

The Global Language of Business

GS1 Healthcare Provider Advisory Council Webinar

The use of information technology to improve medication safety in hospitals

Pr Dr Pascal BONNABRY, Head of pharmacy, Geneva Hospital, Vice-President of Patient Safety Switzerland June 14th, 2017



Welcome and thank you for attending!



- Welcome to our June 2017 webinar. Thank you to our guest speaker – Prof dr Pascal Bonnabry, Head of Pharmacy at the Geneva University Hospitals (HUG), Switzerland, Associate Professor at the School of Pharmaceutical Sciences, University of Geneva, University of Lausanne, and Vice-President of Patient Safety Switzerland
- Some housekeeping for today:
 - All attendees will be on mute
 - If you have questions during the presentation, please type them into the questions area and these will be monitored, then answered at the end of the call
- After the webinar:
 - Within a week, the recording will be posted to: <u>http://www.gs1.org/healthcare/hpac_webinars</u>
 - All previous webinars are also posted to this location, so please feel free to use this resource and share the link



The GS1 Healthcare Provider Advisory Council (HPAC)



Thought leaders and adopters of GS1 Healthcare Standards from the global clinical provider environment. Their 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

- About the practical realities of implementation of GS1 Standards in the care giving environment in regards to the impact on clinical care and patient interaction
- That support 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



HPAC Activities



Webinars

- Monthly webinars open to all stakeholders interested in learning about GS1 standards implementation in the care giving environment.
- <u>http://www.gs1.org/healthcare/h</u>
 <u>pac_webinars</u>

Awards

- Twice per year
- Provider Best Case Study Award
- Provider Recognition Award
- The prize is travel / accommodation to attend the next GS1 Healthcare conference
- <u>http://www.gs1.org/healthcare/h</u>
 <u>pac</u>

GS1 Healthcare also holds two global conferences per year. Next conference will be in Chicago from October 17-19 2017. There will be significant Healthcare Provider participation on the agenda.



THE USE OF INFORMATION TECHNOLOGY TO IMPROVE MEDICATION SAFETY IN HOSPITALS



Pr Pascal BONNABRY Head of pharmacy



GS1 HPAC-webinar June 14, 2017



Learning objectives

- How to define a global strategy to improve the medication process in a hospital
- How GS1 identifiers fit in to reach the overall strategy
- Impact of information technologies on the safety, the efficiency and the traceability





Medication: challenges

Safety

Among the 3 main sources of avoidable adverse events

Efficiency

Difficult to perform highly without appropriate tools for stock management

Economics

Value of decentralized stocks

Traceability

Increasing requirements by authorities







An obsolete organisation ?





Bates DW, JAMA 1995;274:29













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Genève

Dispensing errors



Garnerin P, Eur J Clin Pharmacol 2007;63:769

DE GENÈVE FACULTÉ DES SCIENCES Section des sciences pharmaceutiques

UNIVERSITÉ

Limited performance of controls (simulation study)

- Introduction of errors during unit dose dispensing
- Detection ability during human-performed control:

Pharmacists:	87.7%

Nurses: 82.1%

Facchinetti NJ, Med Care 1999;37:39-43

Efficacy ≈ 85%

(known value in the industry)

Do not be too confident with the double-checks !





Human reliability

« On the 6th day, God created man ... »

... but God was tired, and his creation was not perfect ...

In hospitals, many high-risk activities are based on human reliability, which is limited







How to improve the safety ?

Implement strategies to







Hierarchy of risk reduction strategies

High	TechnologyConstraintsForcing functions	
Medium	StandardisationRedundanciesCheck-lists	DNO Ves DNO Ves HNO Ves NO Ves
Low	 Procedures Education Vigilance	







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Cytotoxics: a special process

Preparation with

gravimetric control

Automated preparations (2015)



8ma (8 5-9 8-

prescription

+ Dose-banding (2018)







Bedside

scanning

Safety and efficiency improvements

Robotized distribution Impact on the safety



n=5805 n=2437 n=4365 n=5564





François O et al, HUG, 2015

Robotized distribution Impact on the efficiency





François O et al, HUG, 2015



Automated dispensing cabinets Impact on the safety (simulation)



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Du Pasquier C, Riberdy L, HUG, 2003

Automated dispensing cabinets Impact on the efficiency

Lines asked in emergency mode



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François O et al, HUG, 2013



Automated dispensing cabinets Nurses opinion on improvements





François O et al, HUG, 2015



Bedside scanning Objectives

- Increase patient safety
- Increase patient satisfaction (safety feeling)
- Increase efficiency (documentation, stock management, invoicing,...)
- Increase nurses satisfaction
- Reduce costs
 (especially related to errors)







Foote SO, Nursing Economics 2008;26:207

Bedside scanning Impact on the safety

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Johnson, J Healthcare Inf Manag 2002;16:1



Facilitators and barriers for success



Facilitators

Barriers

External

- Other institutions
- Healthcare system

Institutional

- Past and future
- Corporate culture
- Stability
- Ability to innovate

Managerial

- Leadership
- Corporations
- Project management (resources, organisation)
- Communication

Organisational

- Workload evolution
- Process reengineering
- Training
- Technical
 - Availability of the technology
 - Infrastructure
 - Interoperability
 - Ergonomic
 - Maintenance
- Financial
 - Investment
 - ROI





Return on investment (ROI)

Costs

- Investment
 - Acquisition
 - Installation
- Operation (annual)
 - Maintenance
 - Amortization

Benefits

...

- Direct purchase (e.g. drugs)
- Direct staff costs
- Efficiency (organizational costs)
- Safety (less errors)

Partially based on estimations

ROI (years) = initial investment / annual balance





Return on investment (ROI)

Exemple: automated dispensing cabinets

Fictive numbers	Investment [CHF]	Operation (annual) [CHF]	Time for ROI
Acquisition costs	+ 45'000		
Maintenance		+ 1'500	
Amortization (8 years)		+ 6'250	
Reduction stock value	- 5'000		
Reduction drug purchase (- 5%)		- 7'500	
Staff costs (technicians vs nurses)		- 6'000	
Safety (cost of errors)		- 3'500	
Total	+ 40'000	- 9'250	4.3 years





Identification

Why GS1?



- Need to have a standardized system to identify objects, persons and locations
- GS1 is an international standard, recognized in the fields of logistic and health
- GS1 is the dominant standard for drug identification around the world
- Increasing interoperability needs in and between hospitals, important to abandon proprietary systems





Actors identification

Patient









YOUR IDENTITY IS YOUR SECURITY

Become an actor of your own security

Immediately after your admission, you will receive an ID bracelet with your name, surname, gender and date of birth. By keeping it at your wrist (or at your child's wrist) throughout your stay, you will contribute to the safety of your health care. It helps controlling that you receive the treatment that you were prescribed. This procedure also applies to the children followed up in Pediatrics.

Fewer errors thanks to wearing the bracelet

HLG

With an ID bracelet for all patients, the HUG intend to improve your health care and reduce errors. That is why, during your stay, your identity (or that of your child) is verified several times. Your participation is essential.

Secondary package – for logistics



Safety ID product (INSUFFICIENT) EAN-13

Batch number Expiry date (URGENT)



Datamatrix

Conterfeiting Serial number

(idéal)





Identification of single doses







Single dose Europe

- Unit doses blisters, with each single dose containing the whole information
 - Trade name
 - Active substance
 - Dosage
 - Expiry date
 - Batch number
 - Barcode

- european association of hospital pharmacists
- Including product ID, expiry date and batch number
- Use of a recognized international standard (i.e GS1)

EAHP. 2007

Datamatrix





Single dose GS1



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Position paper on the identification of the primary package level of drugs

References

GS1 Healthcare GTIN Allocation Rules: http://www.gs1.org/sites/default/files/docs/gsmp/healthcare/GS1 Healthcare G TIN Allocation Rules.pdf

GS1, 2015

Endorsed by:







Single dose – for clinical use







Panadol 500 mg paracétamol

n°lot 420607 Exp. 08.2009



Safety ID product (minimum)



Traceability

Batch number Expiry date (ideal)





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Barcodes ... how to progress ?

Hospitals

- Implementation of IT (hardware, software)
 - Logistic
 - Clinical
- Costs / uncertainty in ROI
- Institution readiness (culture)

Availability of drugs with barcodes... (need to relabel)



Industry

- Adaptation of production lines
- Costs
- Serialisation
- Heterogeneous requirements
 - Customers
 - between countries
 - in a same country
 - hospital vs community
 - Authorities

Existence of customers scanning the barcodes... (producing for whom ?)





GS1 codification of pharmaceuticals at HUG

Product ID (batch production)



GTINEXP dateBatch01176131670012491712083110PDS-11289663





Lessons learned

- Automation and robotisation are important strategies to optimize drug management
 - Safety can be improved, as well as efficiency and traceability
 - A strategic vision should be elaborated by any hospital
 - The implementation is a challenge and it must be intelligently and interdisciplinary decided and planned
 - We need an identification strategy in the hospital, using international standards (GS1)
 - Primary and secondary packages of drugs must be appropriately identified by the industry





ViN Vi

Pharmaceutical industries and hospitals have to work together

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HPAC Questions and contact details





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