

Introduction

- ◆ A high level of care is required in surgery and many pharmacotherapy adjustments are necessary (e.g. anaesthesia, pain control, antibioprophyllaxis and therapy, anticoaguloprophyllaxis and therapy, medication reconciliation).
- ◆ Decentralized pharmacists in surgery programs appears to be relevant.

Objectives

- ◆ The aim of this study was to review the literature on the impact and the role of pharmacists in surgery.

Methods

- ◆ A Web portal about the evidences of the impact and the role of pharmacists in specific diseases, programs of care or pharmaceutical activities was developed.
- ◆ A **literature search** on Pubmed® was conducted: pharmacist Mesh OR clinical pharmacy service Mesh OR pharmaceutical care Mesh AND AND hospital surgery department Mesh.
- ◆ French and English articles about the role and the impact of pharmacists in parenteral nutrition from 1991-2013 were included.
- ◆ For each article included, all key indicators that document the the **role of pharmacists with only quantitative or qualitative metrics** and the **impact of pharmacist with statistical analysis** and were included. All relevant **pharmaceutical activities** in that context were identified.

Results

Literature search

179 articles identified
15 relevant articles included in our analysis



58 key indicators that document the role of pharmacists with only quantitative or qualitative metrics
25 key indicators that document the impact of pharmacist with statistical analysis
9 pharmaceutical activities

Key indicators that document the impact of pharmacists with statistical analysis

Categories of key indicators (Number of keys indicators)	😊 Number of articles	😐 Number of articles	😞 Number of articles
Costs (1)	1	-	-
Adverse effect (no data)	-	-	-
Errors (no data)	-	-	-
Morbidity (12)	4	2	-
Mortality (no data)	-	-	-
Adherence (no data)	-	-	-
Satisfaction (no data)	-	-	-
Others (12)	4	1	-

Legend 😊 Positive impact 😐 Neutral impact 😞 Negative impact

An article can have several indicators

An indicator may be present in one or more articles

Key indicators (quantitative or qualitative)

Settings	Number of articles
Teaching hospitals	4
Tertiary care academic hospitals	3
Tertiary hospitals	2
General surgery clinics	1
Presurgical clinics	1
Outpatient surgery clinics	1
Patient care wards	
Surgical wards	2
Gastrointestinal surgery wards	1
Orthopedic-spine surgical wards	1
Pre admission wards/clinics	3
Adult surgery and liver transplantation wards	1
Angiology and vascular surgery wards	1
Cardiac surgery intensive care wards	1
Post anesthesia care wards	1

Categories of key indicators (Number of keys indicators)	Number of articles
Costs (4)	4
Adverse effects (2)	2
Errors (4)	2
Morbidity (1)	1
Mortality	No data
Observance	No data
Adherence (3)	2
Others (21)	11

Some examples of the « Others » category indicator are listed below:

- ◆ Number of interventions made by the pharmacist
- ◆ Type of medication related problem
- ◆ Acceptance of the recommendations by the physician
- ◆ Time spent for pharmaceutical care per patient
- ◆ Time saved per patient for doctors due to the pharmaceutical presence
- ◆ Time saved for nurses due to the pharmaceutical presence

😊 Positive key indicators

- ◆ « Costs » indicator 1/1
 - ◆ Mean costs for antimicrobial per patient
- ◆ « Morbidity » indicators 7/12
 - ◆ Pain – Score on a scale of 1 to 10
 - ◆ Impact of pharmaceutical care – Visual analogue scale – 4 senior pharmacists
 - ◆ Impact of pharmaceutical care – Modified Hatoum Scale – 4 senior pharmacists
 - ◆ Percentage of days with an INR greater than four
 - ◆ Good glycemic control the date of the surgical procedure - point of care test glucose value
 - ◆ Good glycemic control the day after surgery - point of care test glucose value
 - ◆ Number of patients with hypoglycemia

« Other » indicators 10/12

- ◆ Mean number of missed doses per patient during hospital stay - pharmacist prescribing
- ◆ Patients had at least one postoperative medication discrepancy
- ◆ Number of patients had at least one postoperative medication discrepancy with the potential to cause possible or probable patient discomfort and/or clinical deterioration
- ◆ Number of medications charted at an incorrect dose
- ◆ Number of medications charted at an incorrect frequency
- ◆ Activities carried out by a pharmacist involved in clinical
 - ◆ Length of antimicrobial use
 - ◆ Length of intravenous use
 - ◆ Time of switch from intravenous to oral
 - ◆ Length of useless combination therapy

Pharmaceutical activities (n articles)



Discussion/Conclusion

- ◆ There are limited data published about the role of pharmacists in surgery.
- ◆ While it seems relevant to support such implication, pharmacists involved in that program of care should better document and evaluate their impact.