

Further Information:

What is the microbiome?

The human microbiome is the community of microbes - bacteria, viruses and fungi - that live on and in our bodies. With an estimated 30 trillion microbes per person, we each have as many microbial cells as human cells.



Does breastfeeding help form the microbiome?

Previous studies in older babies (during first year of life) have reported that breast feeding is an important factor in shaping a babies' gut microbiome as well as providing many other health benefits. The BabyBiome study focused on babies in the first three weeks of life and showed that breast feeding did have some positive effect on gut microbes of babies over 7 days old, but the effect was smaller than that of the birth mode.

Studies on breast feeding are needed from early life, with detailed information collected about babies' diet and the mix of breast and formula milk.

How do antibiotics affect the microbiome?

Antibiotics are drugs designed to kill bacteria, and have an effect on the gut microbiome as shown in previous studies.

Newborn babies can be exposed to antibiotics directly after birth and/or indirectly through antibiotics given to mothers during birth via the placenta. We found that both of these events have an impact on the baby's gut microbiome, changing the number of mother's gut bacteria in the baby's gut - albeit having a smaller effect than the delivery method.

Antibiotics are given to mothers in all caesarean births and to some mothers prior to vaginal delivery, in order to prevent infections, including serious infections or sepsis. The study findings should not deter women from having antibiotics where needed.

What about antibiotic resistance? Does my caesarean baby have more antibiotic resistant bacteria?

The study found that caesarean newborn babies carry higher levels of bacteria carrying antimicrobial resistance in their gut microbiome. However, all the babies were healthy and the long-term health implications of this finding are not known. By the time they have been weaned, the differences in

7. <https://www.nice.org.uk/guidance/cg132>

8. <https://www.nhs.uk/news/pregnancy-and-child/c-section-mums-warned-about>