

ABSTRACTS VZA AWARD

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This publication contains the abstracts of the master's thesis submitted to obtain the degree of master in hospital pharmacy and submitted for the VZA award. The best master's thesis will be awarded the 'VZA award' at the 'Hospital Pharmacists' Day' held by the Flemish Association of Hospital Pharmacists from Dilbeek (Belgium) on February 4, 2025.

This publication contains seven out of 12 abstracts for which the BJHP received approval for publication in the BJHP by the submitting author.

A | 1 ANTIMICROBIAL STEWARDSHIP: EVALUATION AND OPTIMISATION OF ANTIBIOTIC USE AND CONSUMPTION IN AZ ALMA WITH FOCUS ON RESTRICTED ANTIBIOTICS, SPECIFIC MEROPENEM AND VANCOMYCIN

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KEY WORDS

Antimicrobial stewardship (AMS), restricted antibiotics, antibiotic appropriateness, Gyssens algorithm, post-prescription review (PPR), drug related problems (DRPs), pharmaceutical interventions (PIs), CLEO tool, antibiotic consumption

BACKGROUND & AIM

Although antibiotics are very effective agents, overuse and misuse can cause drug-resistant bacteria. Antimicrobial resistance (AMR) is one of the top global public health and development threats. Concomitant with this is the higher need for second-line drugs and an increase in hospital costs. To limit this, every healthcare institution should implement a well-developed antimicrobial stewardship (AMS) policy.

The aim was to check the appropriateness of a current meropenem and vancomycin treatment and to compare antibiotic consumption before and after intervention. In addition, during post-intervention, recommendations given through a post-prescription review with feedback (PPRF) were analysed. Furthermore, the potential clinical, economic and organisational impact and acceptance rate were determined. A second objective was to establish a restrictive list considering antibiotic resistance profile, consumption rates and cost.

METHODS

A prospective cohort study was carried out for 11 months consisting of 3 phases. Observational phase was performed to obtain a baseline of the appropriateness of meropenem and vancomycin prescriptions using a Gyssens et al's algorithm. Educational, restrictive and structural interventions were implemented in phase 2. In post-intervention phase, patient inclusion recommenced to assess antibiotic prescription appropriateness. During a PPRF, drug related problems (DRPs) and pharmaceutical interventions (PIs) were categorised using the Belgian CLInical Pharmacy claSsification System (Be-CLIPSS). Further, the potential clinical, economic and organisational impact of PIs was evaluated using the Clinical Economic Organisational (CLEO) tool. Consumption was expressed as DDD/100 admissions and data analysis was performed using SPSS and Stata.

RESULTS

Overall, 46 meropenem and 49 vancomycin prescriptions were reviewed at baseline and 33 meropenem and 40 vancomycin

prescriptions were reviewed during post-intervention. AMS interventions improved appropriateness of meropenem and vancomycin from 47.8% to 66.7% ($p=0.096$) and from 14.3% to 57.5% ($p<0.001$) respectively. Regarding overall appropriate antimicrobial therapies, interventions represented a 31.1% improvement ($p<0.001$). Furthermore, a statistically significant difference in days of therapy (DOT) for meropenem (7.8 ± 3.1 vs 4.6 ± 1.2 , $p<0.001$) and vancomycin (8 ± 2.8 vs 6 ± 3.3 , $p=0.0037$) existed after intervention. During PPRF, 24 PIs for meropenem and 35 PIs for vancomycin were provided. Recommendations for meropenem and vancomycin were accepted in 62.5% and 74.3% of the cases respectively. Total acceptance rate was 69.5%. Overall, 23 (56.1%) PIs had a potential clinical impact with grade 2C or higher. PIs related to vancomycin therapy had potentially the most favourable clinical and economic impact. Potential organisational impact of PIs was notably higher in the case of meropenem. Antibiotic consumption of meropenem as well as vancomycin decreased from 9.1 DDD/100 admissions to 6.4 and from 9.8 DDD/100 admissions to 7 respectively. In total, this is almost a 30% decrease ($p=0.045$) after the intervention.

DISCUSSION & CONCLUSION

Despite its limitations and the lack of an infectious disease specialist, the implemented AMS interventions were successful to obtain more appropriate meropenem and vancomycin treatments. PIs provided through a PPRF had a positive clinical, economic and organisational impact, showing the added value of a clinical pharmacist. Further, the study showed a significant decrease in DOT as well as in antibiotic consumption. Further research is needed to evaluate the long-term sustainability of the educational, restrictive and structural interventions.

The BJHP is not responsible for the scientific content/contribution. Authors have full responsibility.

A | 2 IMPLEMENTING PHARMACOGENETICS IN CLINICAL CARE IN BELGIUM: A LANDSCAPE STUDY AND ROADMAP TO LOCAL GUIDELINES

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BACKGROUND & AIM

Although pharmacogenetics (PGx) has been around for decades, it is still poorly accepted and integrated in routine care in Belgium due to a lack of local recommendations and unclear ownership.

This study aims to contribute to the implementation of PGx in clinical practice in Belgium.

METHODS

First, existing PGx guidelines were compared and evaluated via a multidisciplinary approach within a national PGx working group to propose a list of guidelines that could fit to the Belgian setting. The PharmGKB database was used as the primary resource. Decisions within the PGx working group were based on the level of evidence, clinical relevance, publication date and practical feasibility. In parallel, we explored possible implementation strategies through semi-structured interviews with experts from five hospitals across the United States (U.S.), the Netherlands and Belgium. A qualitative framework analysis was conducted using Nvivo®20.

RESULTS

For 83 actionable gene-drug pairs included in the comparative study, discrepancies between guidelines were found in 75.9% of cases, mostly within the psychotropic drug class. After deliberation within the PGx working group, guidelines for 73 gene-drug pairs were adopted as such or adapted to practical constraints and possibilities within Belgium, and 10 gene-drug pairs were excluded. Interviews revealed that the incorporation of PGx clinical decision support (CDS) issuing alerts for high-risk phenotypes in the patient's electronic health record (EHR), is a valuable tool for the implementation of PGx in clinical practice and should be considered. Additionally, involving hospital pharmacists ensured consistency and continuity in the PGx reporting and routine. However, important barriers were identified, including the absence of a national EHR, a lack of education in PGx in pharmacy and medicine curricula, next to insufficient reimbursement for PGx testing in the Belgian healthcare system in comparison with the Dutch and U.S. system.

DISCUSSION & CONCLUSION

Despite current PGx guidelines often display mutual discrepancies, we compiled a list of consensus recommendations. The next step will be validation and endorsement from national professional organizations to support their integration into Belgian clinical practice. The integration of active CDS tools, a national EHR, better testing reimbursement and continuing PGx education courses could enhance personalized treatment and avoid suboptimal therapy. Hospital pharmacists should serve as advocates to ensure quality and continuity of the PGx implementation process.

DISCLOSURE OF INTEREST

None Declared

A | 3 IMPROVING TRANSMURAL CARE FOR PATIENTS DISCHARGED ON ORAL ANTIMICROBIALS: A PHARMACIST-LED BEFORE-AND-AFTER STUDY

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KEY WORDS

Antimicrobial stewardship, Hospital discharge, Hospital pharmacist, Information transfer, Oral antimicrobials, Transmural care

BACKGROUND & AIM

Many hospital-initiated antibiotic courses are completed after hospital discharge. Documentation and communication errors at discharge negatively impact antimicrobial effectiveness and safety. Furthermore, an estimated 30% of discharge antimicrobial therapies are unnecessary and up to 50% are inappropriate. This study aimed to evaluate and optimise transmural care of patients discharged on oral antimicrobials through a pharmacist-led multifaceted approach involving healthcare professionals and patients.

METHODS

This quality improvement before-and-after study was conducted at the Imelda Hospital, a regional hospital in Belgium. Clinical and antibiotic therapy data were retrospectively collected for adult patients discharged on selected oral antimicrobials during two inclusion periods between 2021 and 2023, before and after the implementation of interventions. During the intervention phase, hospital-wide education was provided and supportive tools and procedures were implemented. Primary outcomes were the fractions of complete and correct discharge letters, medication schedules, outpatient prescriptions and reimbursed therapies. Secondary outcomes included antimicrobial-interaction identification, QTc-related monitoring, compliance with local antibiotic guidelines, infection-related readmissions, antimicrobial-related adverse drug events and antimicrobial therapy restarts. Comparison between the pre- and post-intervention group, using χ^2 or Fisher's Exact tests, evaluated the impact of the pharmacist-led service on oral antimicrobial transmural care.

RESULTS

172 and 174 patients were included in the pre- and post-intervention phase. After the implementation of interventions, there was no significant increase in the fraction of complete and correct discharge letters and schedules (62.8%, 108/172 vs. 70.7%, 123/174). In contrast, the fraction of complete and correct outpatient prescriptions was significantly higher (30.9%, 46/149 vs. 42.8%, 68/159; $p=0.031$) in the post-intervention phase, attributed to improvements in documentation of therapy durations and correctness of package sizes. Correctness of reimbursement was similar (85.6%, 131/153 vs. 86.5%, 128/148) in both periods. There were no significant differences in overall guideline compliance, interactions and clinical outcomes.

DISCUSSION & CONCLUSION

This study highlights the importance of antimicrobial stewardship efforts at hospital discharge to improve oral antimicrobial transmural care and discharge prescribing. Questions remain about which types of interventions are most effective and sustainable. Pharmacists should be involved in stewardship initiatives at transitions of care.

A | 4 OPTIMISATION OF THE TRANSMURAL CARE FOR ONCOLOGICAL PATIENTS ON ORAL CHEMOTHERAPY IN AZ TURNHOUT

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BACKGROUND & AIM

In medical oncology, oral chemotherapy is increasingly preferred over traditional intravenous treatment for its patient autonomy and reduced invasiveness. However, self-management responsibilities pose challenges such as adherence and understanding adverse effects. Patient education is crucial for addressing these challenges. This study evaluates a multidisciplinary initiative at AZ Turnhout (AZT) for patients undergoing oral cancer treatment. The objective of this study is to improve the understanding of primary care providers concerning oral chemotherapy and enhance the transfer of information from hospital to primary care settings.

METHODS

This quantitative before-after study was conducted at the oncology polyclinic of AZT hospital in Turnhout, Belgium. The study compared outcomes before and after pharmacist-led interventions aimed at improving transmural care. Patients aged 18 or older, receiving oral chemotherapy and with a permanent general practitioner (GP) and/or community pharmacist were included. Multifaceted interventions were initiated.

RESULTS

Considering the dropout post-inclusion resulting from mortality, therapy discontinuation and the absence of a primary care provider, the study included 28 patients. A total of six GPs and 18 pharmacists participated. GPs initially demonstrated insufficient knowledge regarding oral chemotherapy but possessed adequate patient information. Similarly, pharmacists exhibited an initial lack of knowledge, which showed an inclining trend following the interventions. Contributing factors to the knowledge deficiency encompassed training, practical experience and communication deficits.

DISCUSSION & CONCLUSION

The study found limited participation from GPs and pharmacists. Before the implementation of the interventions, deficiencies in oral chemotherapy knowledge were noted, with an improving trend post-intervention for the pharmacists. This highlights the efficacy of the interventions. Future research should enhance training, communication and promote a hospital-based point of contact to optimize oral chemotherapy management across primary care settings.

A | 5 PENICILLIN ALLERGY LABELS: PREVALENCE AND DELABELING PROGRAM IN A BELGIAN ACADEMIC MEDICAL CENTER

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BACKGROUND & AIM

Numerous patients are identified with a penicillin allergy label within their medical record. The high number of inaccurate penicillin allergy labels leads to several negative outcomes, including more use of broader spectrum antibiotics, resulting in increasing antibiotic resistance, prolonged duration of hospital stay and higher costs. Considering the implications on the healthcare system, penicillin allergy delabeling is becoming an important part of antimicrobial stewardship programs.

The primary objective of this study at the Ghent University Hospital is dual. Firstly, to describe the prevalence of penicillin allergy labels and verifying the consistence of antibiotic use with the reported label. Secondly, to evaluate a standardized procedure of penicillin allergy delabeling by creating and evaluating a questionnaire and a flow chart. The secondary objective of this study is to compare the difference of penicillin allergy delabeling between the answers obtained from the self-made questionnaire and those derived from the PEN-FAST questionnaire.

METHODS

A two-part study was conducted. The first part was a retrospective study using a query of all patients, where patients with a penicillin allergy label were identified and their type of allergic reaction and antibiotic use during hospitalization was collected. Second, a prospective study was performed including patients with a penicillin allergy label who were visited by a clinical pharmacist. By means of the self-made questionnaire, an initial assessment of the allergy label was executed by the pharmacist, followed by discussion of the patients with an infectiologist or allergist. By using a flow chart, the patients were classified into risk categories with appropriate according actions.

RESULTS

For 7809 patients analyzed in the retrospective study, the prevalence of penicillin allergy was 5.7%. More than one-fifth (21.8%, n=47) of allergic patients with antibiotic therapy had a discrepancy with the registered penicillin allergy label. In the prospective study, involving 61 patients, 33 patients (54.1%) were categorized as low-risk based on the self-made questionnaire and the flow chart, of which 21 (34.4%) were suspected intolerant and could be directly delabeled. In 12 patients (19.7%), an oral challenge would be necessary prior to delabeling. Similarly, according to the PEN-FAST tool, 46 patients (75.4%) were eligible for delabeling, with 21 patients (34.4%) classified as very low risk and 25 patients (41.0%) as low risk. A consistent result between the self-made questionnaire and PEN-FAST questionnaire was observed in 55.7% of the patients.

DISCUSSION & CONCLUSION

A similar prevalence of penicillin allergy labels at Ghent University Hospital is found in comparison with other European studies. In total, 21.8% penicillin allergic patients were administered at least one penicillin antibiotic, suggesting that the documented allergy label is not always followed. Our study showed that the self-made questionnaire and flow chart is a feasible method to assess and delabel penicillin allergy. Compared with the PEN-FAST, based on the self-made questionnaire and flow chart fewer patients were delabeled. After validation, an updated questionnaire and flow chart can be applied in the future by a dedicated team in order to achieve more accurately documented penicillin allergy labels.

A | 6 IMPLEMENTATION OF A PAIN MANAGEMENT STEWARDSHIP AFTER ORTHOPEDIC SURGERY: APPROPRIATE USE OF ANALGESIC THERAPY

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BACKGROUND & AIM

More than 80% of patients experience acute postoperative pain after surgery^{1, 2}. It is assumed that half of the patients report inadequate pain control after surgery^{3, 4}. It is important to treat acute postoperative pain adequately and to reduce the risk of long-term opioid use after surgery, as postoperative patients (opioid-naïve or not) are at increased risk of chronic opioid use⁵.

The aim of the study is (a) to gain more insight into the opinion of several healthcare providers (HCPs) namely hospital pharmacists (HPs), community pharmacists (CPs), general practitioners (GPs) and physician specialists (PSs) regarding the provision of pain medication after surgery at hospital discharge, based on patients' needs, as well as into their general knowledge about pain management; and (b) to explore (in)appropriate prescribing and use of pain medication during hospital admission and after discharge. The main goal of this study was to evaluate the impact of a pharmacist - led intervention program on pain management in patients undergoing orthopedic surgery.

METHODS

Four surveys each consisting of three parts - including demographic data, general knowledge about pain therapy and the management of acute postoperative pain, and opinions on the individualized dispensing of pain medication upon hospital discharge - were developed and sent to HPs, CPs, GPs and PSs. Furthermore, a prospective monocentric non-randomized interventional study was conducted among orthopedic hospitalized patients undergoing a preselected number of elective surgeries, or surgery after a trauma. The HP trainee assessed compliance with the existing internal guideline and evidence-based sources using a clinical tool, and provided recommendations around therapy to physicians, and the patient upon discharge. Numeric rating scale (NRS) scores and use of pain medication were evaluated preoperatively as well as two and four weeks after discharge. The difference in incidence of inappropriate prescribing, NRS scores, and opioid use compared with the study of Verrijken et al. was investigated⁶.

RESULTS

A total of 84 HCPs completed the survey. The majority of them either fully agreed (N = 26, 31%) or agreed (N = 46, 54.8%) with the implementation of providing pain medication for a limited period upon hospital discharge. In all 10 patients included in the prospective study, therapy was not in accordance with the internal guideline. A total of 29 recommendations during patient admission were made with an acceptance rate of 58.6%. Nine patients were followed up for two and four weeks after discharge. A statistically significant improvement in NRS was observed two (p=0.011) and four (p=0.020) weeks after discharge. All 9 patients reported receiving a sufficient supply of tramadol upon hospital discharge. No patient used opioids 2 weeks after discharge and 1 patient used tramadol 4 weeks after discharge. Compared with a previous study, fewer opioids (p=0.043) were used 2 weeks after discharge.

DISCUSSION & CONCLUSION

The survey showed that the majority of HCPs agreed with the implementation of providing pain medication for a limited period upon hospital discharge. Overall, HCPs rated their knowledge regarding the WHO pain ladder in the management of acute postoperative pain as adequate. A pharmacist- led program resulted in adequate pain therapy. Using a clinical tool, the HP trainee was able to recommend the appropriate pain therapy to the PS with a high acceptance rate. Future research should be conducted to obtain more data in order to evaluate the correlation between risk factors and chronic opioid use after orthopedic surgery and other operations.

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A | 7 ASSISTANCE IN DIRECT PATIENT CARE BY PHARMACY TECHNICIANS

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KEY WORDS

Clinical pharmacy, pharmacy technician, medication reconciliation, medication substitution, geriatric patients

BACKGROUND & AIM

To expand clinical pharmacy services in AZ Turnhout, two new tasks were appointed towards pharmacy technicians.

First, we implemented medication reconciliation by a pharmacy technician at the ward for patients not seen by pharmacy technicians at the emergency department to obtain a BPMH.

Secondly, we assessed feasibility of pharmacy technicians assisting in substitution of drugs upon admission to inpatient regimens, aiming to optimize medication continuity and alleviating physicians' workload, while optimising the therapeutic formulary and medication distribution practices.

METHODS

In 2023-2024, pharmacy technicians operating at the geriatric ward conducted medication reconciliations in an interventional, uncontrolled prospective study. Outcomes measured were the number, type and clinical relevance of unintended discrepancies identified.

Secondly, pharmacy technicians were evaluated in terms of skills necessary for drug substitution in an observational prospective pilot study. Later, four pharmacy technicians were selected to receive training. During nine weeks, they performed drug substitutions, which were evaluated by tracking difficulties and opportunities.

RESULTS

A total of 73 patients' medication was reconciled at the geriatric ward, encompassing 757 drugs. For 174 drugs, unintended discrepancies were identified. Ten discrepancies were classified as clinically relevant.

Pharmacy technician testing revealed a sufficient medication knowledge, use of sources and practical skills in the electronic patient file to perform drug substitution. Four pharmacy technicians performed 80 drug substitutions for eight patients under supervision.

DISCUSSION & CONCLUSION

Medication reconciliation by a pharmacy technician demonstrated a positive impact on obtaining BPMH of a patient, with 70% of patients having at least one discrepancy. Clinical relevance of these discrepancies was rather low.

Medication substitution by a pharmacy technician was found to be a feasible process in terms of training, however further investigation must rule out the safety and added value of this skill.