

Interprofessional Care of Bone and Joint Infection Patients with Longtime Antibiotic Treatment

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Introduction

Bone and Joint infection (BJI) patients have a **high rehospitalization rate with up to 35%**. Patients usually receive outpatient treatment with rifampicin and a co-antibiotic for 12 weeks. Literature has shown an improvement of patient care and a decrease in rehospitalizations if pharmacists are involved in the care process.[1,2]

Our study focuses on the analysis of the care process of BJI patients and aims identifying problems and deviations from an optimal process. Results shall help to define measures for improving the care pathway and by this reduce rehospitalisation.

Methods



- Process analysis using retrospective data from electronic patient records (Jan 21 to Dec 23) with focus on
 - rehospitalisation/emergency room visits
 - follow-up (by infectious disease specialist, lab controls)
 - drug-drug interaction management



- Qualitative semistructured interviews with orthopedic residents treating the patients



- Qualitative semistructured telephone interviews with BJI patients

Results



92 patients met the inclusion criteria (prescription for rifampicine, indication BJI, age >18y, discharge to ambulatory care). After discharge 33 patients (35.8%) showed unplanned health care utilisation (rehospitalisation, emergency room visit or both). The rate for unplanned health care utilisation (fig. 1) trends to be lower in patients with a follow-up visit by an infectious disease specialist (IDS) (29.7% vs. 40.0%, p=0.30).

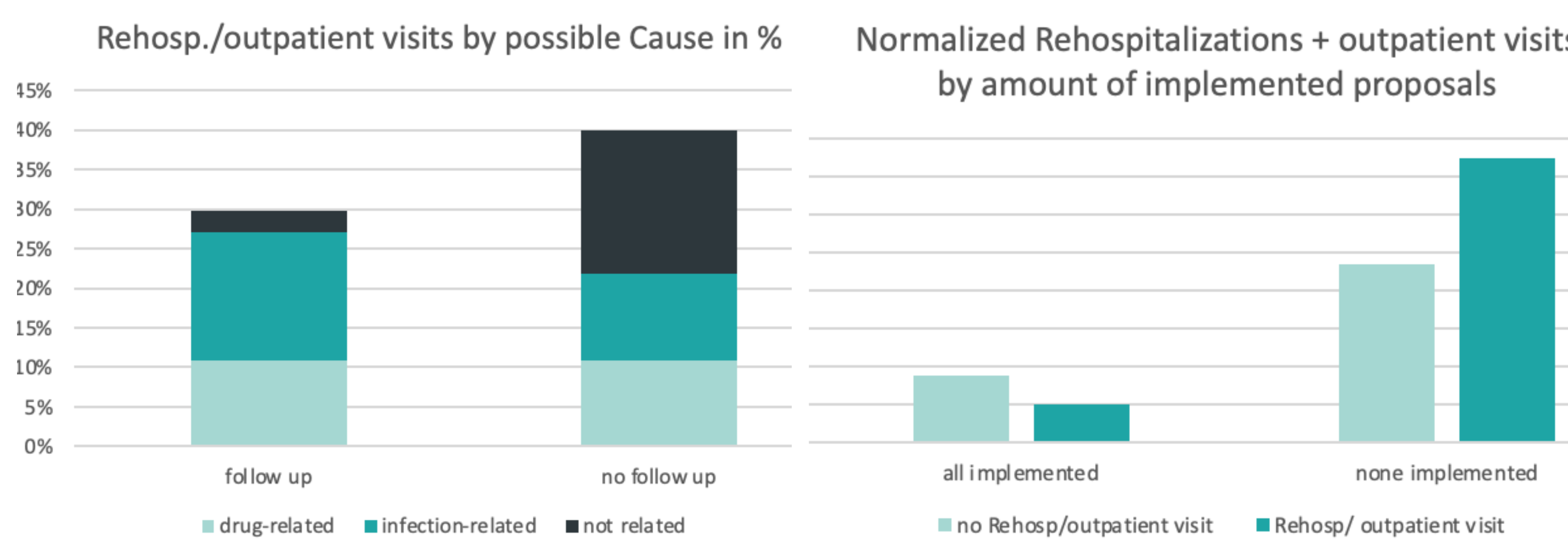


Figure 1: Rehospitalization and outpatient-visits by possible cause of admission in percent

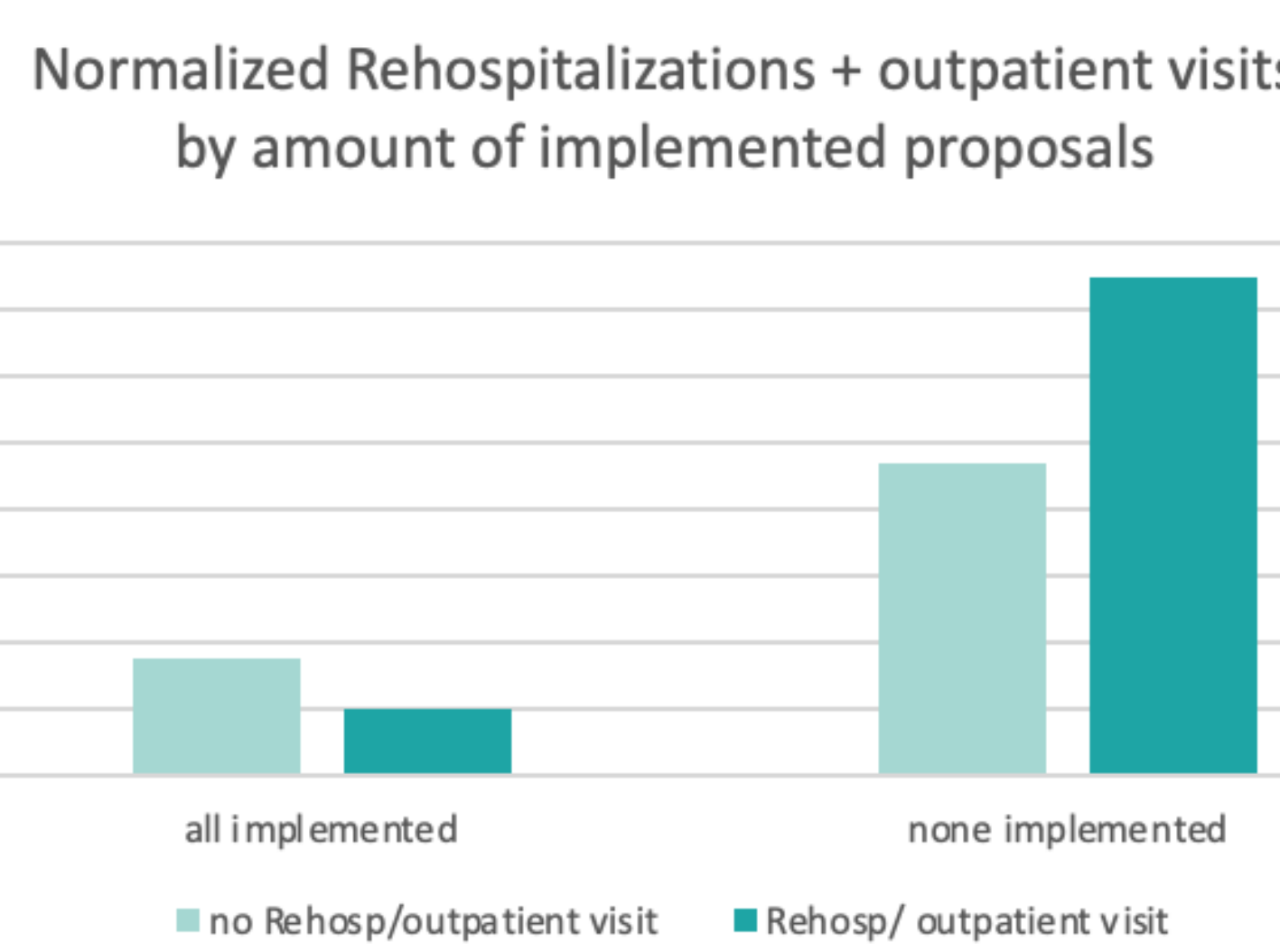
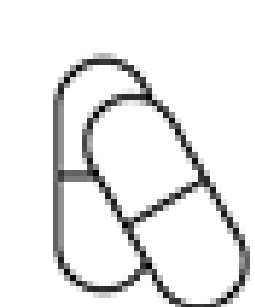


Figure 2: Rehospitalizations and outpatient visits by amount of implemented proposals



If rifampicin is prescribed when the patient is still hospitalized, clinical pharmacists conduct a medication review. If drug-drug interactions (DDI) are found, they send a proposal on how to manage the DDI to the prescribing resident.

A total of 244 drug-drug-interactions (DDI) with rifampicin was found in 77 patients. Most affected drug classes were opioids, ACE-inhibitors, direct anticoagulants, β -blockers, and statins. Clinical pharmacists recommended on average 2.7 pharmaceutical interventions (PI) in these patients.

Residents can implement these interventions by changing the patients medication accordingly, and/or include the proposal in the patient's discharge letter.

Patients for whom all interventions were implemented were less likely to have a rehospitalisation or an emergency visits than patients with no implemented interventions (fig.2).

References

- [1] Marque P, Le Moal G, Labarre C, Delrieu J, Pries P, Dupuis A, u. a. Assessment of the impact of pharmacist-led intervention with antibiotics in patients with bone and joint infection. *Infectious Diseases Now*. 1. September 2023;53(6):104671.
[2] Impact of clinical pharmacist interventions in a bone and joint infection orthoseptic surgery unit - PubMed [Internet]. [zitiert 21. Mai 2024]. Verfügbar unter: <https://pubmed.ncbi.nlm.nih.gov/37075975/>

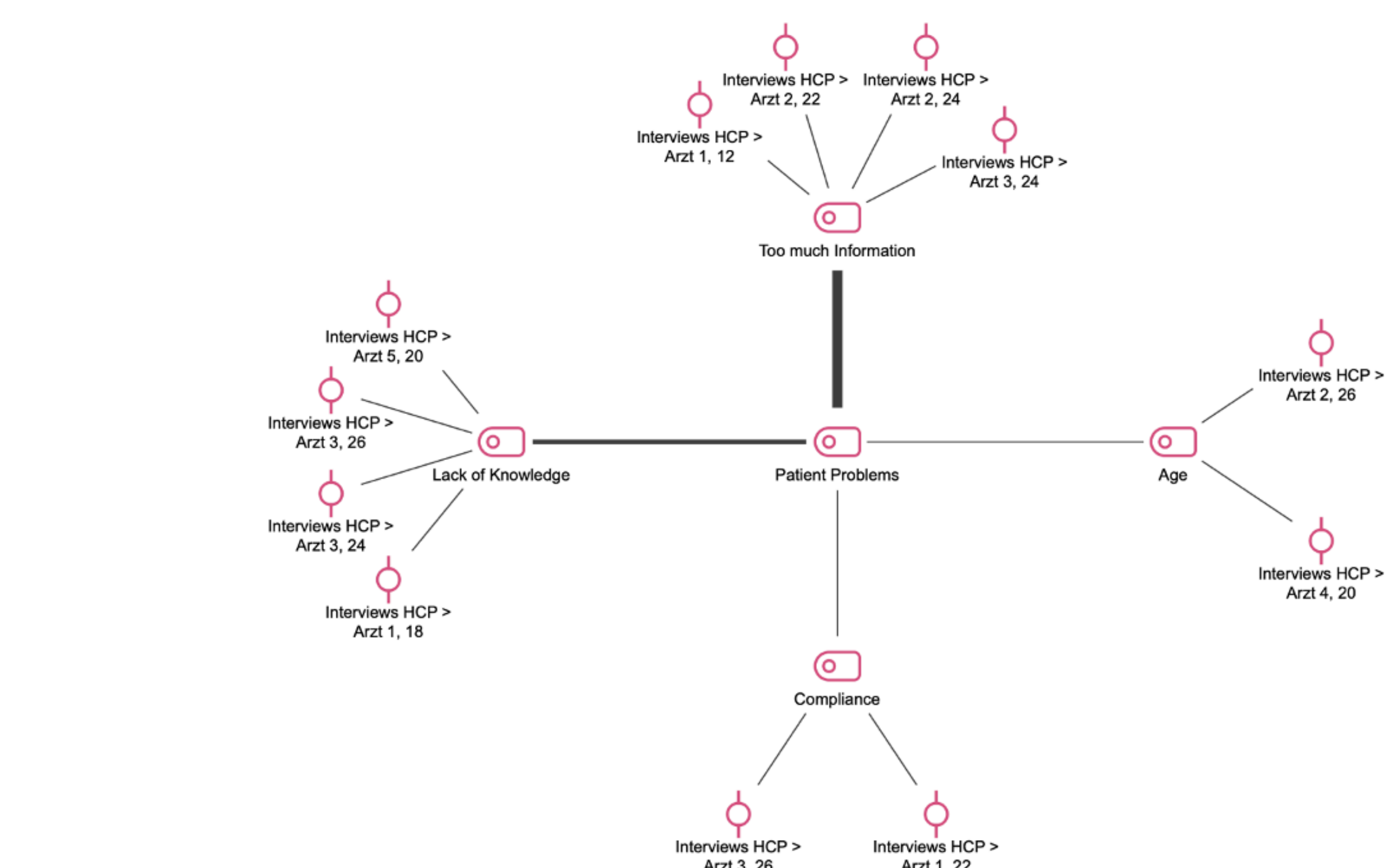


Figure 3: Most mentioned problems concerning the patients as mentioned by orthopedic residents



Interviews with patients (n=3) and residents (n=6) showed that both groups lacked knowledge about the antibiotic therapy when it comes to management of adverse drug events (ADE) and DDI. Figure 3 shows the most prominently mentioned problems by orthopedic residents. Both parties reported to be overwhelmed with the flood of information on discharge. All patients interviewed reported ADE but not having been provided with information on how to manage them.

Discussion & Conclusions

The high rate of unplanned health care utilisation shows the need to improve the process.

Contributing factors to this finding in BJI patients – although without statistical significance – could be identified: no follow-up by IDS, DDIs with rifampicin without adequate DDI management, insufficient knowledge about ADEs and DDIs.

Based on these findings proposals for improvement should include:

- Follow-up by IDS including laboratory controls must be conducted more frequently.
- Residents must be reminded to implement pharmaceutical recommendations about DDI management and/or to forward them in the discharge letter.
- Patients and residents should be educated about DDI and the management of ADE providing written information to patients and academic detailing to residents.
- Additionally, discharge counselling for the patient by a pharmacist may be beneficial to focus more on antibiotic therapy management



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