Objective
Case-mix factors are patient and tumor characteristics that can influence hospital outcomes. An important gynecological-oncology hospital outcome is the complication rate after cytoreductive surgery (CRS) for patients with advanced-stage ovarian cancer (OC). No case-mix adjustment model currently exists. Therefore, this study aims to develop the first case-mix model to accurately compare hospital outcomes regarding complications after CRS for advanced-stage OC.

Methods
This retrospective, population-based study included all patients undergoing curative CRS for advanced-stage OC, registered in the Dutch Gynecological Oncology Audit, between 2017–2019. Case-mix variables were identified and assessed using logistic regression analyses. Primary outcome was the composite outcome measure ‘complicated course’. Inter-hospital variation was analyzed using logistic regressions and visualized using funnel plots.

Results
In total, 1822 patients were included from twenty-one hospitals, of which 10.7% (n=195) had a complicated course after CRS (table 1). Comorbidity and FIGO-stage significantly impacted complicated course rates in multivariable logistic regression (table 1). Inter-hospital variation was not significant for case-mix factors. Unadjusted complicated course rates ranged from 2.2% to 29.1%, case-mix adjusted observed/expected ratios ranged from 0.20 to 2.67 between hospitals (figure 1). One hospital had significantly higher complicated course rates and remained an outlier after case-mix adjustment. This hospital had the highest proportion of complete CRS and performed inside confidence intervals regarding 30-day-mortality.

Conclusions
Comorbidity and FIGO-stage were case-mix factors that significantly affected complicated course rates after CRS for patients with advanced-stage OC. However, the effect of case-mix adjustment on hospital outcomes was less than expected. Other quality indicators should be considered while comparing hospital outcomes.