Enhancement of Patient Safety

Application of 2D Barcode Technology for Correct Patient Identification

Simple
Information Technology
Total Quality

February 2006 - January 2007

NPSA (UK)

24,000 reports of patients being wrongly identified and mismatched with their care.

At one HA hospital, over 12 months, 132 reported incidents of misidentification of patient for investigation / wrong patient's label.

USA
Joint Commission on Accreditation of Healthcare Organisation (JCAHO)

National Patient Safety Goals 2008

Goal 1	Improve the accuracy of patient identification.
Goal 2	Improve the effectiveness of communication among caregivers.
Goal 3	Improve the safety of using medications.
Goal 7	Reduce the risk of health care-associated infections.
Goal 8	Accurately and completely reconcile medications across the continuum of care.
Goal 9	Reduce the risk of patient harm resulting from falls.
Goal 13	Encourage patients' active involvement in their own care as a patient safety strategy.
Goal 15	The organization identifies safety risks inherent in its patient population.
Goal 16	Improve recognition and response to changes in a patient's condition.

Hong Kong Hospital AUthority Patient Care Related Risks 2009

1. Misidentification	• Patient • Specimen
2. Medication	• High risk drugs / process • Drug reconciliation on admission / discharge
3. Infection	• HAI- MRSA • HAI- Surgical site infection
4. Patient's condition	• In-Patient suicide • Patient fall
5. Patient Care process	• Patient assessment (identify critical ill patient) • Communication between caregivers • Safe Surgery

---

Safe Culture
Safe Design
Safe Practice

1. Protect **our patients** from adverse incident
2. Protect **our staff** from making error

September 2004

Blood sampling for cross-match was taken from the **wrong** patient

Hence blood of the **wrong blood group** was given to the patient

---

A = B → **C**

Scan ID# on A and B, if match produce a label (C)

A (wristband)

B (Job sheet/form)
T&S request form (phase 1)
Last Office form (phase 2)
Investigation order (phase 3)
Medication Chart

B (Objects)
Blood product (phase 1)
Body (phase 2)
Chemotherapy drug

C Label for specimen

C Label for record purpose

A Simple re-designed safe practice approach

Bedside printing of labels from a 2D barcode storing the label's information

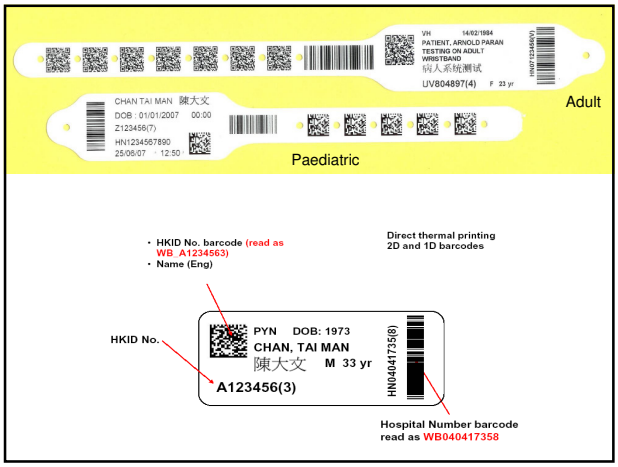
OLD SYSTEM
Doctor order investigation at work station

Label(s) for specimen are printed from the label printer at the work station and taken to the bedside

NEW SYSTEM
Using 2D barcode label

will print a job sheet with a 2D barcode (Patient ID, name and the investigation information) at the work station.

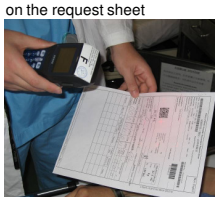
The job sheet is then taken to the bedside for verification that the ID on job sheet **matches** that on patient's wristband by barcode scanning



(1) Blood taking process for T&S

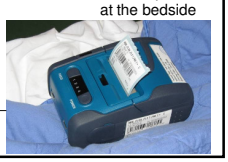
Step 1: Scan patient's **ID** Barcode on the **bracelet**

Step 2: Scan the 2D barcode on the request sheet



If the 2 ID # match

Step 3: A label is printed at the bedside



Step 4: Immediately affix the label onto specimen tube

2. Blood administration (verify patient's identification)

Step 1 Scan patient's ID label on wristband

Step 2 Scan patient's ID on the compatibility label

Step 3 Scan WBN number

If the 2 ID # and WBN # matched

Step 4 A label will be generated

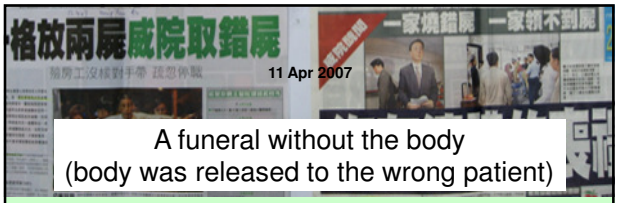
Step 5 Stick the label onto transfusion note

Phase 1:
Blood transfusion (Cross-matching and transfusion)

Successfully rolled out to
all 39 HA acute hospitals
Q2 2007 to Q1 2008

No further incident
of cross-matching or transfusion error*

(*except for areas not yet fully implemented the barcode scanning, such as A&E)



A funeral without the body
(body was released to the wrong patient)

Phase 2:

Body identification for Last office from ward to mortuary

3a. LAST OFFICE PROCEUDURE (WARD)

Step 1: Scan the 2D barcode on the **wristband** → **Step 2**: Scan the 2D barcode on the **Last Office Form** (part 1) → **If both ID # match**


Step 3: 3 labels will be generated

Step 4 Attach the labels to the **Last Office Form** & 2 **Body Identification Tag** (HA234)


+


3b. BODY IDENTIFICTION AT MORTUARY (at arrival)

Step 1: Scan the barcode on the **wristband or Body Identification Tag** → **Step 2**: Scan the barcode on the **Last Office Form** (part 2b) → **If both ID # match**


Step 3: 2 labels will be generated

Step 4 Attach the labels to the **Last Office Form** & the **Name card** for body storage compartment


+


3c. BODY IDENTIFICTION AT MORTUARY (body release)

Step 1: Scan the barcode on the **wristband or Body Identification Tag** → **Step 2**: Scan the barcode on the **Body Collection Form** → **If the 2 ID # match**


Step 3: 1 confirmation label will be generated

Step 4 Attach the label to the **Last Office Form**

18

Outcome :

No further incident of issuing the wrong body to family across all the 39 hospitals.

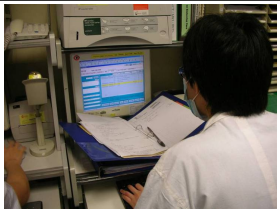
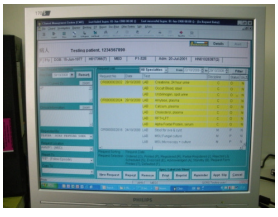
(32000+ body released / year)

Misidentification of patient or using the wrong label for patient's specimen is very common !

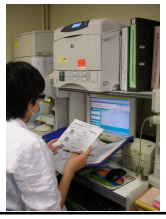
SAFETY SOLUTION:

Phase 3: Q3 2008 onwards
(12 hospitals implemented)

Bedside printing of label for all investigation specimens

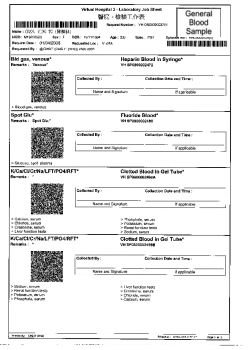



Order investigations via CMS-GCRS

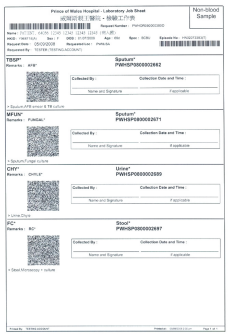


A job sheet will be printed (instead of labels) at the work station.

Blood - general
for all simple blood tests



Non blood specimen
e.g. sputum, stool, urine
- for nursing staff

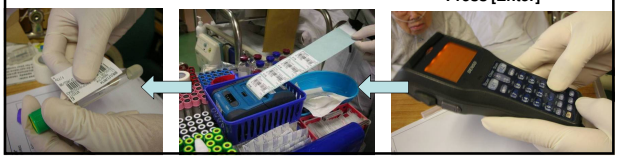


Scan patient's wristband 2D barcode

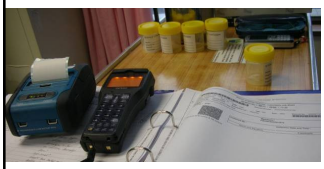
Scan 2D label(s) on job sheet

If the ID numbers match, labels will be printed

Press [Enter]



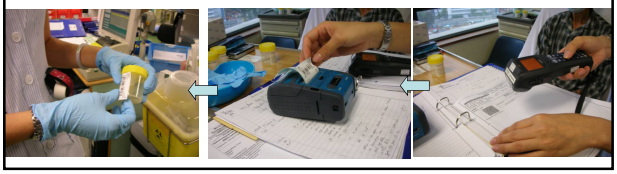
When a specimen is available, nurse will retrieve the job sheet



Scan Patient wristband 2D barcode

If the ID numbers match, a label will be printed

Scan job sheet 2D job label



Equipments

Wristband printer

Approx. US$600

2D Barcode Scanner
Bedside Printer

1 set per 10 beds

Scanner@ US$730 each
Printer @ US$400 each

Number of misidentification (case) before Implementation of 2D barcode scanning

	-6 m	-5 m	-4 m	-3 m	-2 m	-1 m
Hosp A	8	4	8	10	7	4
Hosp B	0	0	0	0	2	0
Hosp C	1	0	1	1	0	2
Hosp D	3	4	4	3	6	6
Hosp E	3	0	0	3	0	3
Hosp F	6	2	6	2	2	2

Number of misidentification (case) before and after Implementation of 2D barcode scanning

	-6 m	-5 m	-4 m	-3 m	-2 m	-1 m	1 m	2 m	3 m	4 m	5 m	6 m	7 m	8 m	9 m	11 m	10 m	12 m
Hosp A	8	4	8	10	7	4	1	0	1	0	0	0	0	0	0	0	0	0
Hosp B	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0		
Hosp C	1	0	1	1	0	2	0	0	0	0	0	0	0	0	0			
Hosp D	3	4	4	3	6	6	0	0	0	0	0	0	0	0				
Hosp E	3	0	0	3	0	3	0	0	0	0	0	0	0					
Hosp F	6	2	6	2	2	2	0	0	1	0	0							

Safe Design
Safe Practice

Simple Information Technology
Total Quality (Patient Safety)

Can protect **our patients** from adverse incident

Can protect **our staff** from making error