|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Week1 samples** | **Week 2 samples** | **Week 3-5**  **samples** | **Week 1 first samples from each infant only** | **All samples** |
| **All Sample Nodes** | | | | | |
| Network centralization | 7.226 | 3.358 | 2.854 |  | 2.538 |
| Average no neighbors | 87.238 | 80.588 | 89.706 |  | 85.945 |
| Network density | 4.362 | 5.037 | 5.607 |  | 1.592 |
| Number of nodes | 21 | 17 | 17 |  | 55 |
| Network heterogeneity | 0.456 | 0.272 | 0.189 |  | 0.341 |
| **All Sample Nodes + OTU Nodes in Subnetwork** | | | | | |
| Connected components | 1 | 1 | 1 | 1 |  |
| Network diameter | 6 | 6 | 6 | 6 |  |
| Network radius | 3 | 3 | 3 | 3 |  |
| Network centralization | 0.197 | 0.174 | 0.167 | 0.283 |  |
| Shortest paths | 1107930 (100%) | 510510 (100%) | 575322 (100%) | 581406 (100%) |  |
| Characteristic path length | 3.765 | 3.567 | 3.564 | 3.722 |  |
| Average no of neighbors | 3.346 | 3.832 | 4.018 | 2.613 |  |
| Number of nodes | 1095 | 715 | 759 | 763 |  |
| Network density | 0.003 | 0.005 | 0.005 | 0.003 |  |
| Network heterogenity | 3.899 | 3.281 | 3.318 | 4.658 |  |
| Isolated nodes | 0 | 0 | 0 | 0 |  |
| Clustering coefficient | 0 | 0 | 0 | 0 |  |

**Table S4. Network statistics of samples**

Network statistics of samples obtained over time in the NICU, with subnetworks for week 1, week 2, and weeks 3-5 samples. The week 1 subnetwork has less average neighbors, more OTU nodes, more heterogeneity and less density compared to the overall network, and week 2 and weeks 3-5 subnetworks.