







Schweizerische Gesellschaft für Sterilgutversorgung Société Suisse de Stérilisation Hospitalière Società Svizzera di Sterilizzazione Ospedaliera

## RFID Tracking: Back to the Future? Experience of the University Hospitals of Geneva

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Preamble



 I declare that I have no conflict of interest in the development of this work

• Partner companies in this project:

Caretag
KLS Martin group
Marcel Blanc & Cie SA







Schweitzschein Sesellschaft, Mr Sierflywitzusergung Sastifte Subern de Hörflichten Hespiletistan Sneisen Selzuna (II Sta-Bizzahlum Caposistier)

- Assess following aspects of the Caretag <sup>™</sup> RFID technology:
- ➤Technical
- ≻Operational
- ➢Organizational
- Put this solution into perspective with laser data matrix identification
- Determine the key success factors for routine implementation of the solution





## The Caretag<sup>™</sup> solution (1)

Schursbarischen Schollschaft, Mr. Sterfleutznanorgung Sachtig Sachte die Stärlikasione Hoppischikan Sachteb Schures (Il Starkkassione Organischers











## The Caretag<sup>™</sup> solution (2)



Schenkarische Schellschaft, Mr. Sanflestmassegung Sachtij: Saltze de Statikation Hospitalian Sachtij: Saltze de Statikastatione Ospolation











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### **Cleaning assessment**

Washer-disinfector, enzymatic cleaning 15 minutes contact time



### Methodology

- Drying time 30 minutes, 1 hour and 2 hours
- 50 instruments tested in each cycle
- 3 series of 3 cycles
- Macroscopic observation
- Observation under binocular loupe (x 32)





## Technical aspects (2)



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98 of instruments visually clean Detection of negative residual proteins

2% of instruments not compliant after washing

- Persistent soiling (from being left to dry 30 minutes before cleaning)

- Glue residues



Validation of cleaning essential including definition of worst case scenario <u>No impacts noted during steam sterilization 134°C 18 minutes</u>







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## User reviews (1):

>No difficulty in using the instruments

Easy to handle (with gloves)

Limitation related to tag size for microsurgery
Fear of losing the Tag during surgery
Tag location to be validated with users
Questionable aesthetics







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## User reviews (2):

➤Easy to use and intuitive

- ➤Saves time searching for references
- ➤Fewer errors during recomposition
- Potential "security gates" at the exit of the OR: enhanced security, narrows down the scope of search for "lost" instruments
- Risk of getting slovenly and not doing the checks anymore (clean, dry, functional)
- ≻What plan B in the event of a breakdown?
- ≻Repetitive tasks, risk of losing knowledge of the instruments





#### 3 "new" operators / 3 "experienced" operators / 10 tests per operator

	Tray 1 RFID	Tray 1 Data Matrix	Tray 2 RFID	Tray 2 Data Matrix
Average "beginner" time	7 minutes	13 minutes	10 minutes	18 minutes
Average "experienced operator" time	7 minutes	9 minutes	9 minutes	12 minutes

- Faster recomposition with RFID
- Some Data Matrix codes more difficult to read than others (10 instruments) and greater visual stress





## Organizational aspects (1) (2)



Schurcharische Resolischeit: Mr Starfigetrussergung Sazieht: Seizer de Hilefitzeiten Hospietisian Sezieht: Seizeren (I. Starfigzenform Derechtigen





#### Instruments more difficult to read







cheraturische Sozellecheit. An Stanflywarensergenz 2000: Sebzer die Sigeflichtigen Hoppskythige 1925: Solzzen (I Stanflichtigen Objechicher)

# Costs

Assumptions:

• Tray of 50 instruments to identify

	Unit cost	For 50 instruments
RFID	14.50 euros	725 euros
Data Matrix	5.90 euros	295 euros

- Amortization over 3 years (50,000 trays per year)
- ≻RFID: 0.13 euros per recomposed tray
- ➤Data Matrix: 0.04 euros per recomposed tray
- Direct labour cost per minute: 0.90 euros





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# Costs

- Each recomposition takes on average 1.5 times longer with Data Matrix than with RFID
- 5 extra minutes per set with Data Matrix results in an additional cost of 4.50 euros per set
- After approximately 100 reprocessing cycles, the initial cost difference is amortized, i.e. in less than 6 months for a daily use of the tray







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# Food for thought

	Data Matrix	RFID
Instrument identification rate	97% (code sizes from 2x4 mm <sup>2</sup> to 3x3 mm <sup>2</sup> )	< 85%
Code reassignment in case of wear	yes	no
Instruments already identified by the majority of manufacturers	yes	no
Integration into existing traceability system	yes	no
Dynamic, scalable system, instrument life cycle	no	yes
Numerical code (plan B)	yes	no







- Define the scope of your project: management of the instruments life cycle or simply associating container and content
- Precisely identify for each instrument the location of the Tag with the user
- Find an alternative solution for certain instruments
- Address the issue of responsibility for adding the Tag to another supplier's device: who is liable for putting the instrument on the market?
- Engage in a strong partnership with your service provider for a win-win solution
- Run a technical validation of the solution according to your reprocessing process
- Have a plan B





## Key success factors (2)



Schweiterbeden Sosollischaft, Mr. Starflepetramorgan Saspitte Indezen die Starikanijene Hospitelisian Sastiani Sekurato (Il Sas-Kassinione Orgentatione

#### Standardization of TAG installation



#### Check box after OR procedure





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Schweitzschofen Sesellischnik Mir Starffestmannergenzy Sachtlie Salezer de Hörffiszioner Hotspiletistan Sachtlie Selezere (# Starffiszionischen Objektischen)

• Chapter 3.7 Traceability New Swiss Good Reprocessing Practices for medical devices

Information on traceability can be affixed to containers (containers, paper / plastic packaging, etc.), but traceability can also be individual to the MD.

The gradual introduction of UDIs on MDs **could allow healthcare establishments to develop individual traceability of reprocessing from 2027 onwards**, <u>taking</u> <u>into account the cost/benefit/risk ratio and technical</u> <u>feasibility</u> (cf. art. 104 0Dim).







- Improvement of identification and traceability with RFID tags compared to the first trials 15 years ago
- Monitoring the life cycle of the instrument of interest, in relation to the new European regulation (RDM 2017/745)
- High investment costs depending on the instrument pool
- No real reasons for switching from data matrix to RFID when data matrix traceability is implemented in a department





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Thanks to the HUG central sterilization team Céline Brehier, Eliana Monteiro, Jeremy Renault

#### Creativity is contagious, pass it on.

#### Albert Einstein

Believing in progress does not mean believing that any progress has yet been made.

Frantz Kafka

