | 9                  | <i>Actinobacillus</i> (2%) | 9                              | <i>Lactobacillus</i> (3%)  |
| 10  | <i>Actinobacillus</i> (2%) | 10                 | <i>Rothia</i> (2%)         | 10                             | <i>Actinobacillus</i> (2%) |
| Other genera with ≥ 50% relative abundance in at least one swab (number of swabs) |                            |                    |                            |                                |                            |
| 13  | <i>Lactobacillus</i> (3)   |                    |                            | 16                             | <i>Staphylococcus</i> (1)  |
| 21  | <i>Staphylococcus</i> (1)  |                    |                            |                                |                            |