

Introduction

- According to the American Society for Parenteral and Enteral Nutrition, pharmacists have a role in the management of specialized nutrition support programs and in the improvement of quality.

Objectives

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

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 parenteral nutrition 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

223 articles identified
9 relevant articles included in our analysis



41 key indicators that document the role of pharmacists with only quantitative or qualitative metrics
13 key indicators that document the impact of pharmacist with statistical analysis
8 pharmaceutical activities

Key indicators (quantitative or qualitative)

Settings	Number of articles
Hospitals	3
Teaching hospitals	1
Outpatient clinics	1
Private tertiary care hospitals	1
Regional medical centers	1
Hospital trauma centers	1
Patient care wards	
Intensive care wards	1

Categories of key indicators (Number of keys indicators)	Number of articles
Costs (2)	1
Adverse effects	No data
Errors	No data
Morbidity	No data
Mortality	No data
Adherence	No data
Satisfaction (3)	2
Others (21)	6

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

- Proportion of patients who had symptoms of refeeding syndrome
- Proportion of patient with an appropriate indication for parenteral nutrition
- Acceptance rate of pharmacists' recommendations
- Earlier transitionning from parenteral to enteral nutrition
- Compliance with 10 mandatory safe practice standards from ASPEN
- Proportion of patients receiving parenteral nutrition therapy for more than 5 days

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 (no data)	-	-	-
Adverse effect (no data)	-	-	-
Errors (no data)	-	-	-
Morbidity (no data)	-	-	-
Mortality (no data)	-	-	-
Adherence (no data)	-	-	-
Satisfaction (no data)	-	-	-
Others (13)	1	1	-

Legend 😊 Positive impact 😐 Neutral impact 😞 Negative impact

An article can have several indicators

An indicator may be present in one or more articles

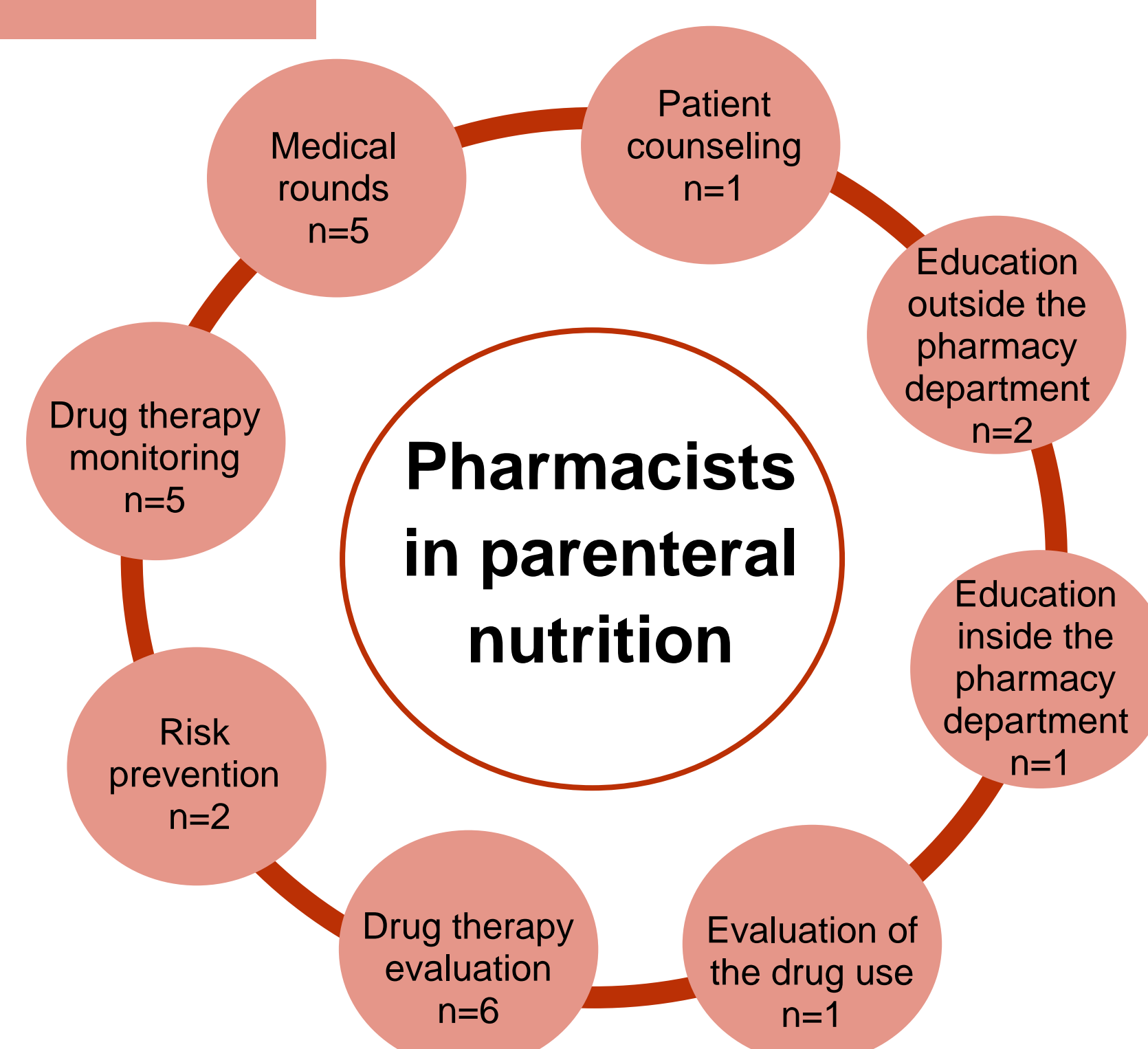


Positive key indicators

Key indicators « Others » 4/13

- Number of calories received by patient (kcal/patient/day)
- Number of proteins received by patient (g/patient/day)
- Proportion of laboratory values in the appropriate range for chloride
- Proportion of laboratory values in the appropriate range for bilirubin

Pharmaceutical activities (n articles)



Discussion/Conclusion

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