The successful implementation of full medication traceability in a Brazilian hospital.

GS1 Healthcare Webinar

Fatima Silvana Furtado Gerolin, Chief Nurse Executive
Hospital Alemão Oswaldo Cruz, São Paulo, Brazil
April 25th, 2019
Welcome and thank you for attending!

- Welcome to our April 2019 webinar. Thank you to our guest speaker Fatima Silvana Furtado Gerolin, Chief Nurse Executive of Hospital Alemão Oswaldo Cruz, in São Paulo, Brazil

- Some housekeeping for today:
  - All attendees will be in listening-only mode
  - If you have questions during the presentation, please type them into the questions area and these will be monitored to be answered at the end of the call

- After the webinar:
  - Within a week, the recording will be posted to: http://www.gs1.org/healthcare/hpac_webinars
  - All previous webinars are also posted to this location, so please feel free to use this resource and share the link
GS1 Healthcare Webinars

Forum for thought leaders and adopters of GS1 Healthcare Standards from the global clinical provider environment. The final goal is to improve patient safety, cost efficiency and staff productivity through implementation of GS1 standards.

- A forum for sharing and discussion
- Identification of projects and case studies
- A source of expertise and advice

- The practical realities of implementation of GS1 Standards in the care giving environment in regards to the impact on clinical care and patient interaction
- Supporting the adoption of GS1 Standards in healthcare providers and retail pharmacies
- For publication, presentation and sharing
- To those involved in GS1 standards development, the wider Healthcare stakeholder community and senior executives/decision-makers to gain their buy-in and support for implementation of GS1 Standards
Specific GS1 Healthcare Activities

**Webinars**
- Monthly webinars open to all stakeholders interested in learning about GS1 standards implementation in the care giving environment.
- [http://www.gs1.org/healthcare/hpac_webinars](http://www.gs1.org/healthcare/hpac_webinars)

**Awards**
- Twice per year
- Provider Implementation Best Case Study Award
- Provider Recognition Award
- The prize is travel / accommodation to attend the next GS1 Healthcare conference
- [http://www.gs1.org/healthcare/hpac](http://www.gs1.org/healthcare/hpac)

GS1 Healthcare also holds two global conferences per year. The next conference will be in Delhi, India from November 5 - 7, 2019. We expect significant Healthcare Provider participation on the agenda.
Presenting today

Fatima Silvana Furtado Gerolin

Chief Nurse Executive
Hospital Alemão Oswaldo Cruz
São Paulo
Brazil
THE SUCCESSFUL IMPLEMENTATION OF FULL MEDICATION TRACEABILITY IN A BRAZILIAN HOSPITAL
COSTS OF HEALTH CARE

HISTORIC SERIE

- Safety X cost reduction - Hospital medical cost variation
- Inflation in healthcare: Aging, fee for service, prices of orthoses, prostheses and special materials (OPSM) - There’s no evidence that clarify the incorporation of new technologies.
- What we incorporate at HAOC has scientific evidence

Medical supplies and devices are the second largest hospital expense

Distribution of total expenses

<table>
<thead>
<tr>
<th>Type of expense</th>
<th>(%) 2014</th>
<th>(%) 2015</th>
<th>(%) 2016</th>
<th>(%) 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenditure with employees</td>
<td>35,2</td>
<td>36,3</td>
<td>36,2</td>
<td>37,4</td>
</tr>
<tr>
<td>Technical contracts</td>
<td>13,1</td>
<td>11</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Medications</td>
<td>10,7</td>
<td>11</td>
<td>10,8</td>
<td>10,7</td>
</tr>
<tr>
<td>OPSM and special materials</td>
<td>9,5</td>
<td>8,2</td>
<td>8,5</td>
<td>7,8</td>
</tr>
<tr>
<td>Materials</td>
<td>7,5</td>
<td>6,5</td>
<td>6,2</td>
<td>6,6</td>
</tr>
<tr>
<td>Insumos hospitalares (soma Mat/Med)</td>
<td>27,7</td>
<td>25,7</td>
<td>25,5</td>
<td>25,1</td>
</tr>
</tbody>
</table>

Source: Observatório Associação Nacional Hospitais Privados ANAHP – 10ed. 2018
1.5 Million People Affected by Medication Errors

and 7,000 people die each year in the US and the cost to the country is US $ 3.5 billion / year

*Preventing medication errors IOM 2006*

**ERROR IN THE MEDICATION PROCESS:**

- Any preventable event that may cause or lead to improper use of the medication or harm to the patient while the medication is under the control of the health care professional, patient, or consumer.
- These events can be related to professional practice, health products, procedures, systems including prescription, verbal orders, composition, packaging and nomenclature, labeling, distribution, dispensing, administration, education and monitoring.

*US National Coordinating Council for Error Reporting and Prevention 2002*
TO REDUCE 50% DRUG-RELATED ADVERSE EVENTS IN THE NEXT 05 YEARS

Motivation:
Each of us at some point in life will use medications to prevent or treat a disease;
If used without any kind or care, it can lead to serious damage.

Priority actions:
High Risk Situations for Medication use at Hospitals

Areas:
Medication
Healthcare professionals
Systems and processes
Patients and population

Recommendation:
Use of technology to minimize events

$ 42 billion / year worldwide spending
▪ Not-for-profit private hospital, founded by German, Austrian and Swiss community in 1897

▪ High complexity general hospital predominantly surgical and focused on Oncology and digestive tract diseases

▪ Services not offered: Maternity, Pediatrics (patients younger than 14 years) and Neonatology
Obesity and Diabetes
Specialized Center

- Multiprofessional and integrated management of obesity and diabetes

Campo Belo Unit
- 1,485 m²
- Day Clinic
- Endoscopy Center
- Medical Checkup Center
- Outpatient Physical Therapy
- Centers of specialties

Paulista Unit
- 96,000 m²
- 24 x 7 Emergency
- Hospital and ICU beds
- Operating Rooms
- Center of Specialties
- Education, Sciences and Innovation

Vergueiro Unit
- 25,500 m²
- 24 x 7 Emergency
- Hospital and ICU beds
- Operating Rooms
- Center of Specialties

Obesity and Diabetes Specialized Center
- 578 m²
- Multiprofessional and integrated management of obesity and diabetes

PRIVATE HEALTHCARE
INNOVATIVE TRADITION
Maintaining the culture and the historical landmarks of a centennial hospital that knows how to get reinvented to continuously advance.

KNOWLEDGE

PATIENT SAFETY
Attention and precision to deliver what is essential to patients: safety.

LOVING CARE

TRUTH
Trust is our mean and credibility is our end. We are true to ourselves and to the world around us.

COLLABORATIVE INTERACTION
The hospital is a living being. Each one has a role to play and has to have initiative, show empathy and work as a team.

Hospital Alemão Oswaldo Cruz
Individualized, complete and humanized care, evidence-based and centered on the patient and his family, building trust and considering their life history and his needs.

Education to self-care is one of the basic assumptions of this model.
### Project and Investments

#### Traceability - Logistics

- **Industry**
- **Distributor**
- **Transporter**
- **Hospital Pharmacy**

#### Traceability - Care

- **Patient**
  - Quality and safety

#### Traceability Product - Process

<table>
<thead>
<tr>
<th>Project steps</th>
<th>Resources</th>
<th>Investment (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) <strong>Logistic traceability</strong>: from the receiving to the dispensation</td>
<td>Site survey, wireless network, two-dimensional bar code readers, data collectors and printers.</td>
<td>33.591</td>
</tr>
<tr>
<td>2) <strong>Traceability of care</strong>: preparation, administration and checking in the final of the process</td>
<td>Site survey, wireless network, two-dimensional barcode readers, cars to transport medication.</td>
<td>103.359</td>
</tr>
<tr>
<td>3) <strong>Decentralized dispensing</strong>: electronic dispensaries</td>
<td>Automated dispensing cabinets (25)</td>
<td>1.193.798</td>
</tr>
</tbody>
</table>
1) Receiving: from/to DataMatrix manufacturer

2) Suitability: internal labeling dispensing unit

3) Unitarization: fractioning tablets dispensing unit

Potentially dangerous drugs:
- chemotherapy

High-risk drugs:
- concentrated electrolytes

Monthly average:
- 138,726 uni
- 91,500 uni
Traceability of the product / process / patient / double check / debit in account / withdrawal of stock.

1st step of the project

From the origin to the dispensation

Reading DataMatrix code:
double electronic check

Medication delivery safely!
2nd stage of the project

Preparation and administration of medication with bedside check

Care Traceability

Traceability of the product / process / patient / double check / debit in account / withdrawal of stock.

Reading DataMatrix preparation of medication

Prepared and identified medication

Reading the patient identification bracelet

Read the medication after preparation / double check with the medical prescription

Safety administration !!!
Medication for immediate use in the hospitalization unit, integration with electronic prescription with restricted access, traceability of the product/process/patient/double check with electronic prescription, billing and withdrawal of the stock.

Reading DataMatrix on Product Dispensing from Dispensary

Safe decentralized timely dispensing !!!
## RESULTS - medication process automation

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>ACTION</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPERATIONAL</td>
<td>DIRECT CARE IN HOSPITAL UNITS</td>
<td>86%</td>
</tr>
<tr>
<td></td>
<td>URGENT REQUESTS</td>
<td>81%</td>
</tr>
<tr>
<td>CARE</td>
<td>ADVERSE EVENTS RELATED TO DRUG DELIVERY</td>
<td>70% 2017 94% 2018</td>
</tr>
<tr>
<td></td>
<td>INCIDENTS RELATED TO THE PREPARATION AND DRUG ADMINISTRATION</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>DELAY IN THE REGISTRATION OF DRUG ADMINISTRATION</td>
<td>25 MINUTES</td>
</tr>
<tr>
<td>FINANCIAL</td>
<td>DATA CAPTURE</td>
<td>9% INPUT DATA</td>
</tr>
<tr>
<td></td>
<td>ADJUSTMENTS IN THE AUDIT PROCESS</td>
<td>36% 457.348,00 dollars</td>
</tr>
<tr>
<td></td>
<td>RETURN AND CIRCULATION OF MATERIAL AND MEDICATION</td>
<td>56% 523.882,00 dollars</td>
</tr>
<tr>
<td>HUMAN RESOURCES</td>
<td></td>
<td>08 EMPLOYEE 137.000,00 dollars</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(LESS THAN 3 PROFESSIONALS ON THE WORK TEAM)</td>
</tr>
<tr>
<td>SUSTAINABILITY</td>
<td>PAPER</td>
<td>1.485.500</td>
</tr>
<tr>
<td></td>
<td>SAVED TREES</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td>SAVED WATER LITERS</td>
<td>15.260.000</td>
</tr>
</tbody>
</table>
Automation of the medication process is imperative, manual processes represent a latent risk.

The goal is to build secure processes, that induce to the correct process and also avoid rework.

Adopt methodology for the incorporation of new technologies, in order to ensure that the benefits are cost-efficient.

Adopt unique identifier in the smallest unit - GS1 DataMatrix, enabling traceability along the chain links (medication process).

Safe medication process, reduces health costs and preserves lives !!!
 ✓ Explain the project to the HAOC executive council and talk about the advantages of investing in this technology
 ✓ Involve the nursing team from the beginning of the project
 ✓ It is very important that the informatics team is very close and ready to collaborate with the success of the implantation
 ✓ Celebrate with the multidisciplinary team the success of the implantation
Challenges

➢ It is very important to sensitize the pharmaceutical industry for adopting code in the smallest unit;
➢ Keep professionals always alert to fulfill every stage of the process
➢ Monitor the technological evolution in medication traceability
➢ Electronic patient record should facilitate the search for safety in the medication process
Safety for professionals = Safety for patients

- Minimizes human interference in the medication process
- It allows traceability in several phases of the process helping to decrease the occurrence of adverse events to other patients
- Ensures registration of all phases of the medication process in the patient's chart

Quality + Safety

Where quality of care and the safety of our patients guides everything we do.
Thank you!

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