

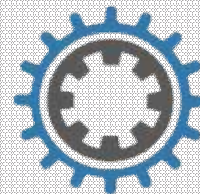
The impact of breastmilk and delivery mode on the infant's gut microbiota

Emmy Van Daele

6 Sept 2016



WAGENINGEN UR



Background

THE BRAIN



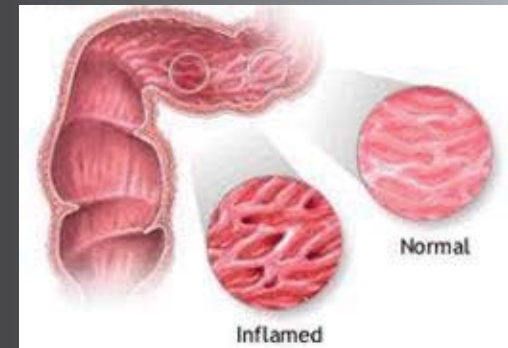
ASTHMA



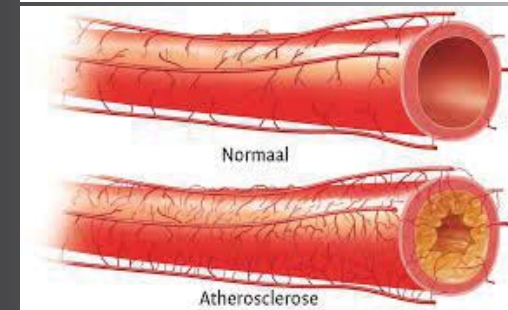
OBESITY



INFLAMMATORY BOWEL DISEASE



ATHEROSCLEROSIS

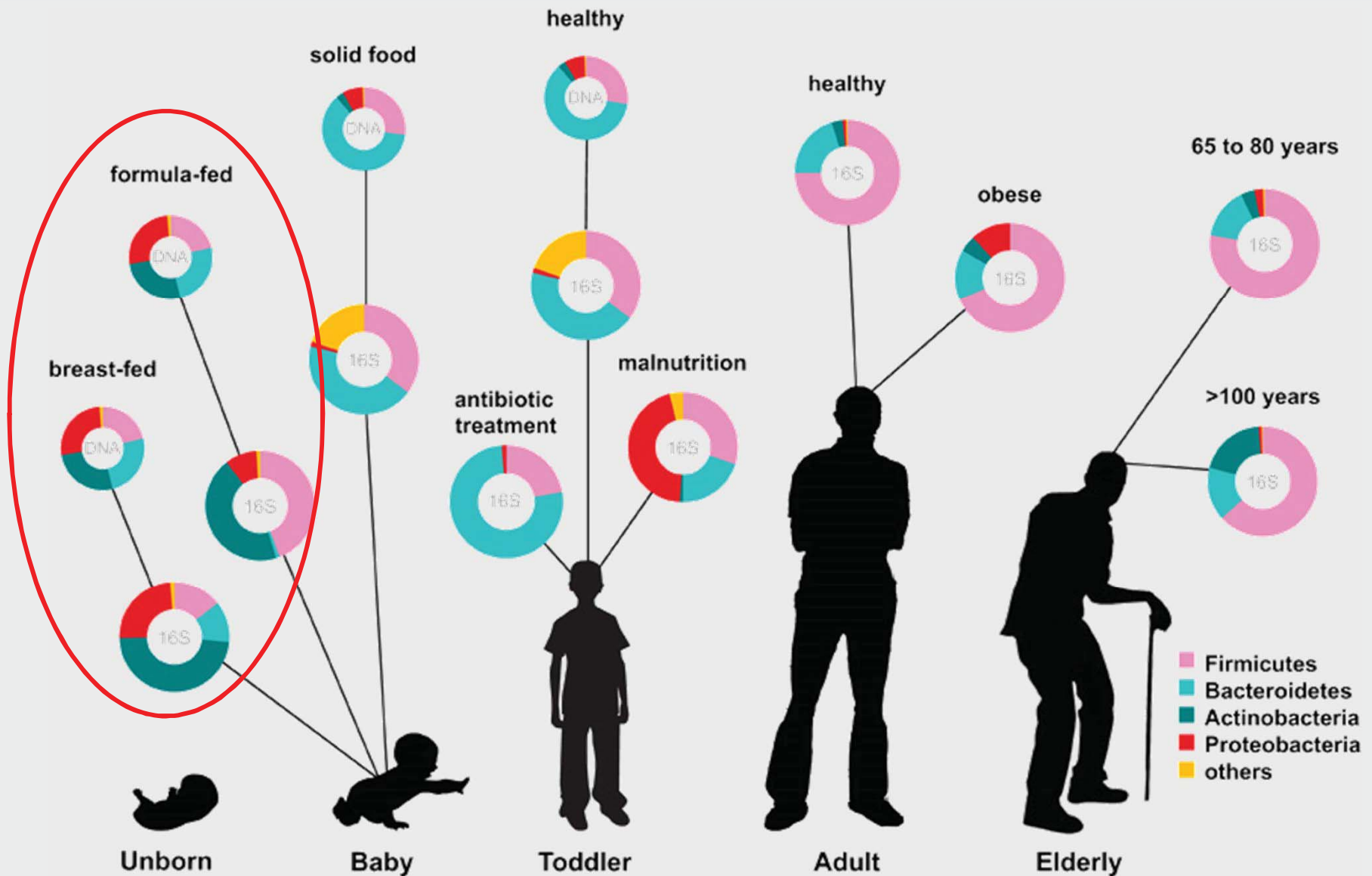


(West et al. 2015)

Background

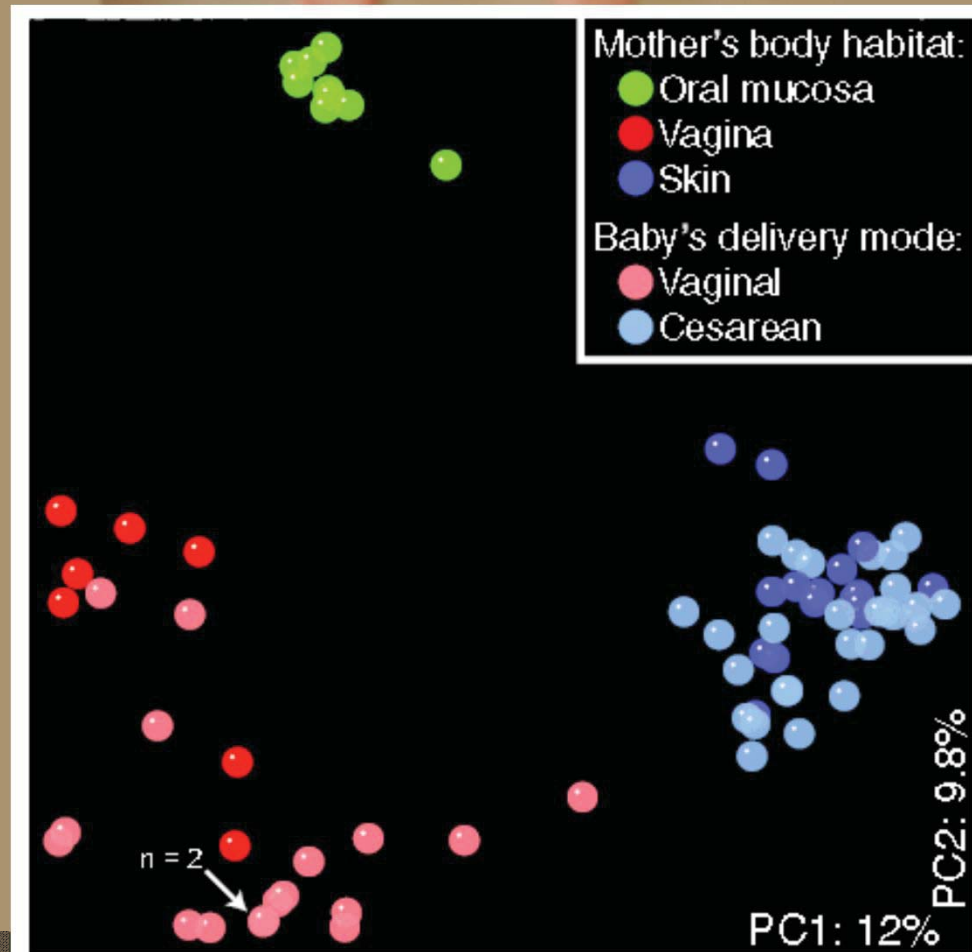


Microbiota through life



(Figure Ottman et al. 2012)

Delivery mode

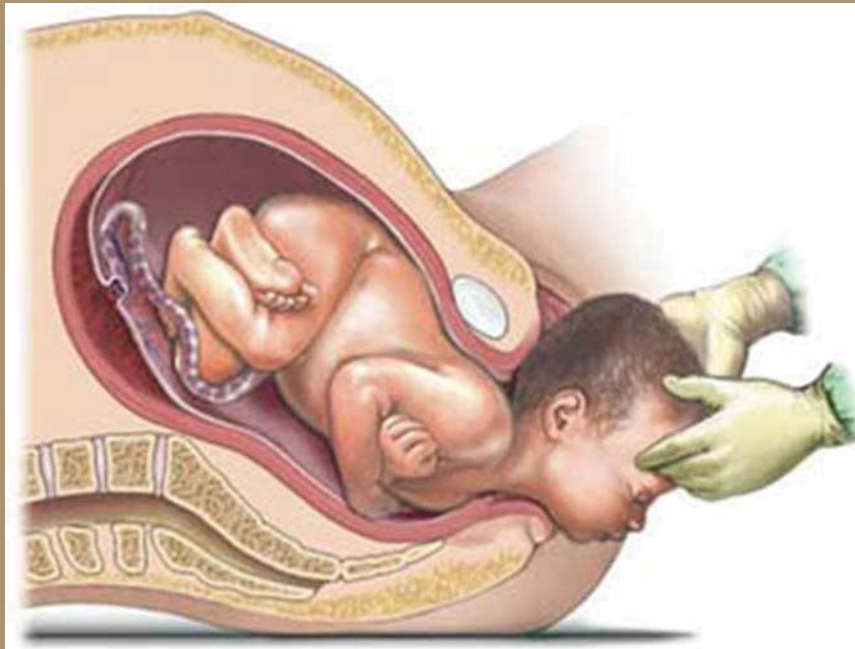


Dominguz-Bello (2010)

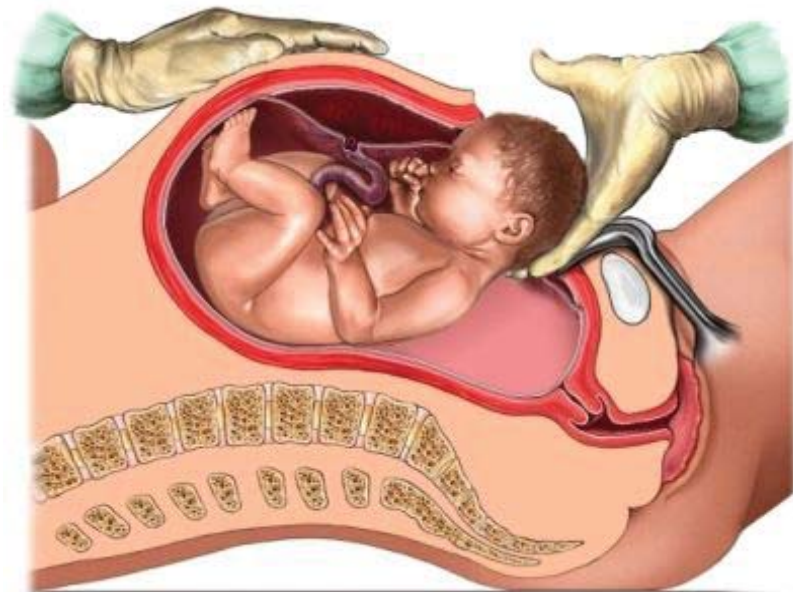
Delivery mode



NORMAL VAGINAL DELIVERY



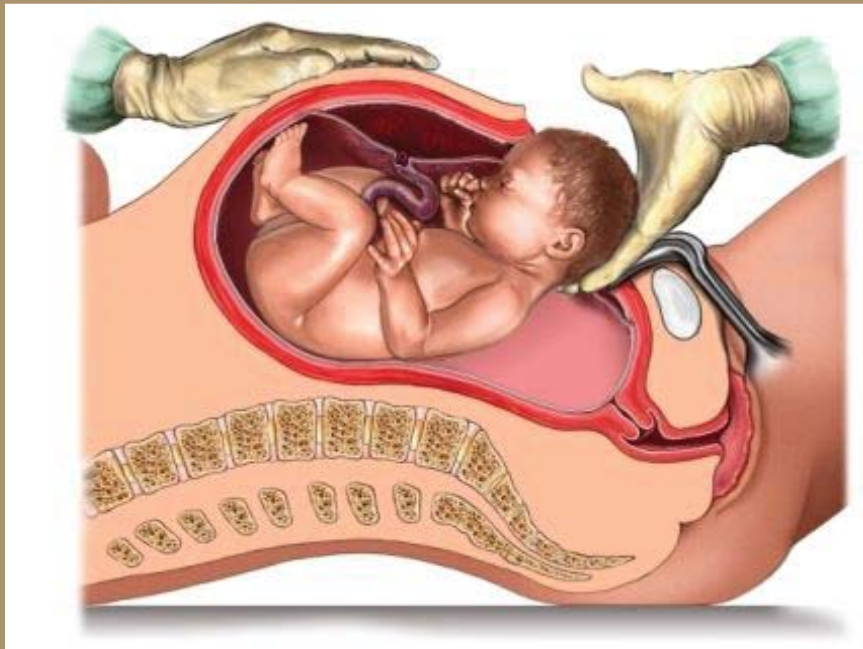
C-SECTION



(Dominguez-Bello et al. 2010, Mueller et al. 2015)

Delivery mode

C-SECTION



OBESITY



Huh et al. (2012)
Ajslev et al. (2011)
Blustein et al. (2013)

ASTHMA



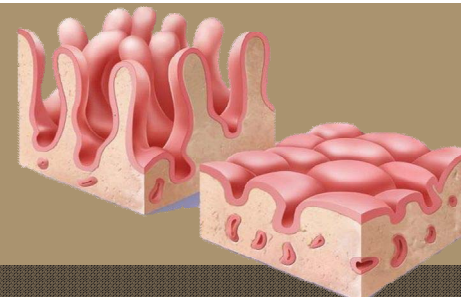
Kero et al. (2002)
Roduit et al. (2009)
Couzin-Frankel (2010)
Ege et al. (2011)

TYPE 1 DIABETES



Algert et al. (2009)
Aumeunier, A. et al. (2010)

CELIAC DISEASE



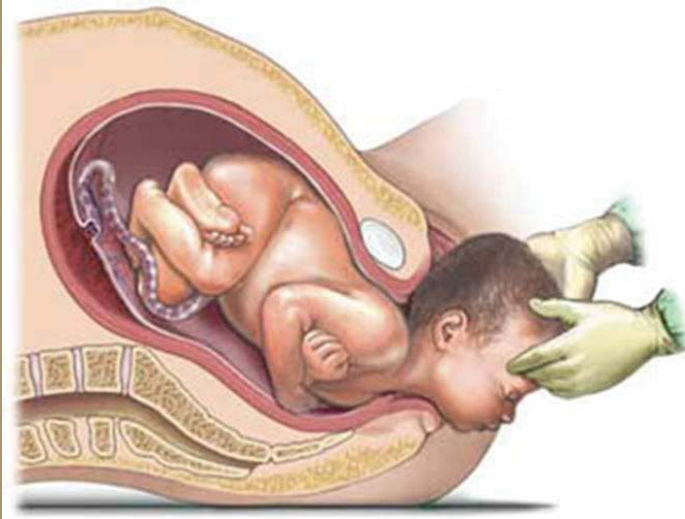
Decker et al. (2010)
Marild et al. (2012)

PERCENTAGE OF C-SECTION

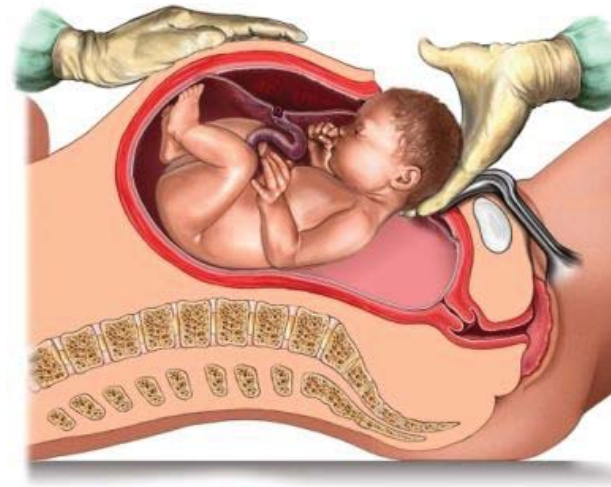
Burkina Faso	0.7 %
Nepal	2.7 %
India	8.5 %
Kazakhstan	11 %
The Netherlands	13.5 %
Iceland	15.6 %
Sweden	17.3 %
Turkey	21.2 %
Italy	30.7 %
Chile	38.2 %
Brazil	45.9 %

C-section – Effect on later health

NORMAL VAGINAL DELIVERY



C-SECTION



> 3 months old



Exclusive breastfeeding

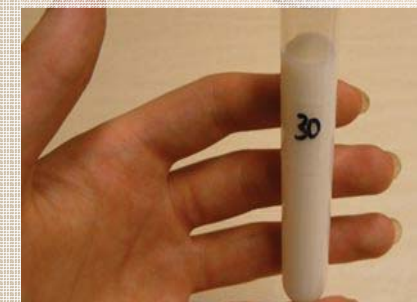


C-section vs. vaginal delivery

FECAL SAMPLE
Mother & Baby



BREAST MILK

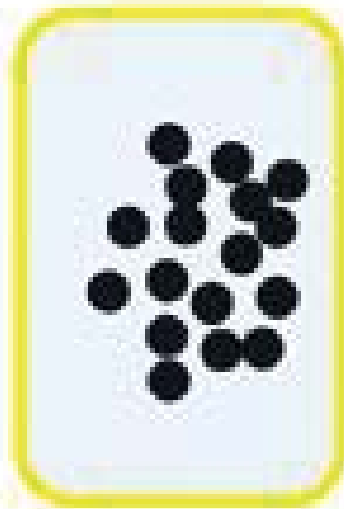


Alpha diversity

RICHNESS



RICH

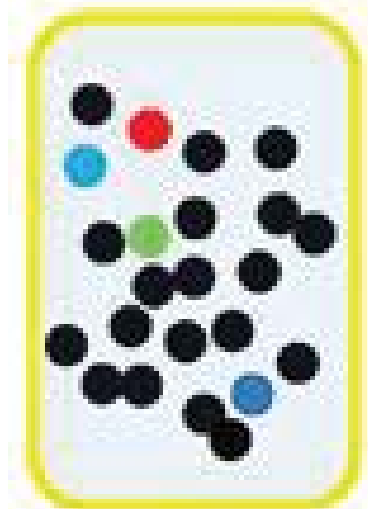


NOT RICH

EVENNESS



EVEN



UNEVEN

Number of species in sample

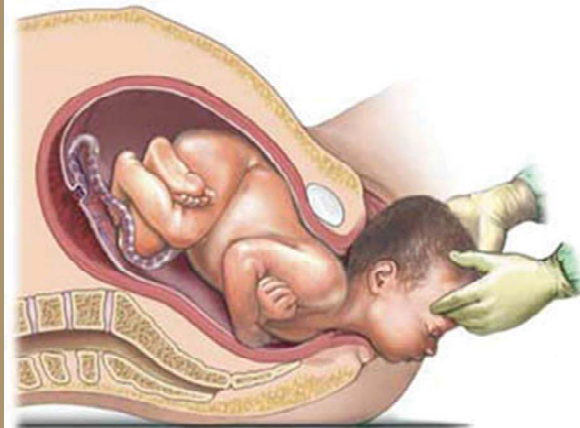
Count of different microbes (OTU count)

Relative abundance of different species

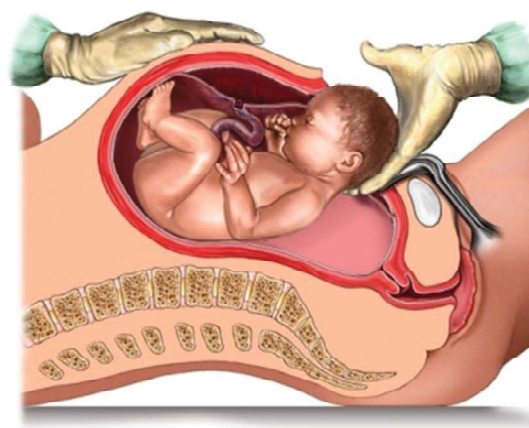
Distribution of different microbes

3 types of delivery mode

NORMAL VAGINAL DELIVERY



C-SECTION



VAGINAL DELIVERY



PLANNED C-SECTION



EMERGENCY C-SECTION

CONCLUSION



Gut microbiome of mother > baby (3-6m)

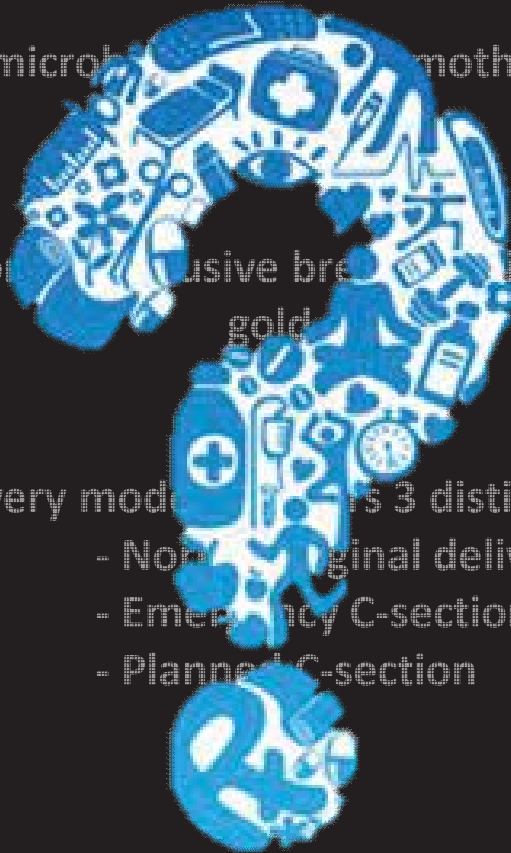


6 months of exclusive breastfeeding remains the gold standard

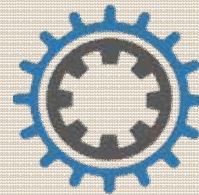


Delivery mode is 3 distinct types:

- Normal vaginal delivery
- Emergency C-section
- Planned C-section



THANKS!



Promotor

Prof. Tom Van de Wiele

C MET team

Dr. ir. Frederiek Maarten Kerckhof

Dr Emma Hernandez-Sanabria

Ir Kim De Paepe

Tim Lacoere



WAGENINGENUR

Dr. Clara Belzer