Continuous infusion of vancomycin in patients with a calculated creatinine clearance ranging from 25 to 125 mL/min was simulated in MW/Pharm (version 3.60, MediWare). A local pharmacokinetic population model for the continuous infusion of vancomycin was used to calculate loading and maintenance dosages within a range of estimated glomerular filtration rates. The target range for steady state concentrations (Css) at 24-48 h was set at 16 - 19 mg/L corresponding with an AUC24/MIC ratio of at least 400. Patients at the Groene Hart Hospital (Gouda, The Netherlands) were treated with CIV according to the established dosing schedule. Steady state concentrations (Css's) at 24-48h after start were used to retrospectively validate the proposed infusion schedule for both populations. Vancomycin serum concentration drawn 24-48 h after start of infusion were eligible for inclusion. Samples were analyzed by immunoassay (TDx, Abbott).

Results
An infusion schedule for CIV was established (Table 1). Forty patients were included. The medians of the vancomycin serum concentrations were 16.6 and 17.3 mg/L for the ICU and general ward population respectively (Figure 1). Retrospective validation showed that the percentages of Css's within the predefined range were 55 and 50% for the ICU and general ward population, respectively. After dosage correction based on linear pharmacokinetics in patients who had too high or too low levels, Css's at 72 h in all patients fell within the target range.

Conclusions
A simple and validated dosing schedule based on eGFR for continuous infusion in a general hospital population with a good predictive value is available.

Recommendations
Continuous infusion of vancomycin might be preferred since it is less expensive, simplifies TDM and may shorten hospital length of stay in selected patient populations.

References
1. Van Maarseveen EM, Touw DJ, Bouma AN, Zanten AV. Continuous vs. intermittent infusion: a comparison in clinical endpoints; accepted by the Netherlands Journal of Medicine.

Figure 1: The figure is a box-and-whisker plot of the serum concentration of vancomycin drawn 24-48 hours after start of infusion. The line in the middle of each box represents the median; the box extends from the 25th to 75th percentile (interquartile range); and the lines emerging from the box extend to three quarters of the interquartile range, rolled back to where data are present. The yellow shaded area indicates the therapeutic target concentration range (16-19 mg/L).

Table 1: Validated dosing schedule of vancomycin. After a standard loading dose of 1000 mg a maintenance dose based upon eGFR is administered. Vancomycin serum concentration were drawn 24-48 after start of infusion.