The purpose of this work is to build a risk mapping of shortage to ensure a better continuity in patient care.

Establish a quality management policy on supply chain

Ensure a better continuity of patient care

Build a risk mapping

Avoid drug shortage

Prioritize preventive actions

Objectives

Failure modes and effects analysis methods

- Working group created:
  - 2 Pharmacists - 1 Pharmacy student - 1 Logistics engineer - Pharmacy technicians

- Supply chain analysis:
  - All steps from order to storage process

- Potential failures analysis:
  - 5 causes of failures: Material – Milieu – Methods – Machine – Man power

- Criticality of potential failures rated:
  - Severity (sev) and frequency (frq) rates to determine the gross criticality (gc)
  - Mastered level (ml) of control to determine the net criticality (nc)

- Priority actions identified:
  - Each cause rated over 100 on gross criticality

Frequency: based on error history analysis

1: Once a year or less
3: Several times a year
5: Several times a month
10: Several times a week

Severity: based on patient’s issues

1: Acceptable
5: To monitor
10: Unacceptable

Master level of control

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Knowledge of a written procedure, applied and regularly assessed</td>
</tr>
<tr>
<td>3</td>
<td>Application of written procedure</td>
</tr>
<tr>
<td>5</td>
<td>Non-existent or not applied procedure, depends on the operator, note secured</td>
</tr>
<tr>
<td>10</td>
<td>Non-existent procedure</td>
</tr>
</tbody>
</table>

Results

We identified 15 risks and 28 causes, 5 causes were prioritized

<table>
<thead>
<tr>
<th>Activity</th>
<th>Step</th>
<th>Risk</th>
<th>Cause</th>
<th>Risk effect on activity</th>
<th>Sev</th>
<th>Frq</th>
<th>GC</th>
<th>Mastering device</th>
<th>ML</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order</td>
<td>Order tracking</td>
<td>Lack of reminder</td>
<td>Non executed reminder on supplier for order not received after 5 days</td>
<td>Delay in supply until stock out</td>
<td>10</td>
<td>10</td>
<td>100</td>
<td>Daily check of order in progress</td>
<td>10</td>
<td>1000</td>
</tr>
<tr>
<td>Order</td>
<td>Order picking</td>
<td>Lack of ordering</td>
<td>Missed order due to poor estimation of drug consumption</td>
<td>Stock out</td>
<td>10</td>
<td>3</td>
<td>30</td>
<td>Drug information in the order software</td>
<td>10</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ordering error</td>
<td>Insufficient quantity ordered due to lack of consumption information (ex: new drug)</td>
<td>Not enough stock before next order</td>
<td>10</td>
<td>3</td>
<td>30</td>
<td>Master our order data in our warehouse management system</td>
<td>10</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of ordering</td>
<td>Missed order due to stock issues</td>
<td>Drug on security stock not ordered: stock out</td>
<td>10</td>
<td>3</td>
<td>30</td>
<td>Inventory Analysis of missing</td>
<td>5</td>
<td>150</td>
</tr>
<tr>
<td>Reception</td>
<td>Verification of drug supply</td>
<td>Reception error</td>
<td>Wrong quantity received</td>
<td>Stock out or problem of storage area</td>
<td>10</td>
<td>3</td>
<td>30</td>
<td>Process of order reception</td>
<td>5</td>
<td>150</td>
</tr>
</tbody>
</table>

Discussion - Conclusions

The weak points identified on our supply chain lead to review order process and training to improve patient care. The next step will be to extend it to the delivery of the pharmacy of the 5 hospital sites supplied and considerate financial and juridical aspects of each risk.