

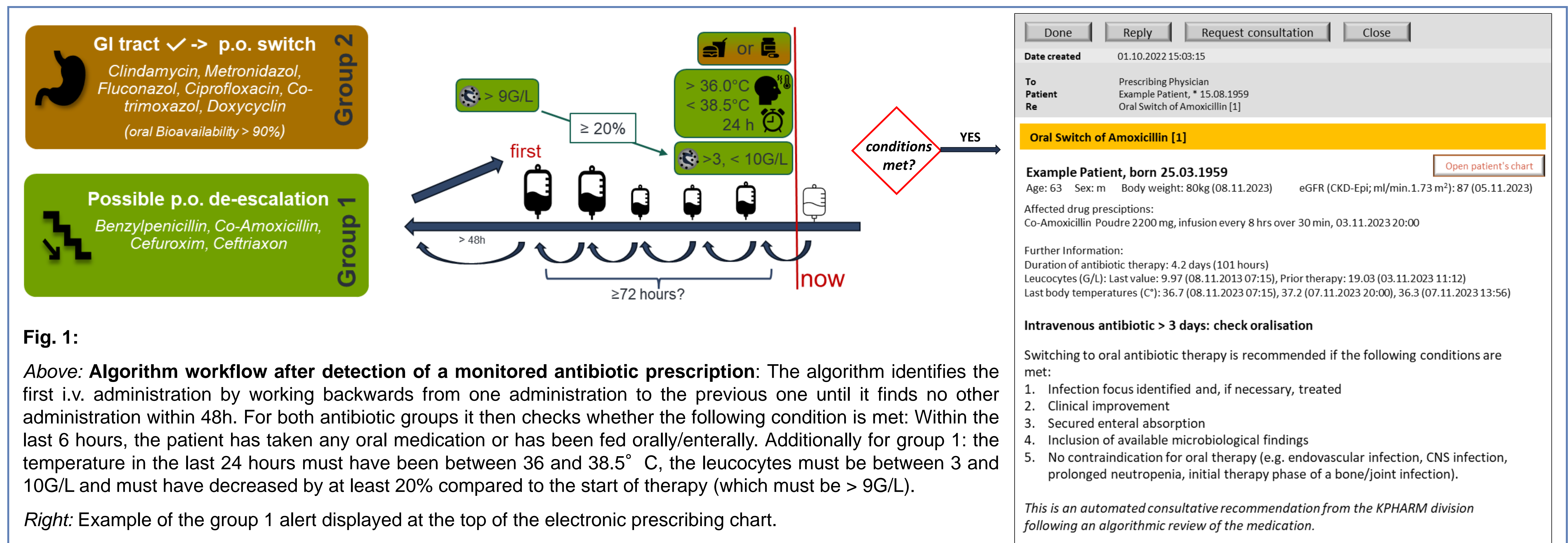
from intravenous to oral antibiotics

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Introduction & Objectives

The Kantonsspital Aarau, a tertiary care hospital, implemented an algorithm-based clinical decision support (MAS) to detect medication errors and risk situations for adverse drug events¹. One of the algorithms promotes the switch from intravenous to oral antibiotics, currently monitoring 10 antibiotics. The algorithm automatically generates an alert when certain conditions are met (fig. 1), but soonest 72 hours after the first administration. The effect of this algorithm on the duration of i.v. therapy and its performance (sensitivity, specificity, uptake rate) was evaluated.

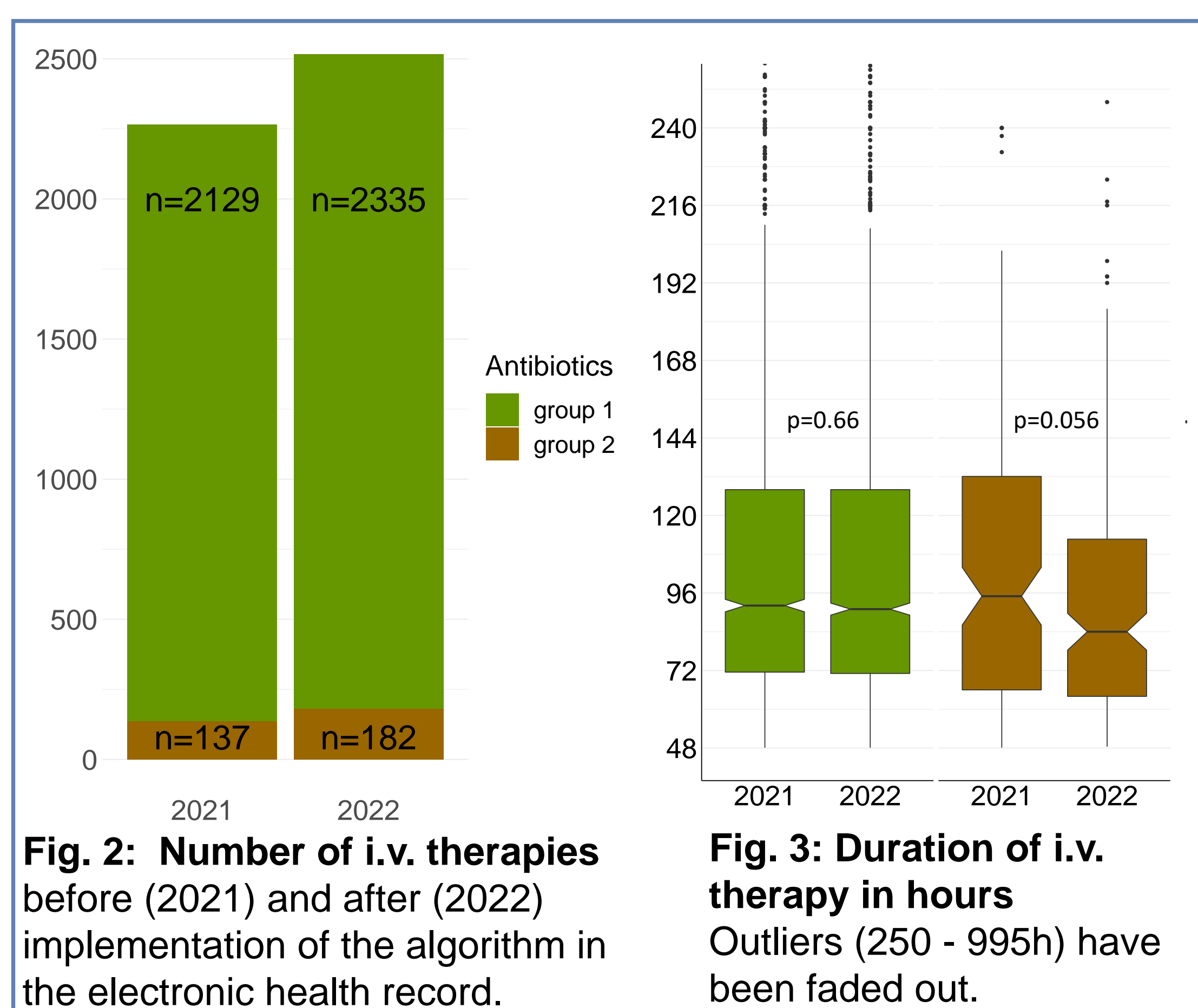


Methods

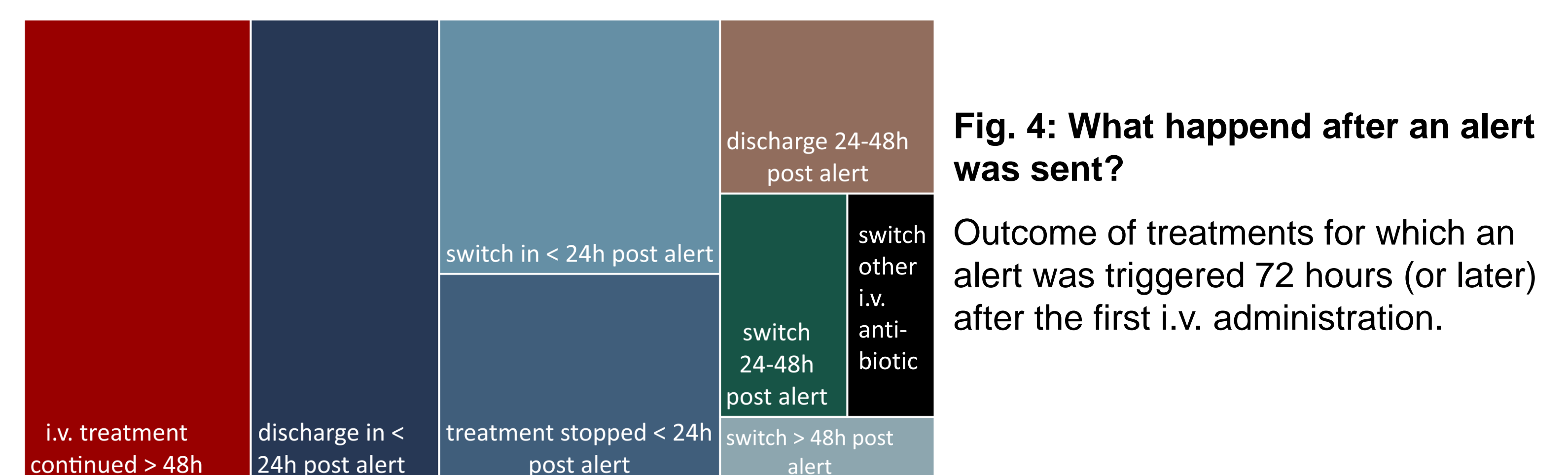
Retrospective comparison of the duration of i.v. treatment lasting for > 48h in adults during 12 months before (2021) and after (2022) introduction of the algorithm. Duration is defined as time between first and last i.v. administration, if interrupted for over 48h, count restarts according to the algorithm behaviour. ICU is excluded (different electronic health record). The technical sensitivity and specificity of automated alert was calculated and anti-infective therapy outcome post-alert was analysed.

Results

In 2021 and 2022, there were 2266 and 2517 i.v. therapies, respectively (fig 2). No significant difference was found in the duration of i.v. therapies, but there was a trend towards shorter duration of i.v. therapies of group 2 antibiotics in 2022 (fig. 3).



In 2022, an alert was generated for 559 treatments (22.2%). In 21% of the alerts, the patient was discharged within 24h after the alert and in another 14% the antibiotic treatment was stopped. Of the remaining patients with an alert, 29% were switched to oral therapy within 24h post-alert (fig. 4).



The calculated specificity of the automated alert is 99%, sensitivity 89%.

Discussion

The algorithm did not reduce the duration of i.v. therapy so far. This may be explained by the relatively low alert rate and short duration of treatment. In addition, 35% of all patients with an alert were discharged within 24h or the antibiotic was stopped. Only 29% of patients for which an alert was triggered were switched to oral treatment within 24 hours. This can be considered as the take-up rate of the alert. Perhaps fear of adverse outcomes prevents physicians from oral switch guided only by an automated standard alert. Prior individualising of the recommendation in the alert text by pharmacists or infectiologists may improve the future outcome.