The BUSTER System is a complete solution for the management of drugs in hospitals. The System is composed of both hardware and software. The computerization of therapies ensures the complete traceability of all operations of prescription and administration whereas the robotic medicine cabinets in the ward and the automated warehouse for the central pharmacies, ensure the complete traceability of all the pharmaceutical packages.
BUSTERWEB

BUSTERWEB is a powerful, modular and scalable software application that manages all the clinical logistics processes of the drugs.

BUSTERWEB functions manage therapeutic prescriptions and administrations also reducing the clinical risk. The suite is currently operating in several public and private facilities all over Italy.

BUSTERWEB uses a three levels web-architecture (Database, Application Server and User Interface) and can be used on any web browser (Windows, Mac...).

The BUSTERWEB Suite includes the following applications that use an uniform user interface:

- BUSTERWEB Clinic;
- BUSTERWEB Logistic.

The BUSTERWEB Logistic, integrated with the robotized warehouses BUSTERSPID e BUSTERPICK allows to manage the pharmaceutical supplies in the Central Pharmacy and in the Operating Units in a very convenient way.

The operations for the clinical area (BUSTERWEB Clinic) are performed bedside, through mobile devices (tablet PC, laptops etc...) that are connected to the Wireless network of the facility.

In case of lack of the mobile devices, fixed workstations can also be used.
**BUSTERSPID DISPENSER**

The **BUSTERSPID Dispenser** is a sophisticated robotized cabinet for the management of drugs in the ward.

**BUSTERSPID Dispensers**, managed by **BUSTERWEB Suite**, enable the nursing, the administrative and the pharmacy staff to carry out their activities in a computerized, easy and safe environment, where each operation and movement of the drug is strictly tracked and recorded.

Through this solution, the information and the data of the drugs are available to the staff in real time and on different levels of accessibility. This ensures both the computerization of the logistic processes and the improvement of their efficiency.

Each **BUSTERSPID Dispenser** has two main components:

- An electromechanical arm that moves and puts the products inside the dispenser;
- An internal barcode reader that allows the system to automatically identify the individual packages loaded through the reading of the barcodes on the packages.

Furthermore, the dispensers:

- Can manage all types of packages for different drugs (tablets, syrups, vials etc.);
- Give access to the operators in a safety, controlled and tracked way;
- Can be connected to the network and the Central Pharmacy (or to an external warehouse in case of outsourcing service) to allow the automation of the entire process.

The dispenser is equipped with an external barcode reader that can manage even the drugs that can’t be loaded (e.g. thermolabile products or narcotics). These drugs are recorded in the dispenser as external. The dispenser will point out their position to the user during the collection.

The main features of the robotized **BUSTERSPID dispensers** are the following:

- **Reliability of operation**
- **Functionality for the storage and distribution** of drugs through computerized and robotic systems that provide:
  - controlled access to the products through safety identification procedures (user name / password and others);
  - the tracking of all the operations;
  - safety identification of the loaded products;
  - the reliability of the data (quantity and time);
  - the automation of collection and delivery;
  - the traceability of every single operation;
  - the optimization of provisions and of the rotational indexes of the drugs.
- **Integration** into the logistics supply process with the picking list. This ensures an automatic check of the received and required products.
**NURSY-ROLLY**

**NURSY-Rolly** is a trolley for the computerized management of the administration of drugs in the ward. **NURSY-Rolly** is equipped with an integrated PC (connected to the LAN and/or WLAN to hospital information system) and with controlled compartments that need an authentication access. In this way the trolley can manage and conserve only the drugs that are needed for the therapy.

The trolley is powered by a rechargeable battery (simply connecting the trolley to the grid) that provides an 8-hours battery life.

**BUSTERPICK SYSTEM**

The automatic warehouse **BUSTERPICK** is a robotic system, technologically advanced, modular, large, precise, and fast. Combined with the **BUSTERWEB Logistic** (integrated with the enterprise information system), manages the whole logistic process of drugs in the Central Pharmacy: from the arrival of the goods until the delivery to the Operating Units. The system manages also the urgent requests 24-hours a day.

The system we offer is scalable in order to satisfy every kind of needs in terms of management, storage and precise control of the drugs in the warehouse of the Central Pharmacy, ensuring the traceability of the individual pack not only until the Operating Unit, but also to bedside through the **BUSTERWEB Clinic**.

The **BUSTER System**, through the automation of the logistic processes, optimizes the HR in Pharmacy (minimizing manual operations and human errors) and achieves important savings through the optimization of the stocks. The software can be integrated also with automatic robotic warehouses not provided by GPI S.p.A.
HOW BUSTER SYSTEM WORKS

WARD

With the BUSTER System is possible to manage all the clinical and logistic processes of the drug:

> patients admission (ADT integration);
> computerized prescription;
> careful management of the stocks in the computerized trolleys and robotic cabinets;
> safe bedside administration, with sure patient and drug identification.

PHARMACY

The data related to prescriptions, administration and stocks (in the robotic cabinets and in the computerized trolleys) allow to produce precise supply requests to the central pharmacy, in order to maintain the right stocks in ward (always aligned with the real needs).

The adequacy of the ward stocks drastically reduces the urgent supply requests, limiting them to new prescriptions cases or changes in drug therapy. In these cases, the health worker can collect the medication directly in the pharmacy (even outside of the opening hours): the system itself realizes the urgent need when the drug therapy changes.
AIMS

The implementation of the BUSTER System guarantees the achievement of the following aims:

- clinical risks reduction of the pharmaceutical therapies;
- optimization of the human and economic resources;
- control and monitoring of the entire logistic processes.

REDUCTION OF THE CLINICAL RISK OF THE PHARMACEUTICAL THERAPIES

The BUSTER System leads to the achievement of the following objectives:

- **significant reduction of errors in the prescription phase** (39% of the total number of errors in therapy), through Operating tools that convey the choice of the drug by the doctor (therapeutic protocols, indications and contraindications, drug interactions, allergies, etc.);
- **elimination of errors related to interpretation** and transcription of the treatments (11% of the total number of errors in therapy);
- **drastic reduction of errors in the distribution and administration phases** (50% of the total number of errors in therapy) with a system of safe administration that allows identifying with certainty the patient and the prescribed drugs.

OPTIMIZATION OF THE HUMAN AND ECONOMIC RESOURCES

Optimization of the human resources

The implementation of the BUSTER System allows to optimize the management of the HR thanks to:

- time reduction of the operator for verification, preparation and processing applications, errors correction and other generic activities (monitoring deadlines, inventory, etc.);
- costs reduction for the availability and the return to service of the Central Pharmacy Staff due to urgent needs;
- the reduction of time needed to control and monitor the entire process.

The BUSTER System minimizes the time for the following repetitive logistic activities:

- requirements analysis;
- supply requests;
- loading of the ward warehouses and check of the conformity between the order and the delivery from the Central Pharmacy;
- check of the expiration dates;
- preparation of the drugs for the administrations.

Reduction of the stocks in store

The system reduces the stocks in store at least by 30% in the Central Pharmacy and over 50% in the ward warehouses, thanks to:

- reorganization of the quantities according to the real needs;
- increase of the rotation of the product;
- FEFO management of every single product (First Expired First Out);
- 24/7 availability of the drugs, directly in the Pharmacy;
- safety and controlled exchange between the Operating Units;
- safety and controlled exchange of drugs between different Pharmacies (through the Unique Virtual Warehouse).
Reduction of costs

The currently collected data from our customers (also confirmed by the international studies on the benefits obtained with the implementation of a computerized prescription and administration), show savings on the pharmaceutical expenditure between 9% and 18% thanks to:

- automatic calculation of the pharmaceutical requirements of a single dosage unit (tablet, tablet’s portion, drop, milliliter etc.);
- computerized and precise prescription, with features that enable the doctor to choose the right drug (hospital vade-mecum, clinical procedures, choice of equivalent or cheaper drugs etc.);
- connection between the prescriptions and the hospital vade-mecum. The pharmaceutical vade-mecum can be customized for every single Operating Unit;
- mandatory print for the request of the drugs not mentioned in the vade-mecum;
- more attention of the staff;
- more control on consumptions and collections.

CONTROL AND MONITORING OF THE ENTIRE LOGISTIC PROCESSES

The proposed solution offers a management platform that controls and monitors the entire process: from the arrival of the product in the Pharmacy until the patient in the hospital. The following list explains the specific aims of the system:

- significant reduction of the errors related to the manual entry of the data;
- traceability of the product and its movements (as described in the R.M. of 15/7/2004);
- complete storage of all the products’ movement, both in the Pharmacy and in the Operating Units;
- a real time and integrated check of the stocks (ward and warehouse).

> detailed statistics about stocks and movements;
> precise forecasts of the requirements;
> check of the pertinence of the prescriptions;
> definition of an ad hoc pharmaceutical formulary.

ADVANTAGES AND SAVINGS

The implementation of the BUSTER System guarantees the achievement of the following:

- the reduction of the clinical risk of the pharmaceutical therapies (-67% of errors);
- adaptation to international standards for the accreditation of healthcare facilities (MMU Joint Commission International);
- the optimization of the human and economic resources:
  - reduction of the 75% of the time spent by the staff in logistic activities;
  - reduction of 60% of the pharmaceutical supplies;
  - control of pharmaceutical consumption between 9% and 18%;
- simplifies the operators workflow;
- control and monitoring of the entire logistic process;
- improvement of the perceived quality by the user and the community;
- improvement of the productivity.

The following table shows the average annual savings per bed that BUSTER System allows.

The data of savings are the result of a statistical analysis, developed from over 50 feasibility studies produced for public and private hospitals.

<table>
<thead>
<tr>
<th>SAVING ITEM</th>
<th>Aim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savings resulting from the reduction of supplies</td>
<td>225,00 €</td>
</tr>
<tr>
<td>Savings resulting from the reduction of consumptions</td>
<td>1,360,00 €</td>
</tr>
<tr>
<td>Savings resulting from the reduction of time in the Operating Units</td>
<td>347,00 €</td>
</tr>
<tr>
<td>Savings resulting from the reduction of time in the Pharmacy</td>
<td>99,00 €</td>
</tr>
<tr>
<td>Savings resulting from the reduction of the clinical risk</td>
<td>527,00 €</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>2,558,00 €</strong></td>
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