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What do we need to reduce CDAD incidences?

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Background: Reducing the incidence of *Clostridium difficile*-associated diarrhoea (CDAD) is a major topic in the prevention of nosocomial infections. Inadequate antiinfective therapy is one of the most important causes for the development of CDAD. Antibiotic stewardship (ABS) interventions help to optimise antiinfective treatment strategies.

Material/methods: An interdisciplinary ABS team, composed of infectious diseases specialists and clinical pharmacists, was implemented at the University Hospital Schleswig-Holstein, Campus Kiel and Campus Luebeck. The ABS team initiated a prospective two-center study for a period of two years (2013/2014) to optimize the quality of antiinfective treatment and to reduce the incidence of CDAD. Department-specific antibiotic treatment guidelines based on resistance data were developed by the ABS team in cooperation with clinic representatives. Adherence to the guidelines was evaluated on regular ABS ward rounds in a review and feedback process, aiming to optimize antiinfective therapy for the individual patient. At the beginning and the end of the intervention period, a point prevalence study (PPS) was performed to measure adherence to antibiotic prescribing guidelines, documentation of both the indication and the duration of antiinfective treatment. The incidence of CDAD was continuously documented by the infection control department as well as the isolation days. Antibiotic consumption for both centres was calculated by the pharmacy department according to the requirements of the Robert Koch-Institute, Berlin, Germany.

Results: Adherence to antiinfective treatment guidelines increased by 22% (PPS1 44%, PPS2 66%) in Kiel. In Luebeck, pre-existing treatment guidelines had allowed a greater variety of antiinfectives, nevertheless adherence remained on a high level (75-78%), no impairment from fewer alternatives was observed.. Documentation of indication and duration of antibiotic treatment improved by 25% (PPS1 49%, PPS2 74%) and 17% (PPS1 12%, PPS2 29%) for both centres aggregated. The quality of antiinfective prescribing improved in PPS2 compared to PPS1. Incidence density of CDAD decreased at both sites (13%-16.8%). The median duration of CDAD associated isolation days for patients was 8 days per CDAD case. A reduction of 49 monthly isolation days per year (95% confidence interval -100; +2) was achieved. At both campi, consumption density of broad spectrum antibiotics decreased, at Campus Luebeck a reduction of the antiinfective consumption density was documented. At Campus Kiel, consumption density was stable over the whole study period. The ward rounds of the ABS team in Kiel were performed in a lower frequency over the study period than in Luebeck due to change of staff.

Conclusions: The implementation of an interdisciplinary ABS team is an effective measure to improve the quality of antiinfective prescribing, to reduce incidence of CDAD, total number of isolation days and antibiotic consumption density. We showed that regular interventions of an interdisciplinary ABS team with mandate and deputate are needed to achieve sustainable effects.