Introduction:
The impact of sex on sepsis incidence and mortality have been elucidated in previous studies, and sex is increasingly recognized as one key factor in sepsis [1]. Some studies indicate that women have better immunologic responses to infections [2]. Later investigations assume this advantage is linked to immune modulating genes located on the X-chromosome [3]. The purpose of this study is to reveal sex differences in incidence of and mortality of sepsis in a large population-based cohort.

Methods:
64049 adult participants in the HUNT2 study (1995-97) were followed from inclusion through end of 2011. Incident bloodstream infections (BSI) from all local and regional hospitals in Nord-Trøndelag county were identified through linkage with the Mid-Norway Sepsis Register, which includes prospectively registered information on BSI used as a specific indicator of sepsis. We estimated age-adjusted cumulative incidence of first-time BSI and compared the risk of a first-time BSI and BSI mortality in men and women using age-adjusted Cox proportional hazard regression.

Results:
During a median follow-up of 14.8 years 1840 individuals experienced at least one episode of BSI, and 396 died within 30 days after a BSI. Cumulative incidence and cumulative mortality curves are shown in figure 1a and 1b. BSI risk was higher among men (HR 1.39 95%CI 1.26-1.52), also BSI mortality was higher among men (HR 1.79 95%CI 1.46-2.19). In analyses of the most common bacteria, men showed higher risk of BSI caused by *S. aureus* (HR 2.09 95%CI 1.58-2.75) and *S. pneumoniae* (HR 1.36 95%CI 1.05-1.76), while *E. coli* did not show sex differences (HR 0.97 95%CI 0.83-1.13).

Conclusion:
Male sex is associated with increased risk of BSI and BSI mortality caused by gram-positive bacteria. Sepsis is a global burden, and it us of urgent importance to reveal the aetiology of this sex disparity in sepsis.

References:

Image:
Fig 1a Age-adjusted cumulative incidence of BSI among men and women. Fig 1b Age-adjusted cumulative mortality in BSI patients, among men and women.