# BACTERIAL COLONIZATION OF THE STOMACH WITH RELATION TO PPI CONSUMPTION AND GASTRIC pH - IN A SWEDISH POPULATION

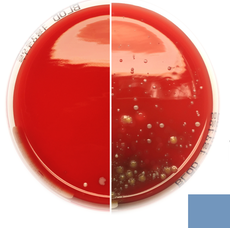
Maria Bergström[1,3], Marcus Sjöberg[2], Jorge Arroyo Vázquez[2], Per-Ola Park[1,3]

Dept of Surgery, Halland Hospital Varberg[1], Dept of Surgery, South Älvsborg Hospital, Borås[2]. Gothenburg University, Gothenburg[3], Sweden

## Conclusion

Gastric bacterial colonization consists of oropharyngeal flora. High gastric pH seems to be a prerequisite for bacterial colonization. Both the oropharyngeal flora and PPI-intake need to be considered for choice of prophylactic antibiotics during gastric surgery or transgastric interventions.

## Introduction



Bacterial colonization of the stomach is possible with increasing gastric pH, swallowed bacteria may colonize when local pH rises above 4. An increase in gastric pH is seen with PPI-treatment, which is common in Sweden today, and in atrophic gastritis.

The aim of this study was to characterize and quantify gastric bacteria in individuals with/without continuous PPI-treatment and measure their gastric pH

## Methods

Clinical cross-sectional study of patients referred for routine out-patient gastroscopy.
Exclusion criteria: altered anatomy, on-demand PPI-intake, antibiotics last 3 months, malignancy

Gastric juice was aspirated at start of the examination for pH measurement.



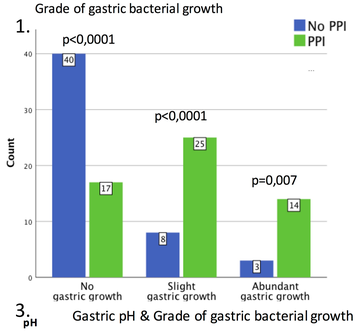
Samples for bacterial culturing were obtained by brushing the mucosa with a sterile ERCP-cytology-brush. Culture-based methods were used for identification and quantification of bacteria.
Positive culture was defined as:
slight growth ≥$10^2$ CFU/mL or abundant growth ≥$10^4$ CFU/mL

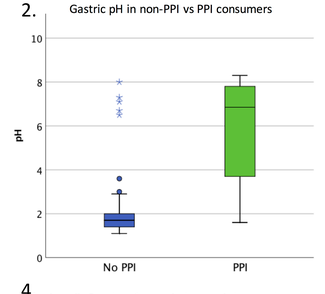
SAGES 2022
DENVER, CO

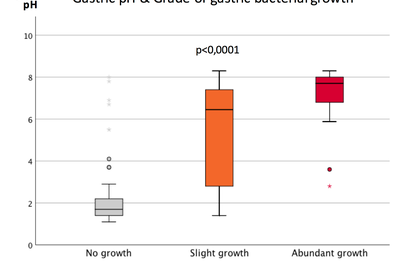
*Contact: emc.bergstrom@telia.com*

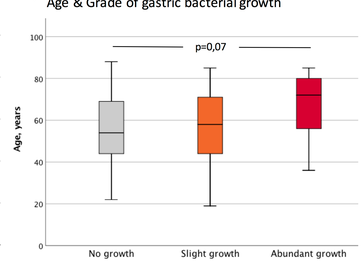
## Results

A total of 107 patients were evaluated, 55 with and 52 without PPI-treatment.
Overall median age was 57 y (19-88), n.s. between groups. Age did not correlate w pH
54% were male

1.



2.



3.



4.



1. Gastric bacterial growth was significantly more frequent among PPI-users
2. PPI-users showed higher gastric pH
3. Gastric pH differed between individuals with no, slight or abundant growth
4. There was a tendency towards higher age among individuals w. abundant bacterial growth

| Species | n |
|---|---|
| *Streptococcus mitis group* | 15 |
| *Streptococcus salivarius group* | 12 |
| *Prevotella spp.* | 9 |
| *Streptococcus sanguinis group* | 6 |
| *Actinomyces spp.* | 5 |
| *Veillonella spp.* | 4 |
| *Neisseria spp. (mucosa/subflava)* | 4 |
| *Lactobacillus spp.* | 2 |
| *Gemella haemolysans* | 2 |
| *Streptococcus anginosus group* | 1 |
| *Raoultella ornithinolytica* | 1 |
| *Haemophilus parainflueanzae* | 1 |
| *Bifidobacterium spp* | 1 |