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Ransomware attack on a cytotoxic preparation unit (CPU): What now?

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Background:

- Procedures' informatization has increased the healthcare sector's susceptibility to computer attacks through ransomware.
- These can manifest by the impossibility of internet and computer systems access, with consequent interruption of electronic prescription, registration in patient diary, consultation of previous clinical data, request for exams, blood tests, among others.
- Pharmaceutical Services are particularly vulnerable to these attacks.

Aim and objetives:

- The aim of this work was to describe the strategies adopted during the cyberattack on our institution, minimizing error and allowing the work to be carried out at the CPU, leading to the elaboration of a guideline to be adopted in a future cyberattack.

Methods

Retrospective study between April 26th and May 10th, 2022.

Results:

Measures taken ⟶ Prevention of CPU colapse

- Information on paper from the production maps of April 2022
- Chemotherapy protocols previously printed.
- Charts with reconstitution/dilution of used drugs previously printed.
- Literature
- Coordination of information with the nursing and medical staff.

Statistics

- Cytotoxic chemotherapy's preparation was possible due to the elaboration of manual labels (n=615), after proper validation of paper prescriptions.
- In the first week (April 26th to 29th) 41.9% (n=67) of the patients (n=160) were unchecked and in the second week (May 2nd to 6th) 25% (n=54) of patients (n=216).

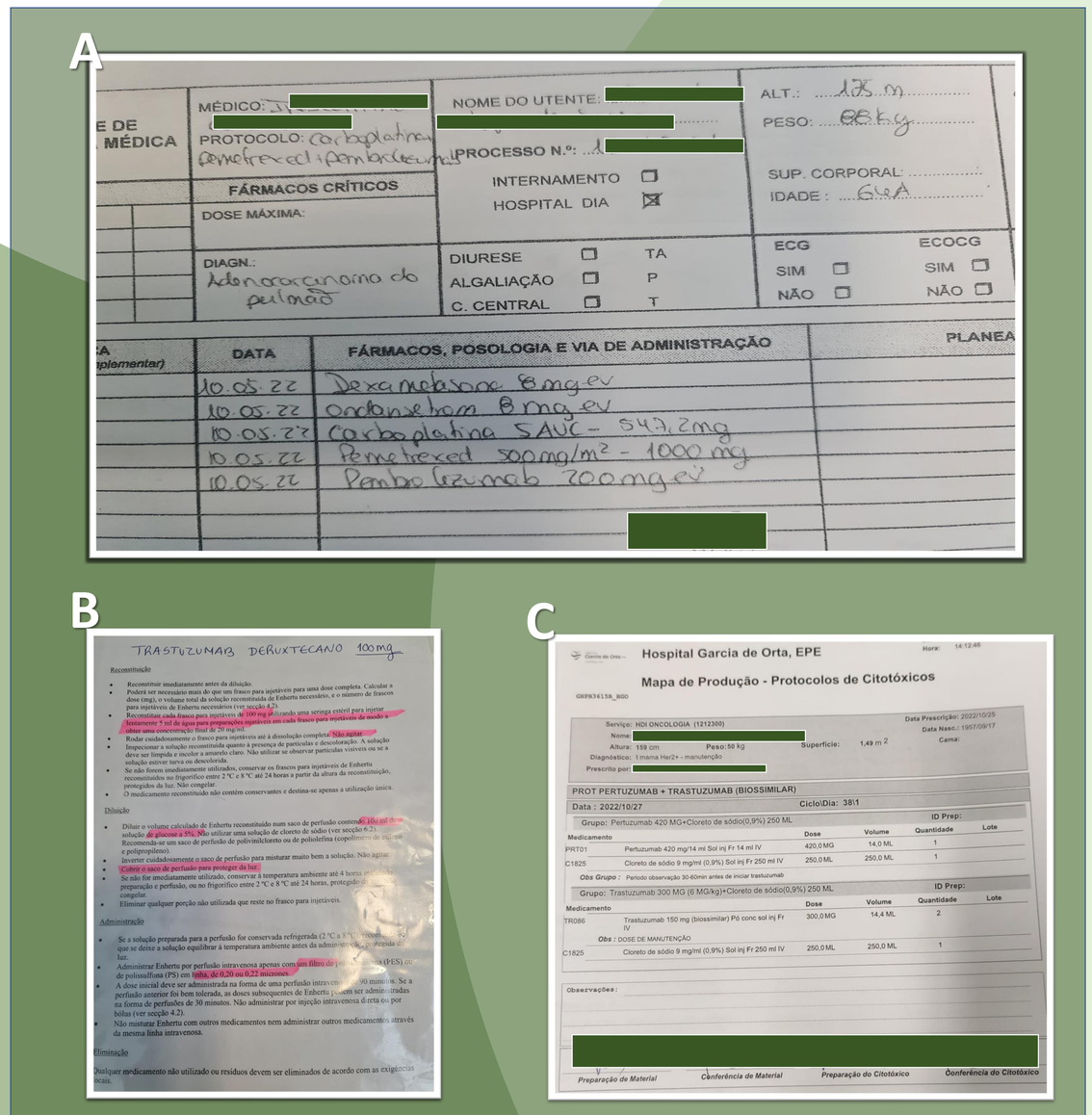
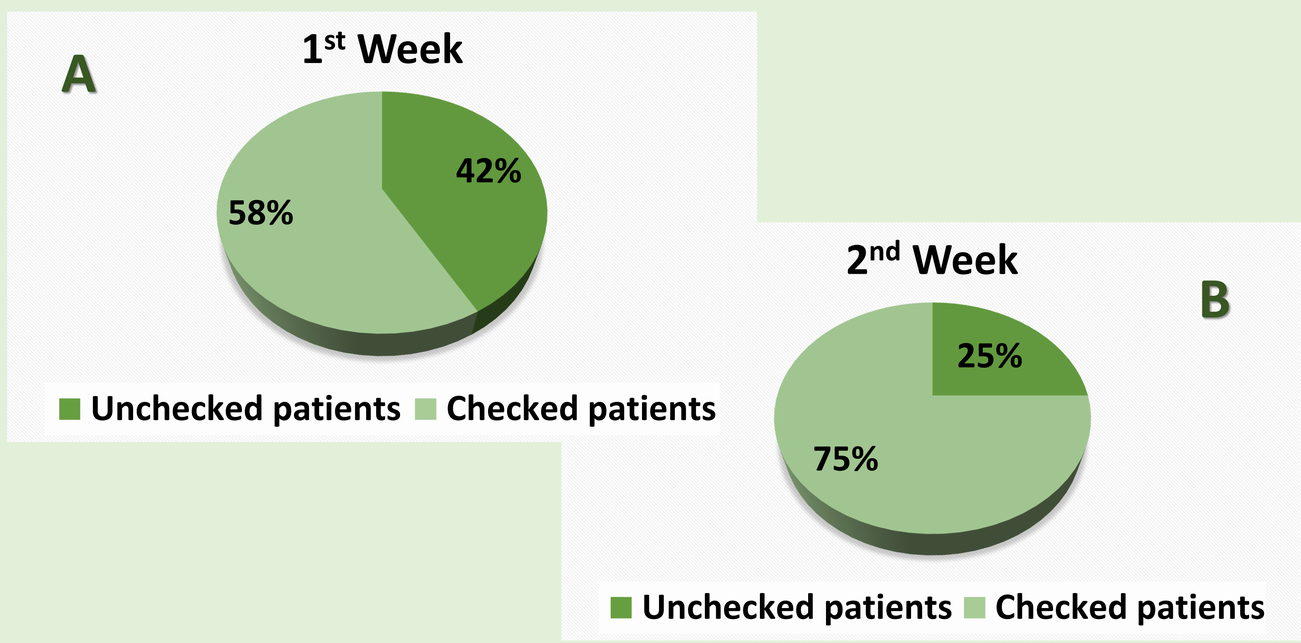


Figure 1. A) Manual chemotherapy protocol; B) Dilution of used drugs C) Production map.



Graphic 1. Statistics during the first (A) week and second (B) week of the cyberattack.

In the initial days of cyberattack no new patients were scheduled.

Preparation of cytotoxics

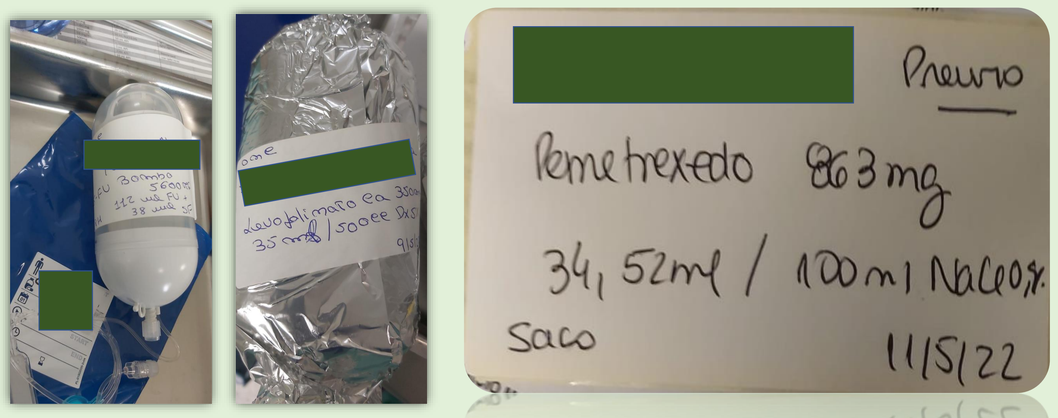


Figure 2. Examples of manual labels.

Conclusion and Relevance:

Faced with the reality of a computer attack, the CPU priority was to ensure a safe preparation of chemotherapy. On the other hand, this attack showed that it is crucial to have mechanisms of information replacement such as the chemotherapy prescriptions file. Anticipating future cyberattacks, a guideline has been developed to ensure circuit safety in case of computer failure. This guideline includes some measures namely:

- Monthly backup of patients' protocol treatments (protocol, drugs, dosage, dilutions, among others), in online cloud server.
- Printed documents of essential informations regarding drug handling and their preparation.
- Printed archive of patients' current treatments of the last two months.

Acknowledgments

We would like to acknowledge and apreciate the amazing efforts that all Pharmacy team, the oncologists and hematologists, the nurse team endured during this difficult times. The collective efforts were what enabled us to provide the best possible care, with safety and efficacy ensured.