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Implementation of a Critical Care Pharmacy Service in a Swiss PICU - First Steps

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Background & Aim

While dedicated critical care pharmacists (CCP) have been considered key personnel of the multidisciplinary intensive care team in the Commonwealth and the US[1-3], in Switzerland, specialized CCP services have not been established until recently. We here report on the setup of a CCP service in a large Swiss pediatric and neonatal intensive care unit.

Conclusion

- The implementation of a CCP service into daily patient care of critically ill children revealed already in the early phase a high number of optimizations on pharmacotherapy. This highlights the benefit of integrating specialized CCP in PICU services in Switzerland.
- Findings of most frequent reasons for a pharmaceutical intervention, consequences and acceptance rate correspond to previously reported analyses.[4,5]
- Next steps will focus on an expansion of the CCP service and methods to reduce medication prescribing errors sustainably. It will include the management of the PICU drug master data, to decrease errors in the electronic prescribing system.

Methods

Since October 2021, the Pediatric and Neonatal Intensive Care Unit (PICU) has been supported by a CCP service on 5 days per week during working hours from 8 am to 5 pm. Within this pharmaceutical activity the CCP is integrated in the critical care setting, attends the daily PICU rounds from 8.30 am until noon and evaluates pharmacotherapy of critically ill children. In a single center observation audit, pharmaceutical interventions from February 2022 to July 2022 were recorded and analyzed according to the GSASA classification system. Additional CCP tasks include education, the setup up of an antimicrobial stewardship program, scholarly activities and updating internal guidelines (e.g. of parenteral nutrition, as well as analgesia, sedation, delir and iatrogenic withdrawal management).

CCP at the Children's Hospital Zurich, Sarah Mächler (l) and Rea Signorell (r).

Results

In the first 6 months, a total of 809 patient days were reviewed by a CCP. 599 interventions to optimize pharmacotherapy were identified and documented. In figure 1 the different types of reasons for a pharmaceutical intervention are displayed. The most frequent reason for a pharmaceutical intervention was a too high dosage (n=67, 11%). Second most frequent reasons were inadequate form of administration (n=51, 9%), followed by inappropriate or missing therapeutic monitoring (n=51, 9%).

Figure 2 represents the consequences of pharmaceutical interventions. Frequently, dosage was adjusted to weight, age and physiology of the critically ill child (n=110, 18%). Administration modalities were optimized in 11% (n=64) and include IV to PO conversions.
92% (n=549) pharmaceutical interventions were accepted by the treating clinical team.

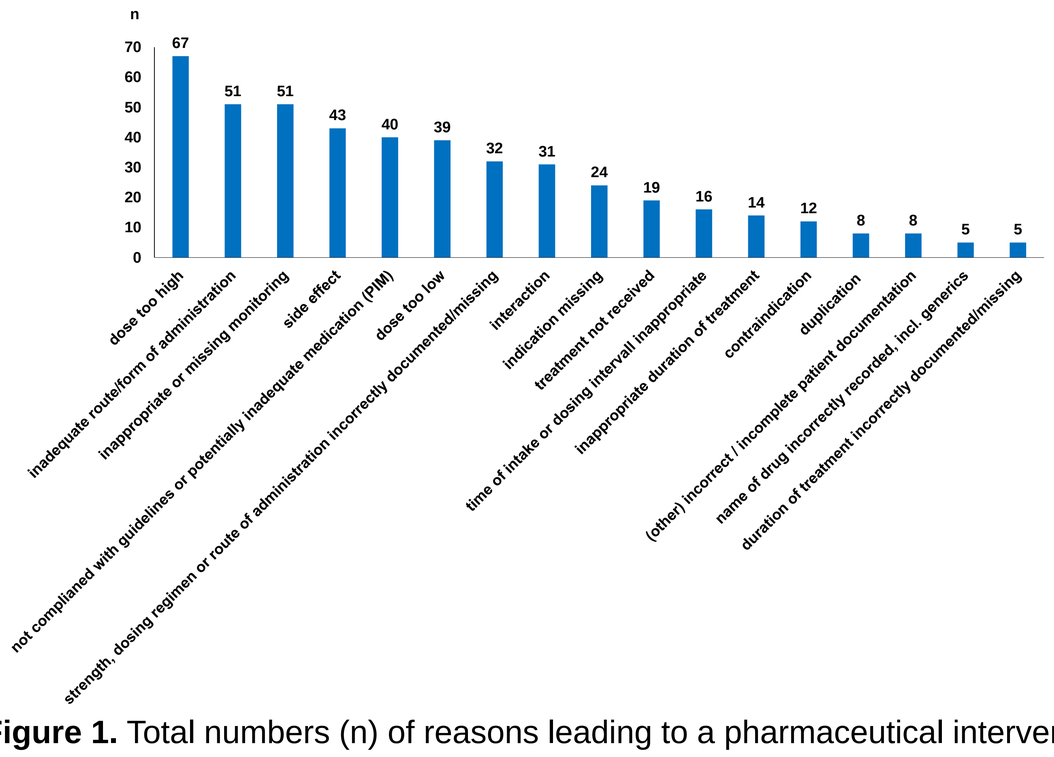

Figure 1. Total numbers (n) of reasons leading to a pharmaceutical intervention

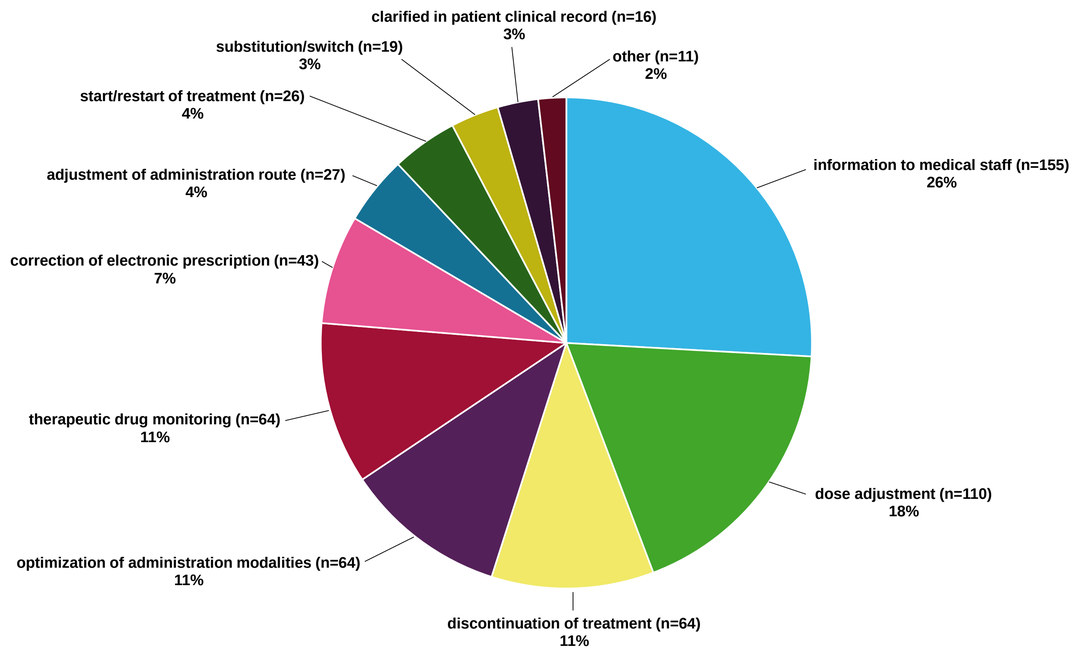

Figure 2. Consequences of pharmaceutical interventions

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