**Supplementary Table 2. Summary of the network topology of bacterial taxa interactions, derived from network analysis. The top five of the top 5% of the bacterial taxa are shown here**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Abundance** | **Degree (interaction)** | **Betweenness (influence)** | **Closeness****(broadcast or metabolic crosstalk)** |
| Presence of sepsis | 1. Lachnospiraceae - Blautia
2. Veillonellaceae - Veillonella dispar
3. Enterococcaceae - Enterococcus
4. Enterobacteriaceae - Klebsiella
5. Bacteroidaceae - Bacteroides
 | 1. Gemellaceae - Gemella
2. Micrococcaceae – Rothia mucilaginosa
3. Actinomycetaceae – Actinomyces
4. Leuconostocaceae - Leuconostoc
5. Eubacteriaceae – Pseudoramibacter Eubacterium
 | 1. Leptotrichiaceae - Leptotrichia- - OTU\_4345640
2. Lachnospiraceae - Ruminococcuscross5
3. Lachnospiraceae – Roseburia
4. Lachnospiraceae - OTU\_3082155
5. Neisseriaceae – Neisseria subflava
 | 1. Lactobacillaceae – Lactobacillus ruminis
2. Bacteroidaceae – Bacteroides ovatus
3. Veillonellaceae - Megamonas
4. Erysipelotrichaceae - Clostridiumcross7
5. Veillonellaceae – Veillonella
 |
| Absence of sepsis | 1. Bifidobacteriaceae- Bifidobacterium longum
2. Enterobacteriaceae--OTU\_819999
3. Bacteroidaceae - Bacteroides
4. Coriobacteriaceae – Collinsella aerofaciens
5. Enterococcaceae - Enterococcus
 | 1. Actinomycetaceae - Actinomyces
2. Carnobacteriaceae - Granulicatella
3. Streptococcaceae - Streptococcus
4. Micrococcaceae - Rothia
5. Lachnospiraceae - Moryella
 | 1. Lachnospiraceae - Moryella
2. Erysipelotrichaceae – EubacteriuM biforme
3. Erysipelotrichaceae - Catenibacterium
4. Prevotellaceae – Prevotella copri
5. Lactobacillales - OTU\_511795
 | 1. Bifidobacteriaceae--Bifidobacterium
2. Lactobacillacea- Lactobacillus ruminis
3. Bacteroidaceae - Bacteroides
4. Leuconostocaceae - Leuconostoc
5. Clostridiaceae – Clostridium perfringens OTU\_353320
 |
| One episode of infection/sepsis | 1. Enterobacteriaceae - OTU\_819999
2. Veillonellaceae - Veillonella
3. Bacteroidaceae - Bacteroides
4. Enterococcaceae - Enterococcus
5. Lactobacillaceae - Lactobacillus
 | 1. Verrucomicrobiaceae – Akkermansia muciniphila
2. TM7-3 - OTU\_4331439
3. Streptococcaceae - Lactococcus
4. Campylobacteraceae - Campylobacter
5. Porphyromonadaceae - Porphyromonas
 | 1. Ruminococcaceae - Ruminococcus
2. Streptococcaceae - Lactococcus
3. Lactobacillaceae - Pediococcus acidilactici
4. Ruminococcaceae - Oscillospira
5. Bacteroidaceae - Bacteroides
 | 1. Veillonellaceae – Megamonas
2. Bacteroidaceae – Bacteroides caccae
3. Porphyromonadaceae – Porphyromonas
4. Lactobacillaceae - Lactobacillus
5. Peptostreptococcaceae – Peptostreptococcus
 |
| Two or more episodes of infection/sepsis | 1. Enterococcaceae - Enterococcus
2. Enterobacteriaceae - Klebsiella
3. Bacteroidaceae - Bacteroides fragilis
4. Coriobacteriaceae - Collinsella aerofaciens
5. Bifidobacteriaceae – Bifidobacterium longum
 | 1. Fusobacteriaceae - Fusobacterium
2. Desulfovibrionaceae - Desulfovibrio
3. Ruminococcaceae - Faecalibacterium
4. Leuconostocaceae - Leuconostoc
5. Streptococcaceae - Lactococcus garvieae
 | 1. Lachnospiraceae – OTU\_1830364
2. Ruminococcaceae - Ruminococcus
3. Lachnospiraceae - Dorea
4. Enterococcaceae - Enterococcus
5. Streptococcaceae - Streptococcus
 | 1. Bifidobacteriaceae – Bifidobacterium longum
2. Clostridiaceae - Clostridium
3. Enterobacteriaceae - Klebsiella
4. Enterobacteriaceae - Morganella
5. Tissierellaceae - Parvimonas
 |
| Site of infection Lung | 1. Enterobacteriaceae - Klebsiella pneumoniae
2. Coriobacteriaceae - Collinsella aerofaciens
3. Bacteroidaceae - Bacteroides
4. Ruminococcaceae - Faecalibacterium prausnitzii
5. Veillonellaceae - Veillonella dispar
 | 1. Streptococcaceae - Streptococcus
2. Actinomycetaceae - Actinomyces
3. Bifidobacteriaceae - Bifidobacterium longum
4. Streptococcaceae - Streptococcus
5. TM7-3 - OTU\_4331439
 | 1. Bifidobacteriaceae – Bifidobacterium longum
2. Ruminococcaceae - Oscillospira
3. Lachnospiraceae - Blautia
4. Bacteroidaceae - Bacteroides fragilis
5. Coriobacteriaceae - OTU\_227758
 | 1. Enterococcaceae - Enterococcus
2. Lactobacillaceae - Lactobacillus
3. Ruminococcaceae - Faecalibacterium prausnitzii
4. Clostridiaceae - Clostridium
5. Enterobacteriaceae – Klebsiella
 |
| Site of infection SBP | 1. Bifidobacteriaceae - Bifidobacterium
2. Bacteroidaceae - Bacteroides
3. Lactobacillaceae - Lactobacillus
4. Veillonellaceae - Megasphaera
5. Ruminococcaceae - Faecalibacterium prausnitzii
 | 1. Leptotrichiaceae - Leptotrichia
2. Actinomycetaceae - Actinomyces
3. Leuconostocaceae - Leuconostoc
4. Porphyromonadaceae - Porphyromonas
5. Micrococcaceae - Rothia mucilaginosa
 | 1. Streptococcaceae - Streptococcus
2. Leuconostocaceae – Leuconostoc
3. Streptococcaceae – Streptococcus anginosus
4. Veillonellaceae - Dialister
5. Enterobacteriaceae - Klebsiella
 | 1. Lactobacillaceae – Lactobacillus
2. Bacteroidaceae - Bacteroides fragilis
3. Pseudomonadaceae - Pseudomonas
4. Propionibacteriaceae - Propionibacterium
5. Porphyromonadaceae - Porphyromonas
 |
| IL6 level <100 ng/dL | 1. Streptococcaceae – Streptococcus sobrinus
2. Leuconostocaceae - Leuconostoc
3. Erysipelotrichaceae - Eubacterium
4. Micrococcaceae - Rothia mucilaginosa
5. Streptococcaceae - Streptococcus anginosus
 | 1. Actinomycetaceae - Actinomyces
2. Veillonellaceae - Selenomonas noxia
3. Dethiosulfovibrionaceae - TG5
4. Micrococcaceae - Rothia aeria
5. Erysipelotrichaceae - Bulleidia
 | 1. Micrococcaceae - Rothia
2. Erysipelotrichaceae - Eubacterium
3. Veillonellaceae - Selenomonas
4. Neisseriaceae - OTU\_927328
5. Dethiosulfovibrionaceae - TG5
 | 1. Lactobacillaceae – Lactobacillus zeae
2. Rikenellaceae – Rikenella
3. Christensenellaceae -
4. Enterobacteriaceae – Morganella
5. Enterobacteriaceae - Enterobacter
 |
| IL6 level 100–1000 ng/dL | 1. Enterobacteriaceae - Klebsiella
2. Bifidobacteriaceae - Bifidobacterium longum
3. Lactobacillaceae - Lactobacillus ruminis
4. Ruminococcaceae - Faecalibacterium prausnitzii
5. Coriobacteriaceae - Collinsella aerofaciens
 | 1. Streptococcaceae - Streptococcus anginosus
2. Gemellaceae - Gemella
3. Pseudomonadaceae - Pseudomonas
4. Micrococcaceae - Rothia dentocariosa
5. Coriobacteriaceae - Atopobium
 | 1. Enterobacteriaceae - Citrobacter
2. Bacteroidaceae - Bacteroides
3. Streptococcaceae - Streptococcus
4. Enterobacteriaceae—Klebsiella
5. Bifidobacteriaceae - Bifidobacterium longum
 | 1. Lactobacillaceae Lactobacillus ruminis
2. Clostridiaceae - Clostridium
3. Bacteroidaceae – Bacteroides ovatus
4. Leuconostocaceae - Leuconostoc
5. Bifidobacteriaceae - Bifidobacterium
 |
| IL6 level >1000 ng/dL | 1. Enterobacteriaceae - Klebsiella
2. Enterococcaceae - Enterococcus
3. Bacteroidaceae - Bacteroides
4. Bifidobacteriaceae - Bifidobacterium
5. Ruminococcaceae - Faecalibacterium prausnitzii
 | 1. Bifidobacteriaceae - Bifidobacterium
2. Ruminococcaceae - Oscillospira
3. Bacteroidaceae - Bacteroides
4. Lactobacillaceae - Lactobacillus
5. Bacteroidaceae - Bacteroides fragilis
 | 1. Coriobacteriaceae – Coriobacterium OTU\_227758
2. Bacteroidaceae - Bacteroides OTU\_193591
3. Veillonellaceae - Dialister
4. Bifidobacteriaceae - Bifidobacterium
5. Bacteroidaceae – Bacteroides fragilis
 | 1. Bacteroidaceae - Bacteroides
2. Enterococcaceae - Enterococcus
3. Enterobacteriaceae – Klebsiella
4. Prevotellaceae – Prevotella copri
5. Bifidobacteriaceae – Bifidobacterium longum
 |
| Death during same admission | 1. Enterobacteriaceae - Klebsiella
2. Bifidobacteriaceae - Bifidobacterium
3. Enterococcaceae - Enterococcus
4. Ruminococcaceae - Faecalibacterium prausnitzii
5. Veillonellaceae - Veillonella dispar
 | 1. Coriobacteriaceae - Atopobium
2. Erysipelotrichaceae - Eubacterium dolichum
3. Ruminococcaceae - Oscillospira
4. Micrococcaceae - Rothia mucilaginosa
5. Enterococcaceae - Vagococcus
 | 1. Coriobacteriaceae - Atopobium
2. Lactobacillaceae – Lactobacillus zeae
3. Lachnospiraceae - Blautia
4. Ruminococcaceae - Oscillospira
5. Enterococcaceae - Vagococcus
 | 1. Veillonellaceae - Veillonella
2. Clostridiaceae - Clostridium
3. Enterobacteriaceae - Morganella
4. Enterococcaceae – Enterococcus
5. Chloroplast - Streptophyta
 |
| Survived during same admission | 1. Bifidobacteriaceae - Bifidobacterium
2. Enterobacteriaceae - Citrobacter
3. Bacteroidaceae - Bacteroides
4. Coriobacteriaceae - Collinsella aerofaciens
5. Enterococcaceae - Enterococcus
 | 1. TM& - TM7-3
2. Actinomycetaceae - Actinomyces
3. Neisseriaceae - Neisseria subflava
4. Micrococcaceae - Rothia dentocariosa
5. Bifidobacteriaceae - Scardovia
 | 1. Veillonellaceae- Selenomonas
2. Neisseriaceae – Neisseria
3. Streptococcaceae - Streptococcus
4. Micrococcaceae – Rothia
5. Lachnospiraceae - Oribacterium
 | 1. Erysipelotrichaceae - Catenibacterium
2. Paraprevotellaceae - Paraprevotella
3. Erysipelotrichaceae - Catenibacterium
4. Lachnospiraceae - Roseburia faecis
5. Clostridiaceae – Clostridium perfringens
 |
| Overall survived | 1. Bifidobacteriaceae – Bifidobacterium longum
2. Lactobacillaceae - Lactobacillus
3. Streptococcaceae - Streptococcus
4. Enterobacteriaceae - Klebsiella
5. Bacteroidaceae - Bacteroides
 | 1. Coriobacteriaceae - Atopobium
2. Micrococcaceae - Rothia mucilaginosa
3. Veillonellaceae - Schwartzia
4. Bifidobacteriaceae - Scardovia
5. Erysipelotrichaceae - Eubacterium biforme
 | 1. TM7-3 - OTU\_4331439
2. Neisseriaceae – Neisseria
3. Veillonellaceae - Selenomonas
4. Tissierellaceae – Parvimonas
5. Coriobacteriaceae - Atopobium
 | 1. Fusobacteriaceae - Fusobacterium
2. Bacteroidaceae - Bacteroides
3. Veillonellaceae - Acidaminococcus
4. Bifidobacteriaceae – Bifidobacterium longum
5. Erysipelotrichaceae – Eubacterium biforme
 |
| Overall died | 1. Bifidobacteriaceae - Bifidobacterium
2. Enterobacteriaceae - Klebsiella
3. Bacteroidaceae - Bacteroides
4. Enterococcaceae - Enterococcus
5. Lactobacillaceae - Lactobacillus
 | 1. Actinomycetaceae - Actinomyces
2. Porphyromonadaceae - Porphyromonas
3. Gemellaceae - Gemella
4. Micrococcaceae - Rothia dentocariosa
5. Micrococcaceae - Rothia mucilaginosa-
 | 1. Neisseriaceae – Neisseria subflava
2. Ruminococcaceae - Oscillospira
3. Erysipelotrichaceae - Eubacterium biforme
4. Pasteurellaceae – Pasturella
5. Lachnospiraceae - Lachnospira
 | 1. Bifidobacteriaceae - Bifidobacterium
2. Lactobacillaceae - Lactobacillus
3. Pseudomonadaceae - Pseudomonas
4. Bacteroidaceae – Bacteroides fragilis
5. Staphylococcaceae - Staphylococcus
 |