Background

- Medication errors (MEs) occur in 5% of drug administrations in inpatients
- Avoiding MEs is key to improve patient safety
- Our center implemented the Check of Medication Appropriateness, a back-office validation service, which significantly reduces potentially inappropriate prescriptions (PIPs)
- However, prescriptions for compounded medicines are lacking in this validation system

Aim:

- To evaluate which checks are currently performed in a spontaneous and implicit way for prescriptions of compounded medicines
- These checks identify possibilities for future development of an explicit and standardized service called the “Check of Compounding Appropriateness” (CCA)

Methods

- An anonymous e-questionnaire was implemented at the compounding unit of our center
- Pharmacists and pharmacy technicians were asked to complete the e-questionnaire for every prescription of compounded medicines for which implicit and spontaneous checks were performed
- Clinical checks and PIPs were categorized by type and sorted as clinical or logistical problems

Results

- Data saturation was obtained after two months yielding registrations for 315 prescriptions, accounting for 30% of total compounded prescriptions
- Eighty-nine percent (n = 281) of the prescriptions were ordered electronically instead of paper prescriptions
- Top category formulations included capsules (n = 241) and ointments & creams (n = 26)
- Table 1 shows the top categories of drug classes registered
- In total 1002 (clinical) checks were performed for the 315 prescriptions
- leading to the identification of 120 PIPs (38%) (figure 1)
- Ninety-four PIPs accounted for a logistical problem, mainly substitution (n = 58) or double order (n = 11); 25 were clinical PIPs, mainly incorrect dosing (n = 15); one PIP contained both a clinical and logistical problem
- In 68% of PIPs colleagues were contacted
- Figure 2 describes the final action that occurred in prescriptions with PIPs

Table 1. TOP ATC 3 classes accounting for 50% of the registrations

<table>
<thead>
<tr>
<th>ATC 3 class</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>H02A = Corticosteroids for systemic use, plain</td>
<td>37</td>
</tr>
<tr>
<td>N03A = Anti-epileptics</td>
<td>20</td>
</tr>
<tr>
<td>G04B = Urologicals</td>
<td>16</td>
</tr>
<tr>
<td>N05A = Antipsychotics</td>
<td>14</td>
</tr>
<tr>
<td>C07A = Beta blocking agents</td>
<td>14</td>
</tr>
<tr>
<td>A05A = Bile therapy</td>
<td>14</td>
</tr>
<tr>
<td>J01M = Quinolone antibacterials</td>
<td>12</td>
</tr>
<tr>
<td>C09A = Ace inhibitors, plain</td>
<td>10</td>
</tr>
<tr>
<td>N02A = Opioids</td>
<td>10</td>
</tr>
<tr>
<td>D07A = Corticosteroids, dermatological preparations</td>
<td>9</td>
</tr>
</tbody>
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ATC = anatomical therapeutic chemical

Figure 1. Percentage of PIPs occurrence

Figure 2. Final action of the prescription with PIPs

PIP also occur in prescriptions for compounded medicines
- At our center, these PIPs mainly include substitution and dosing problems
- Next to the set-up of back-office CCA, this survey revealed that prescribing support, such as a substitution or dosing module, should be implemented to increase the efficiency at the compounding unit and patient safety