The Global Language of Business

The Adoption of GS1 UDI Standards - A Chief Cardiovascular Surgery Perspective

GS1 Healthcare Webinar

Dr. Chun-Che Shih, Chief of Division of Cardiovascular Surgery, Taipei Veterans General Hospital, Professor of Institute of Clinical Medicine National Yang-Ming University
Taiwan

January 24th, 2019

Welcome and thank you for attending!

- Welcome to our January 2019 webinar.

  Thank you to our guest speaker Dr. Chun-Che Shih, Chief of Division of Cardiovascular Surgery, Taipei Veterans General Hospital and Professor of Institute of Clinical Medicine National Yang-Ming University in Taiwan
- 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: http://www.gs1.org/healthcare/hpac_webinars
  - All previous webinars are also posted to this location, please feel free to use and share the link

GS1 Healthcare Webinars

Focus is on 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

- 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

Identification of projects and case studies

- That support the adoption of GS1 Standards in healthcare providers and retail pharmacies
- For publication, presentation and sharing

A source of expertise and advice

- 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

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

GS1 Healthcare also holds two global conferences per year. The next conference will be in Noordwijk, the Netherlands from March 26 – 28, 2019.
We expect significant Healthcare Provider participation on the agenda.

Presenting today

Dr. Chun-Che Shih

- Chief of Division of Cardiovascular Surgery, Taipei Veterans General Hospital
- Professor of Institute of Clinical Medicine National Yang-Ming University
- Dr. Shih has pioneered the UDI operation in the division of cardiovascular surgery at Taipei Veterans General Hospital, which makes surgery less expensive and merchandise management organized

Agenda
What is the Impact on First Line Staff in the OR?

1. Current Situation of Medical Recordings in Taiwan
2. The Impacts on the Adoption of GS1 UDI Standards
3. The Effects of UDI Standard Adoptions on Patient Safety and Hospital
4. The Benefits of UDI Standard Adoptions in Department of Cardiovascular Surgery
5. Conclusions

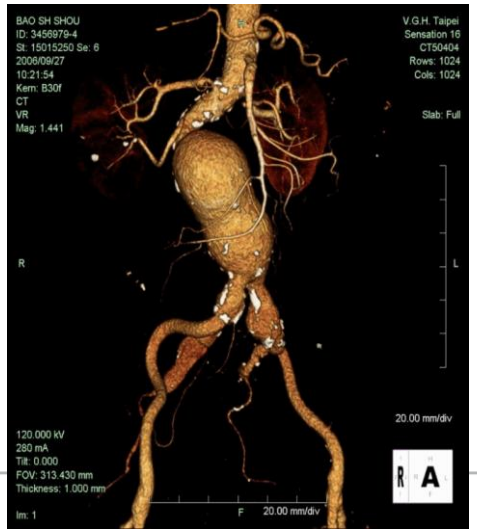
TFDA announced class III medical device ongoing for clinical UDI application on Oct. 30, 2015

Taipei Veterans General Hospital (VGH)

- National first-class medical and teaching center providing tertiary patient care, undergraduate and residency educational programs in Taiwan. It was founded in 1958 and administered by the Veterans Affairs Commission. It is in Beitou District, Taipei and majorly serves patients in northern Taipei and New Taipei. Three branches, Taoyuan Veterans Hospital, Yuanshan Veterans Hospital, and Suao Veterans Hospital, were established.
- Hospital Size: 73 hectares(Site area)；
  457,492 m² (Floor area)
- No. of staff: 6,141
- Hospitalized Patients: 3,531,913
- No. of beds: 3,077

Cardiovascular Surgery Department, TVGH

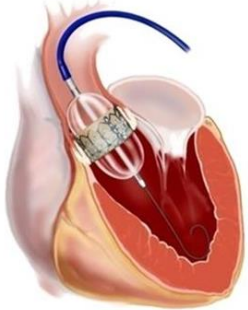
- The Cardiovascular Surgery Division at Taipei Veterans General Hospital was founded in 1958 in order to provide the public with the most advanced treatment for cardiovascular diseases and to conduct the highest level of basic as well as applied research on the cardiovascular system and diseases.

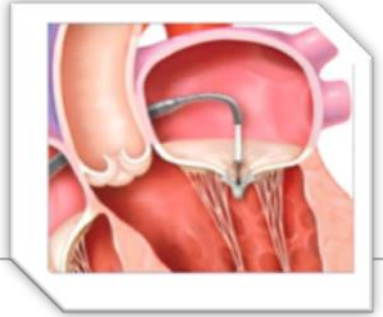


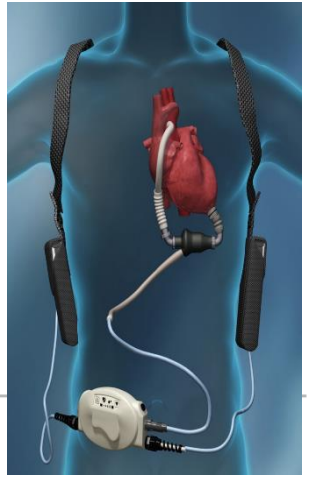
Tremendous Work Loading for High-price Class III Medical Device Management

Services includes:

- Cardiac Surgery : CABG, cardiac valve repair or replacement, congenital heart disease, heart transplantation, ECMO, and VAD.
- Endovascular Stent Graft Surgery: Minimally invasive endovascular stent graft surgery for thoracic aortic aneurysm(TAA), abdominal aortic aneurysm (AA), transcatheter aortic valve implantation (TAVI), mitral Clip.
- Robotic-assisted minimal invasive cardiac surgery







Management Process for high price Class III Medical Device at Taipei VGH

Centralized Purchasing Process

Before Adoption

- Taipei VGH department of Supply Department
- Division of Cardiovascular Surgery and Operation Room Manual Inventory management Process
- Suppliers informed by TEL order and account reconciliation one month later

The Adoption Purpose of Medical Supply Chain Management System

Material Inventory

- Smart capability managing general medical supplies, consumables, high-value implants.
- Reduce the managing burden of administration personnel
- Clear and simple accounting
- Less procurement process
- Less expired inventory in Hospital

Clinical utilization

- One Scan and easy use.
- Significantly reduce the problems of out-of-stock.
- Lower the cost

Healthcare Practitioners

- Improve the accuracy of health insurance declaration
- Reduce medical loss of hospital
- provide complete Electronic Medical Records (EMRs)

Suppliers

- Precise reconciliation

Application of WHOLESALE Management System

1978 Taiwan

1983 Seattle USA

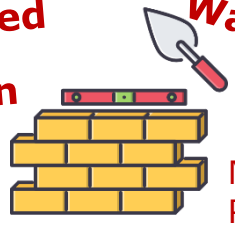
There are two ways of application adoption concepts

Wholesales 7-11 System

Complicated

Low Precision

Waste of man-power



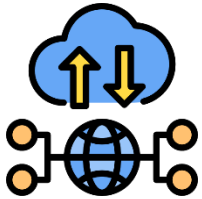
Nurses/ MD suppliers/
Purchaser/ IT

- Upload Database during Registration
- Manual Data-checking
- Precision Rate: 50-60%
- Multi-systems
- High risks on Information Security

Traditional

The Adoption Customized System since 2013

EASY to USE



EASY INTEGRATION on Clinical systems

- Smart Algorithm
- Easy Integration of Existing Clinical Systems
- Precision Rate: 100%
- Cloud Computing: Easy Integration on data (clinical/ logistics/ suppliers)
- Low risks on Information Security

NEW Design

One Item Number for Same Products

One Item, one ID (Spirit UDI)

The Adoption of GS1 UDI Standards- A Chief Cardiovascular Surgery Perspective in 2013

No hardware device & Manpower added

Same Nursing Care Computer

One Scan for Inventory Registry

Current Obstacles of Medical Logistic in OR

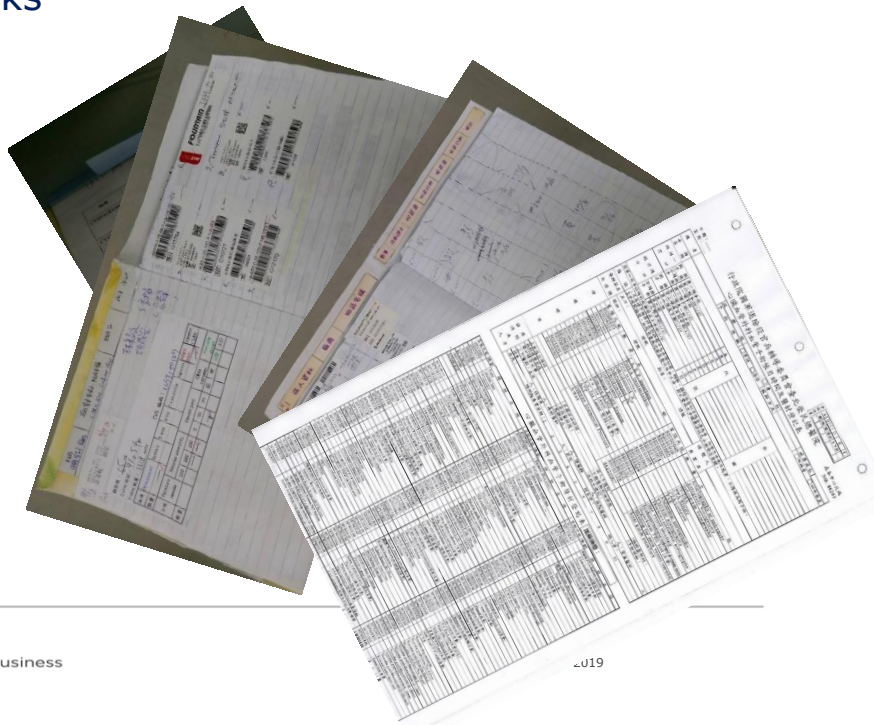
- Item Number in Hospital
  - One Item Number for Numerous Medical Equipment
  - Diverse Hospital-dedicated Own Item Number
  - Nurses-serviced Centered Pricing and Reimbursement Insurance Declaration

- Burdens on Nurses

  Extra Un-nursing Services After Surgery Completion
  - Reorder of Medical Equipment by Phone
  - Communication between Nursing Colleague and Medical Devices Manufactures/Wholesalers
  - Lengthy Time On Closing the Ledger and Requesting for Invoice

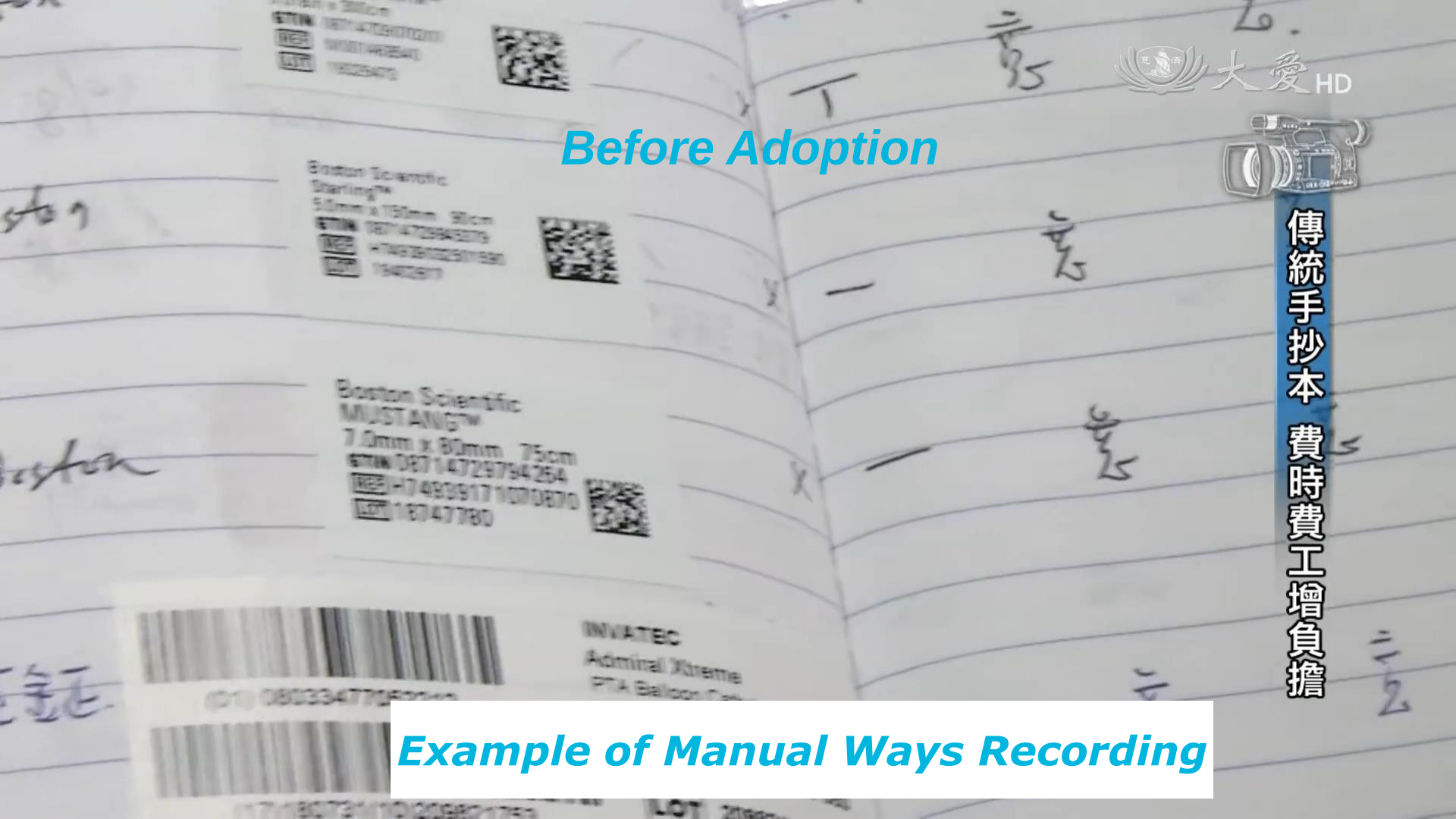
Current Obstacles of Medical Inventory in OR

- Manpower-Serviced Centered Recording Process
  - Patient Photographic Image Numbering Books
  - Used Medical Equipment Recording Notebooks
  - Surgery Participants Recording Notebooks
  - Pricing Triplicate Paper Forms
  - Phone Ordering and Reordering Notebooks



Medical Device Logistics: dynamic & unlimited

- Periodic Self-Inventory Check from Manufacturers and Wholesalers
- The Inconsistent Recording will Endanger & Postpone In-time Procurement
- Require Fixed Manpower on Medical Equipment Management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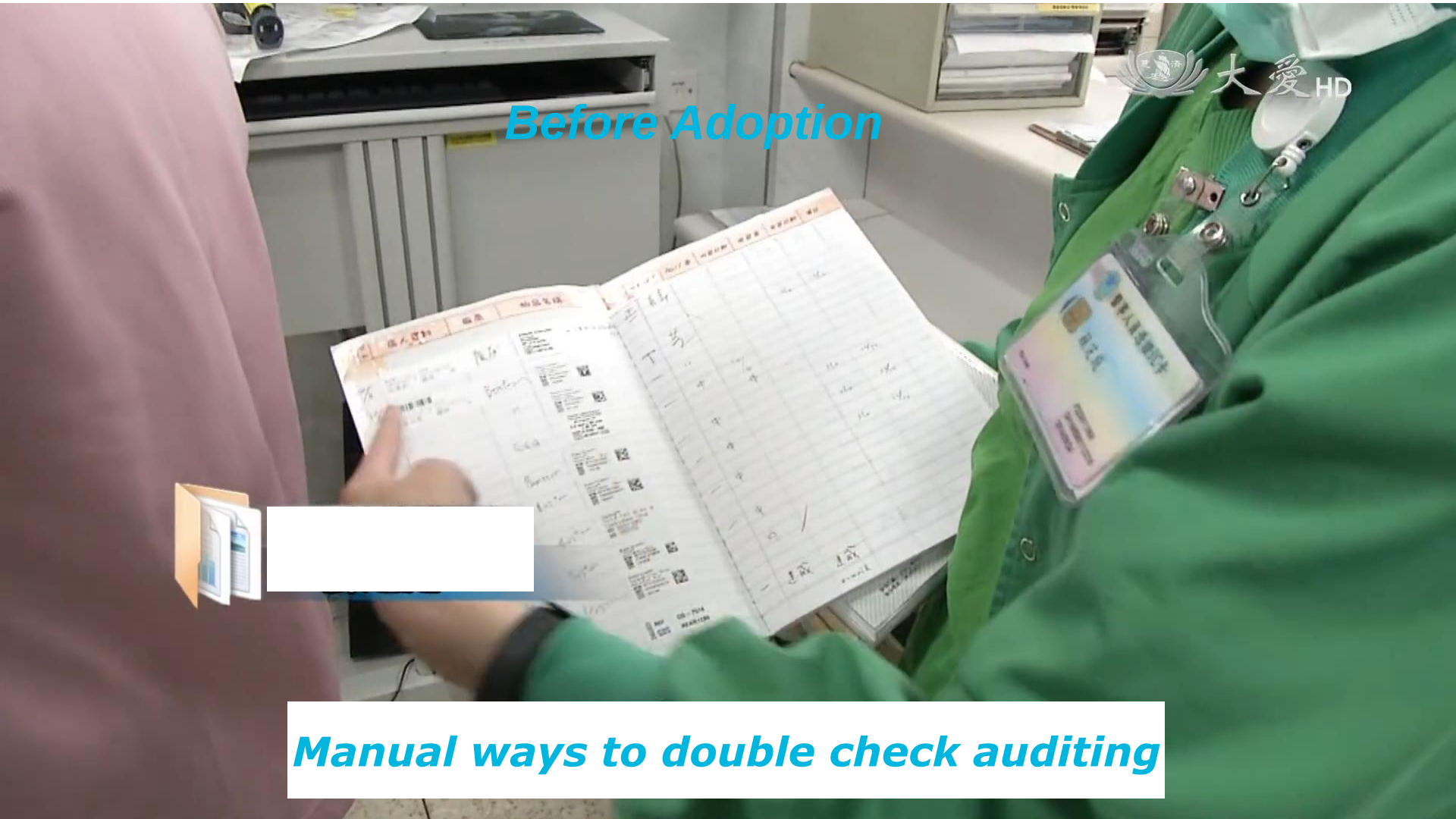
Before Adoption
傳統手抄本 費時費工增負擔
Example of Manual Ways Recording


大愛 HD
Before Adoption
Manual ways to double check auditing

Current process after adoption of UDI system

Just one scan to get all information of Product data

Detailed Recording Easy Auditing

The Frequent Encountered Problems on the Adoption of GS1 UDI Standards

1. Insufficient Cognitions on UDI Standard of Medical Equipment Manufacturers and Wholesalers
2. Database is Inappropriate for UDI Decoding
3. Hardly Achievement on UDI Barcode Information of Imported Implants and Medical Equipment
4. Difficult Data Interfacing with the Old Hospital System
5. Nurses resistance on Electronic pricing process
6. Unreadable UDI barcode and Ingrained Pricing behavior on nurses

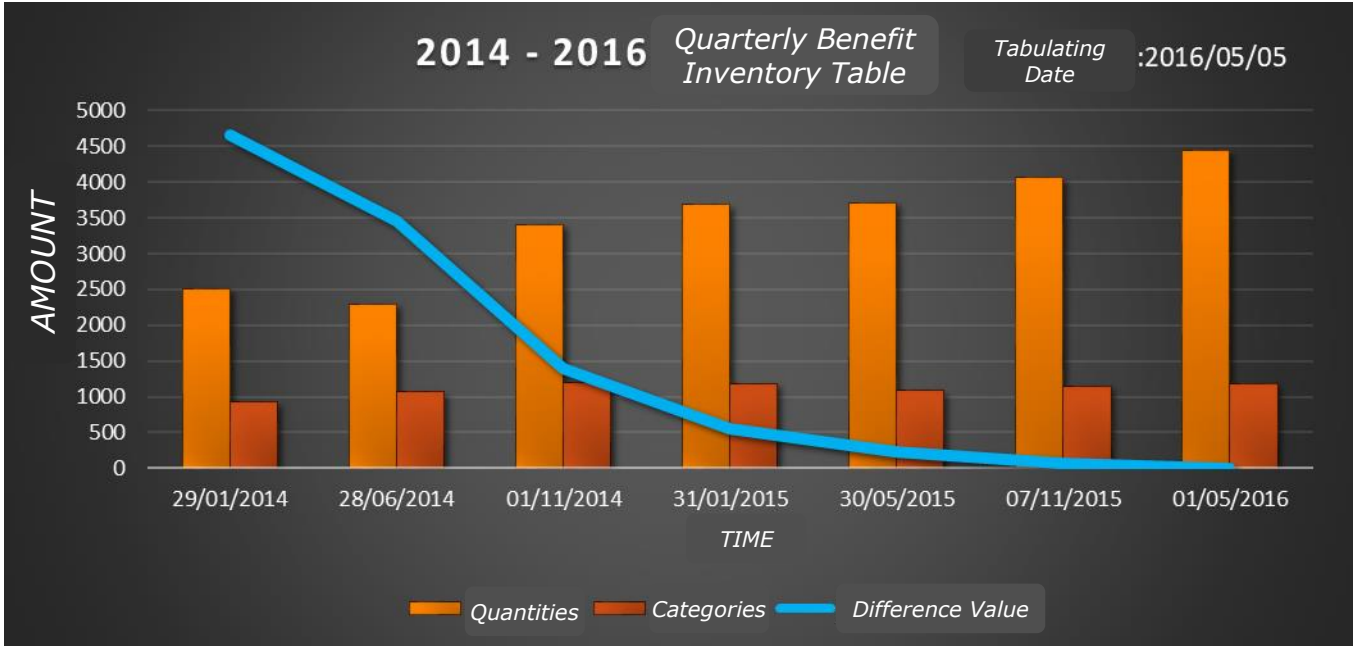
Different kinds of label layout increase the difficulties for human-eye identification and machine scan

The Impacts of UDI Standard Adoptions on Patient Safety

- **Before** UDI adoption, the information such as batch no. and Expiration date is not so easy to manage. This is no doubt against patient safety.
- **After** UDI adoption,
  - Increase the automated administration of surgical operating room (pricing, declaration)
  - Avoid misusing or accessing of the expired products.
  - Complete the medical and nursing records of patients immediately.
  - Improve the turnover rate of operating room and the surgical quality and nursing care.

The Additional Benefits of UDI Standard Adoptions in Department of Cardiovascular Surgery

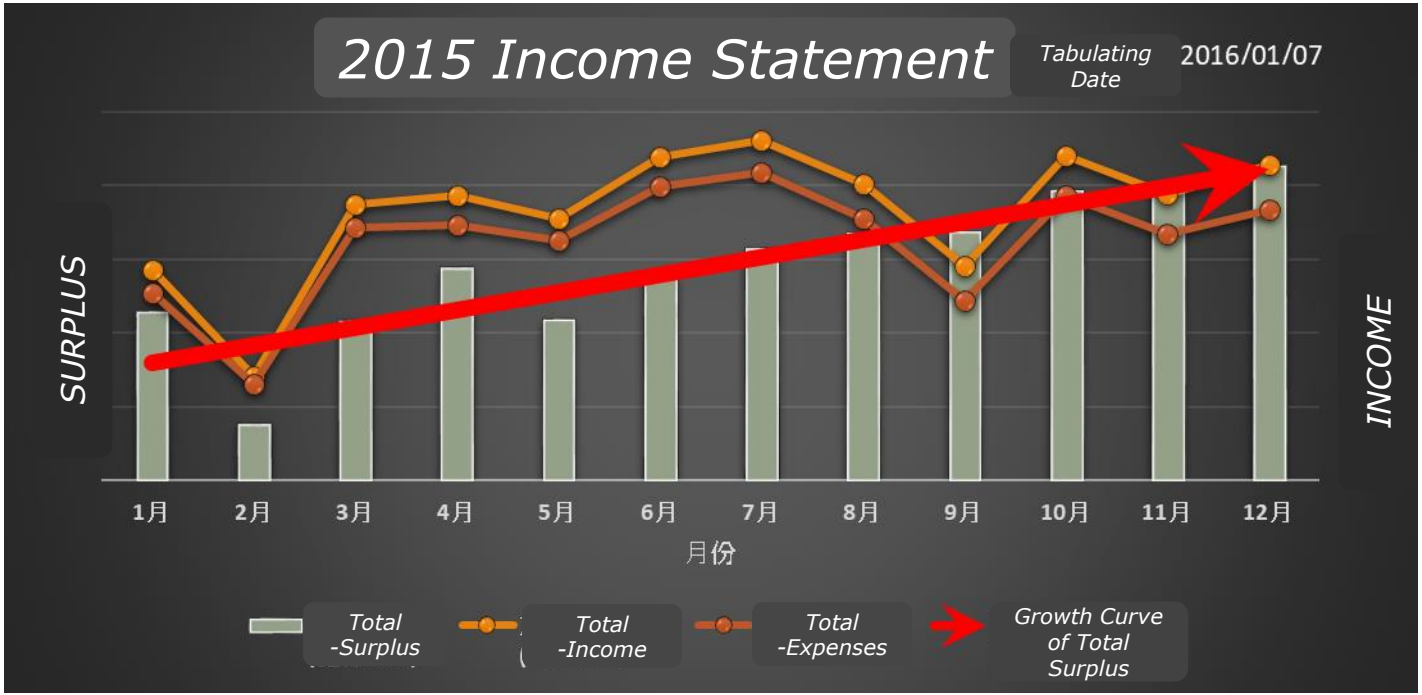
Loss before UDI adoption; Gain after UDI adoption



Blue line: After auditing the inventory discrepancy rate is nearly zero.

Yellow Column: Medical device consumption amount increased along with time

Income Growth of Medical Device after UDI adoption



Immediate monitoring the income and surplus status and growth curve

Chart of Cost Analysis

Cost Analysis on Sets

(2016/01/01~2016/05/10)

Items Name (Sets)	*Total Expenses (average)*	*Total Income (average)*	*Implied Income (average)*	*Surplus (average)*	*GPM (average)*	*Income Percentage (average)*	*Income Percentage (no implied income)*
Cook AAA Stent Graft	379263.3	493527.8	14453.9	128718.3	24.10%	77.68%	75.09%
Cook AAA Stent Graft(一段式)	46482.0	56686.0	12769.7	22973.7	29.11%	82.00%	59.47%
Cook TAA Stent Graft	423310.0	487000.0	7124.5	70814.5	14.31%	86.96%	85.44%
Cook TAA Stent Graft(一段式)	407160.0	468000.0	0.0	60840.0	13.00%	87.00%	87.00%
Cook TAA Stent Graft(二段式)	407160.0	468000.0	0.0	60840.0	13.00%	87.00%	87.00%
Cook TAA Stentgraft - 1支	407160.0	468000.0	6348.9	67188.9	14.14%	87.00%	85.64%
Cook TAA Stentgraft - 3支	363375.0	427500.0	28347.0	92472.0	20.29%	85.00%	78.37%
GORE TAA Stentgraft - 1支	402632.0	470877.2	7660.6	75905.8	15.78%	85.56%	83.93%
GORE TAA Stentgraft - 2支	363375.0	427500.0	52634.0	116759.0	24.32%	85.00%	72.69%
Gore-AAA 一段式-PXC	47230.0	56686.0	0.0	9456.0	16.68%	83.32%	83.32%
Gore-Excluder AAA Stent Graft	366846.0	431534.5	10344.7	75033.2	16.92%	85.00%	82.62%
Gore-Excluder TAA Stent Graft	402632.0	469438.6	3326.1	70132.7	14.78%	85.80%	85.10%
Gore-Excluder TAA Stent Graft一段	429780.0	468000.0	0.0	38220.0	8.17%	91.83%	91.83%
Gore-Excluder TAA Stent Graft二段	429780.0	468000.0	0.0	38220.0	8.17%	91.83%	91.83%
Medtromic -Endurant AAA	342000.0	427500.0	3269.1	88769.1	20.58%	80.00%	79.24%
Medtromic -Valiant TAA	402632.0	468000.0	631.1	65999.1	14.08%	86.03%	85.90%
Medtronic Cora-Valve System(1)	990000.0	1070000.0	581.0	80581.0	7.53%	92.52%	92.47%
Medtronic TAA Stentgraft - 1支	402632.0	468000.0	3956.0	69324.0	14.69%	86.03%	85.19%
Total	441668.4	512017.4	6957.4	77306.5	15.85%	85.47%	83.66%

An example of detailed cost analysis chart

Conclusions

UDI brings benefits:

1. Efficiency for Hospital management
2. Accuracy for Healthcare practices
3. Easy & simplified accounting
4. Income profits for Hospital execution

“Smart” Medical Care and Management Process

Contact Information

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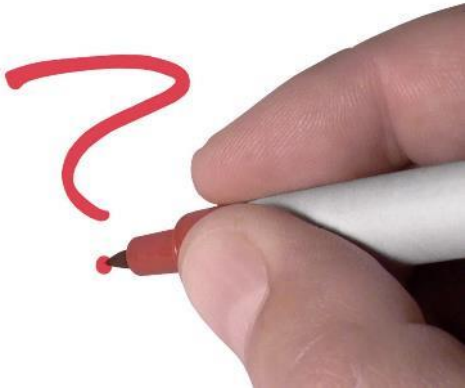
GS1 Healthcare webinar:
Questions and contact details



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