**Background and importance**

Our Chemotherapy Production Unit (CPU) produces about 19,000 sterile preparations a year using Chimio®. Before the cyber-attack, prescriptions were validated and printed up to 3 days in advance in accordance to patient history and protocol. Each preparation was double checked by a second pharmacist.

Chimio® manages production of chemotherapy from prescription to administration ➔ no access to:
- stability data (duration, dilution, ...)
- dose/volume calculation
- protocols
- prescriptions and production traceability

**Aim and objectives**: The objective was to pursue the production of chemotherapy respecting the most the usual production and quality process.

**Materials and Methods**

**AFTER the cyber-attack, main steps and documents developed to recreate our process:**

1. **PHARMACEUTICAL VALIDATION**
   - Prescriptions of the first 3 days were already validated and printed serving as patient history, chemotherapy protocol model

2. **MOLECULE DATA REGISTER WITH CYTOTOXIC DRUGS DATA**
   - stability, concentration, solvent, expiration, ...
   - Recreated mostly from memory

3. **SCHEDULER**
   - A unique number per sterile cytotoxic preparation

4. **PATIENT’S HISTORY REGISTER**
   - Last protocol date and name, important data for pharmaceutical validation (dose adaptation, ...)

5. **HANDWRITTEN MANUFACTURING SHEETS (MS)** mimicking Chimio® were created

**RESULTS**

6 working days were needed before the recovery of Chimio®

**PRODUCTION**

Total of 447 preparations 73 per day

Only 5% of total production could be outsourced in other hospitals (transfer of patients)

**MS EDITING PROCESS AND TIME**

5 handwritten MS only (1st day)

Filling and printing (1st pharmacist) and double-checking (2nd pharmacist) 3 hours a day

Improving MS ➔ reducing time to 1 hour a day

**ERRORS ?**

Limited errors by double checking every MS

Final checking of preparations detected 3 errors (< 1 %)

2 MAJORS: wrong patient name and dose (~ 47 %)

1 MINOR: wrong scheduler number ➔ All 3 due to copy-paste error with the 1st version of Excel MS

**CONCLUSION AND REVELANCE**

This experience was a real challenge for us. It demonstrated the importance of qualification and implication of CPU staff (pharmacist and technicians) to maintain our activity despite everything. Development of a semi-automated Excel® MS and double control of MS allowed us to maintain a safe and almost normal production. Excel® tool tracing patient’s history allowed to detect prescription errors (dose adjustment, intervals of administration, protocols respect). Regular backups and development of a valid degraded mode protocol will be undertaken soon.