Introduction

- Geriatrics is the study of aging, its physiological phenomena, and diseases common with older people.
- Trends in population ageing have been noticed in Europe for many years.

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.
- 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 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

Key indicators that document the impact of pharmacists with statistical analysis

<table>
<thead>
<tr>
<th>Categories of key indicators (Number of keys indicators)</th>
<th>Number of articles</th>
<th>Number of articles</th>
<th>Number of articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs (11)</td>
<td>4</td>
<td>14</td>
<td>-</td>
</tr>
<tr>
<td>Adverse effect (6)</td>
<td>2</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Errors (no data)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Morbidity (96)</td>
<td>14</td>
<td>37</td>
<td>1</td>
</tr>
<tr>
<td>Mortality (2)</td>
<td>1</td>
<td>11</td>
<td>-</td>
</tr>
<tr>
<td>Adherence (12)</td>
<td>8</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction (8)</td>
<td>1</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>Others (92)</td>
<td>42</td>
<td>37</td>
<td>-</td>
</tr>
</tbody>
</table>

Legend: 😊 Positive impact  😕 Neutral impact  😞 Negative impact

Positive key indicators

- Costs ➔ indicator 3/11
  - Drug cost savings from recommendations
  - Monthly cost of medication
  - Costs of all drugs per patient per day
- Adverse effects ➔ indicators 2/6
  - Potential adverse drug reaction
  - Adverse drug reactions inpatient period
- Morbidity ➔ indicators 1/2
  - Number of deaths
- Adherence ➔ indicators 5/12
  - Adherence—four item self report measure
  - Compliance—Number of dosages until
  - Compliance—Patient interview and unit of dosage measurement
  - Compliance—telephone interview
- Mortality ➔ indicators 1/8
  - Patient satisfaction with pharmacy services—34 items
- Others ➔ indicators 46/92
  - Total cholesterol concentration—12 months
  - Total low density lipoprotein concentration—12 months
  - Number of contacts with general practitioners—after 12 months
  - Vitality—Bussières JF
  - Behaviour—Crichton Royal Behaviour Rating scale (CRBRS)
  - Activities of daily living
  - Number of influenza patient
  - Number of clinic visits—in past 3 months
  - Number of contacts with a specialist—after 12 months
  - Number of contacts with a specialist—after 18 months
  - Physical functioning
  - Revisits to hospital judged drug related
  - Readmission

Pharmaceutical activities (n articles)

The following activities were grouped:
- Medication reconciliation at the arrival and departure of the patient
- Patient counselling (individual and group)

Discussion/Conclusion

- Geriatrics is a healthcare program where the role and impact of pharmacists is well documented.
- Pharmacists have a positive impact with activities such as reducing the number of medication taken and improving drug dosage.
- Pharmacists involved in geriatrics should document and evaluate their impact on activities such as medication errors.
- The high number and variability in the type of key indicators used limit comparisons between studies.