

Faecal Indicators and Zoonotic Pathogens in Household Drinking Water Taps Fed from Rainwater Tanks

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Introduction

□ Around 15% of Australian people use rainwater for potable and non-potable uses.

□ Studies have reported the presence of pathogens in rainwater tanks.

Possums and birds have been suspected as possible sources of contamination.

Aims

□ Investigate the numbers of *Escherichia coli*, enterococci, *Campylobacter* spp. *Salmonella* spp. *G. lamblia* and *C. parvum* in rainwater tanks and connected household taps

□ Investigate the prevalence of above pathogens in faecal samples from possums and various species of birds.

Materials and Methods

□ 24 households were surveyed in this study.

□ Two water samples (one from tank and one from household tap) were collected from each household.

□ Each sample was tested for the numbers of faecal indicators and pathogens.

□ Possums ($n=40$) and birds ($n=38$) faecal DNA samples were also screened for the above pathogens.



Figure 1: Rainwater tanks and household taps sampling



Figure 2: Peter the Possum Man collecting possum faecal samples

Results

□ *E. coli* numbers in rainwater tanks and tap water samples ranged from 1 to 230 and 1 to 300 CFU per 100 mL, respectively.

□ Enterococci numbers in rainwater tanks and tap water ranged from 2 to 110 and 1 to 110 CFU per 100 mL, respectively.

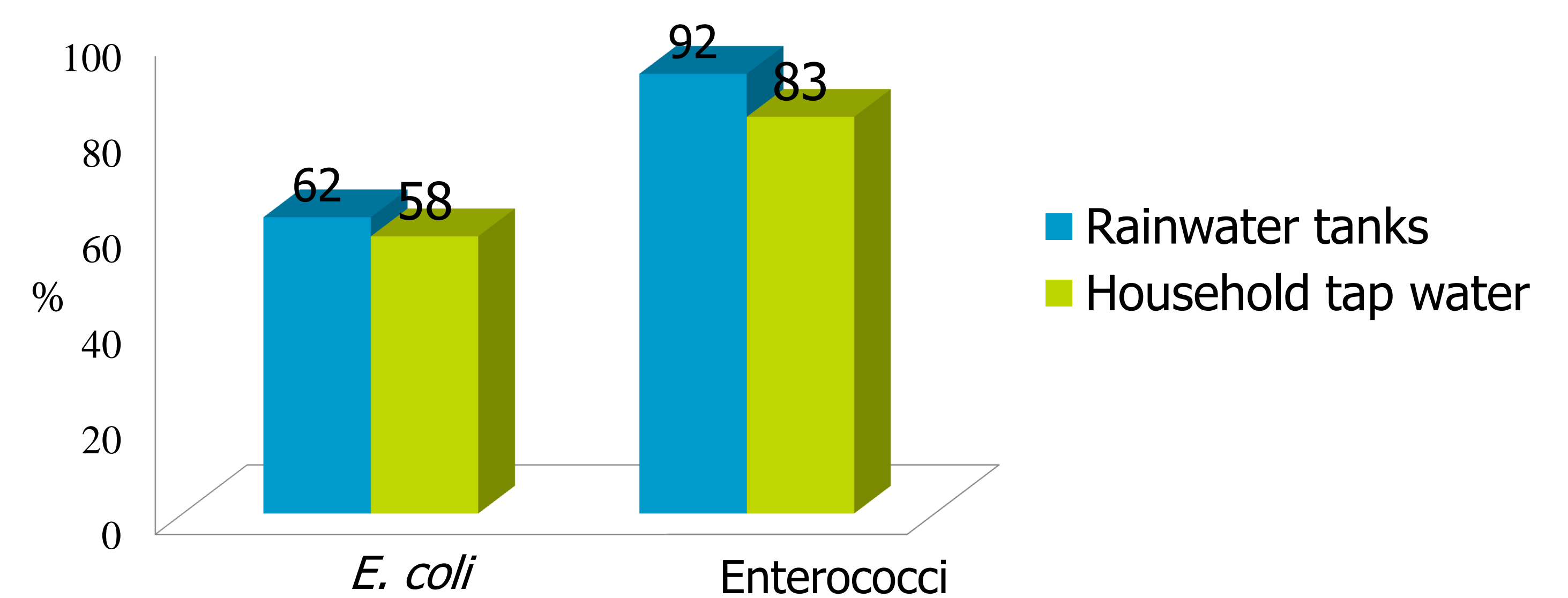


Figure 3: Percentage of rainwater tanks and household tap water samples positive for faecal indicators

□ *Campylobacter* spp. in rainwater tanks and household tap water samples ranged from 5 to 100 and 10 to 19 cells per L of water, respectively.

□ *Salmonella* spp. in rainwater tanks was 7,300 cells per L of water.

□ *G. lamblia* in rainwater tanks and household taps ranged from 120 to 580 and 110 to 140 cysts per L of water.

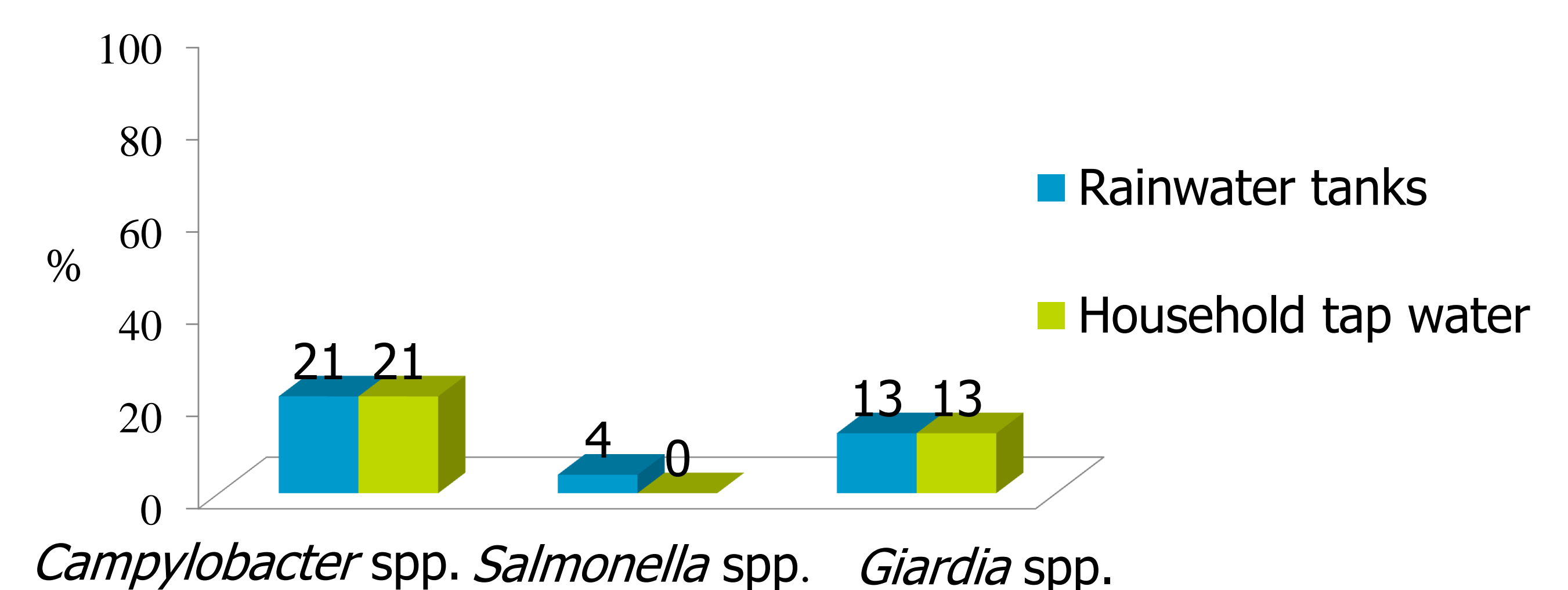


Figure 4: Percentage of rainwater tanks and household tap water samples positive for pathogens

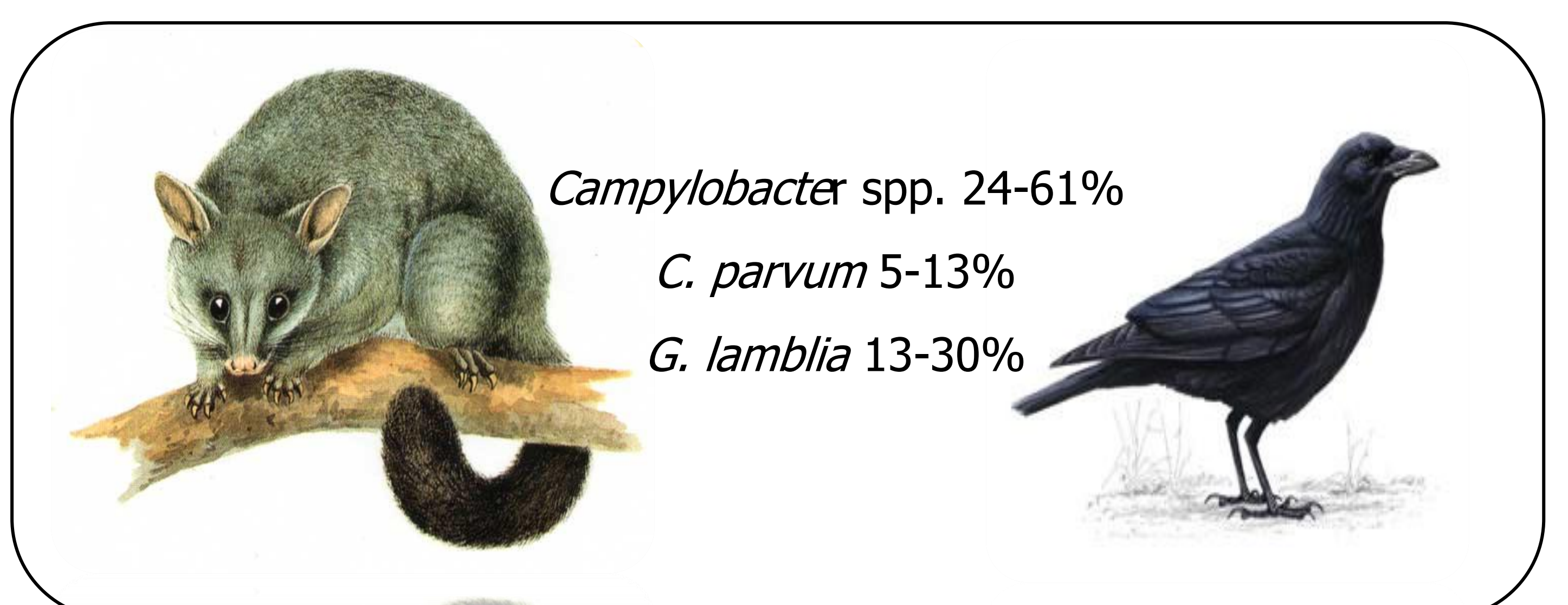


Figure 5: Prevalence of pathogens in possums and birds

Conclusions

□ Household tap waters fed from rainwater tanks appear to be highly variable

□ Rainwater should be disinfected prior to drinking.