Centre universitaire de santé McGill
McGill University Health Centre

Bar coding in the Blood Bank

for Ease, Speed + Accuracy

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ICCBBA-GS1 International Meeting

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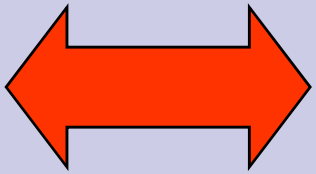
Bar coding in the blood bank

Bar coded Blood components		Non bar coded Plasma derivatives

Significant difference in:

- Efficiency
  - Time to enter & verify entry
- Risk of error
  - Reading, interpreting, data entry, data verification
- Costs associated
  - Low efficiency, error management & correction
- **Patient safety**
  - Aspect of data accuracy & traceability

McGill University Health Centre

- Specialties include:
  - Auto/Allo Bone marrow/stem cell transplant
  - Solid organ transplant → IgHepB
  - Hematology/oncology
  - Cardiovascular surgery
  - Obstetrics→ RhIG
  - Neurology / Neurosurgery → IVIg, Tisseel
  - Apheresis → Albumin
  - Specialized Pediatrics / Neonatology → Albumin
  - Neonatal/pediatric cardiac surgery & ECMO
  - Thalessemia & Sickle Cell Centre
  - Hemophilia centre → Factors

Stable (Fractionated) Products **Entry activity** per year

Activity	# entries	# vials	# vials/entry
Received	2417	48,637	20
Issued	17,154	50,698	3
Returns	2,847	5,830	2
Total activity	**22,500**	**105,200**	**5**

Product information entered:

- Blood components
  - Order #
  - Invoice #
  - Date of receipt
  - Supplier
  - Product code & name
  - Manufacturer
  - Donor #
  - Expiry date
  - Collection date
  - Blood group
  - Phenotype
  - Attributes (details
  - Allogenic / Autologous / Directed
  - Volume
- 13 Fields: 2 sources of info
  - Invoice
  - **Actual product** (bar codes)

- Plasma derivatives
  - Order #
  - Invoice #
  - Date of receipt
  - Supplier
  - Product code & name
  - Manufacturer
  - Lot #
  - Expiry date
  - IU / vial (coagulation factors
  - Sub-vial lot #s (Tisseel)
- 8 Fields: 2 – 4 sources
  - Invoice → Product code
  - **Actual product**
  - Manufacturers date sheet
  - Tisseel subvial lot # sheet

Bar codes → confirmation of administration from paper document – not the product itself

9999999

UNKNOWN PATIENT (M)

ABpos
1ère détermination

Né(e) : 1995-05-05

Médecin :

Prescripteur : **INCONNU**

Destination: : **OR**

Mère :

Commentaire(s) :

Directives : PRODUITS CMV NÉG ET IRRADIÉS

Produit

100042

PLASBUMIN 25% 100ml
ALBUMINE 25%

Code fabricant:

0845

N° de lot :

26N96L1

Qté: 1

Séquence(s) : 13

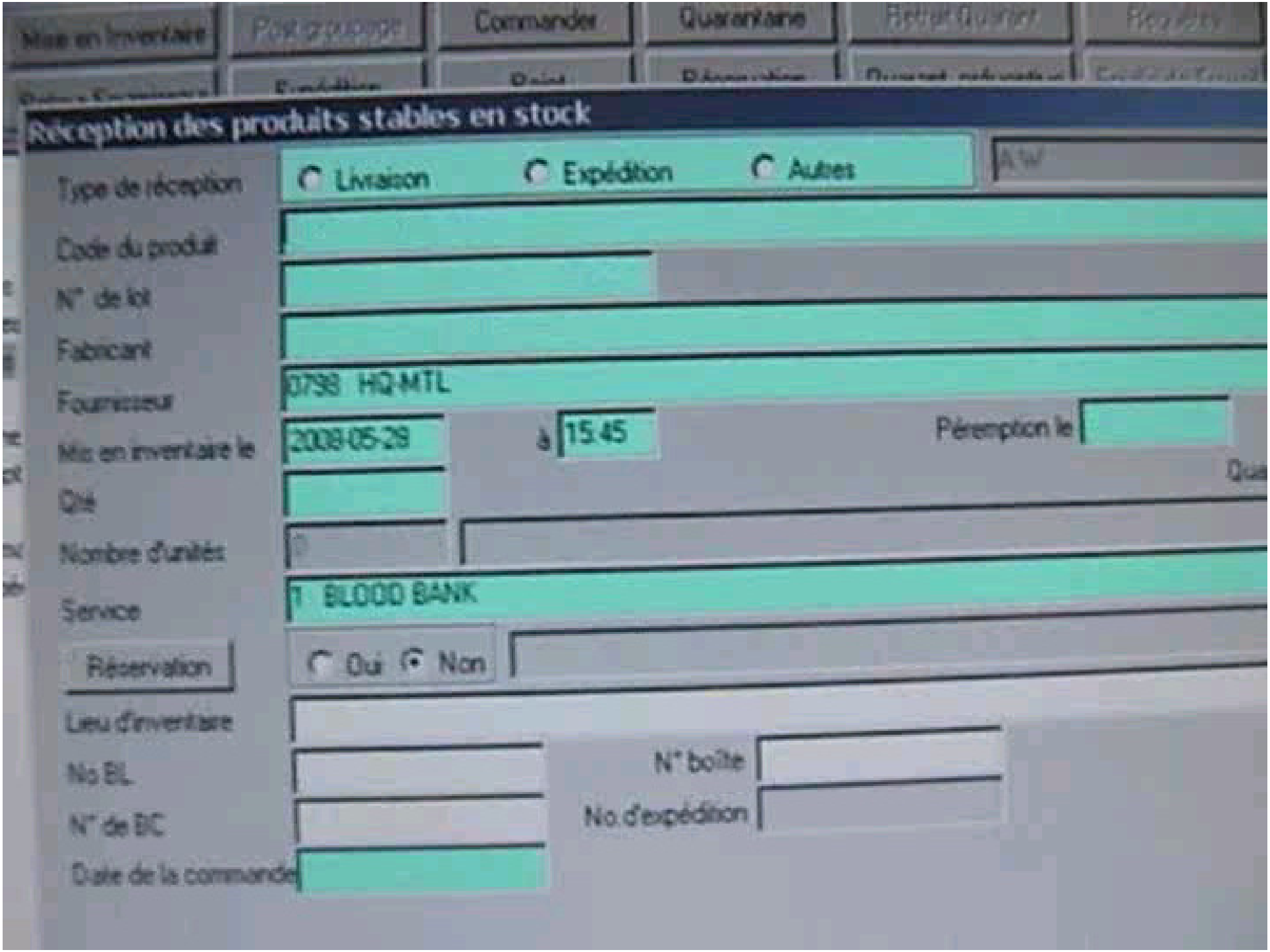
Aspect du produit :ASPECT NORMAL

N° autorisation :

Unité : 100 ml

Date et heure de péremption: 2010-09-08

Commentaire:


Mise en inventaire
Commander
Quarantaine
Réception des produits stables en stock
Type de réception
Livraison
Expédition
Autres
Code du produit
N° de lot
Fabricant
Fournisseur
0798 HQ-MTL
Mis en inventaire le
2008-05-29
à
15:45
Péremption le
Qté
Nombre d'unités
Service
1 BLOOD BANK
Réservation
Oui
Non
Lieu d'inventaire
No BL
N° boîte
N° de BC
No d'expédition
Date de la commande

No bar codes → ↑↑ TIME

	Blood components	**Plasma derivatives**	**Cost (22,500 vials/yr)**
Entry time	13 sec / unit	60 sec / lot # (1 – 120 vials)	290 hrs / yr = **$7250 / yr**

No bar codes → Errors

Product entry errors (reception / issuing etc.)		
Year	Blood components	Plasma derivatives
2005	11	34
2006	14	29
2007	11	21
Total	**36**	**84**

- April 2008 : TraceLine v9.4 (ISBT 128 compatible)
  - Bar codes for attributes :CMV-, Irradiated, Directed
    - Need to set defaults for product codes/attributes eliminated
  - Bar codes Héma-Québec phenotype (needs verification)

Errors at the Blood Centre (HQ)

2006	2007	2008 Jan-June
13	11	4

- Similar lot # → Wrong product delivered:
  - IVIg 10g lot# 26N5KV1 et IVIg 5g lot# 26N5KW1
  - BayGam 2mL # 26N3WT1 et BayHepB 5mL # 26N53W1
  - Gammagard # VNE1A004 et Iveegam # VNE1A004A

Errors at the MUHC

- 2007 = **21** reported errors (18 of 21 → database correction)
  - 11 wrong lot numbers
  - 5 wrong expiry dates
  - 2 wrong product codes
  - 1 wrong UI value for coagulation factor

- Jan-May 2008 = **7** errors
  - 4 wrong lot numbers
  - 3 wrong expiry dates

**Includes “reported events” only.
corrected immediately are not be reported.

Database corrections

- Once “moved”, lab cannot modify data
  - Database correction by supplier
    - Cost : minimum **$260** ($130 / hr x 2 hr (min)
    - Risk of error during correction
      - many vials affected at each status once moved
    - Time to verify following correction.
  - Temporary measures
    - Quarantine until corrected
    - Correct each issue voucher by hand to match vial → (?’s)

Database corrections

- 18 errors required database correction.
  - Potential: 18 x $260 = $4680 per year
  - Actual: 6 x $260 = **$1560** per year

- Estimate ~36-40 errors requiring 15min to several hours to investigate and make appropriate correction.

  Estimate cost at $25/hour > **$1000** per year

- Cost of frustration = **???**

Total cost

- Δ Increased entry time = $7250
- Supplier correction cost = $1560
- Investigation & followup = $1000

- Estimated cost ~ **$10,000 / year**

Errors – impact on patient safety

- Expiry date **3-12**-2007 (entered **Dec 3**)
  - Nov 07: patient received expired Varizig **exp, Mar 12**
- Traceability:
  - Gammagard LE08G038A**B** **vs** LE08G038A**D**
    - distributed 2 x ***AB** instead of 1 x ***AB** + 1 x ***AD**
    - Detected by discrepancy in inventory following week
    - Split the vials in system & entered portions into each potential recipient's file as possibly transfused in case of recall.
- Dose:
  - IVIg **10g** lot# 26N5KV1 et IVIg **5g** lot# 26N5KW1

HÉMA-QUÉBEC

Produits sanguins
Cellules souches
Tissus humains

FORMATS DES DATES DE PÉREMPTION ET DES NUMÉROS DE LOTS UTILISÉS PAR LES FABRICANTS DE PRODUITS STABLES

Fabricants	Produits	Formats des dates de péremption	Formats des numéros de lots
Baxter	Antithrombine III Baxter 1000 UI		
	Colle de fibrine (H) TISSEEL® KIT VH		
	Compl. Coag. Anti-inhibiteur 1000 UI Feiba^MC VH		
	Compl. Prot.par. 600 UI Bebulin® VH *		
	Facteur IX conc. 600 UI Immunine® VH		
	Immunoglobulines IV 5 g Iveegam Immuno®		ation alphanumérique.
	Facteur VIII Rec. Recombinate^MC		ne sont pas utilisées dans le
	Facteur VIII Rec. ADVATE®		ation des lots de Baxter.
	Immunoglobulines IV Gammagard® S/D		
	Compl. Prot.par 600 UI Prothromplex^MC TIM4 *		
	Facteur VII concentré Baxter 600 UI *		
	Protéine C concentré Baxter 500 UI Ceprotin® *		
Bayer	Facteur VIII rec. Kogenate® FS BIO-SET		ation alphanumérique. , F, I, M, O, Q, U, Y et Z ne ns la numérotation des lots.
BPL	Facteur XI concentré BPL *		ation alphanumérique.
	Immunoglob. Anti-VZ 125 UI VariZIG		s composée de caractères

Date formats:

mmm dd yyyy

mmm-dd-yy

mm yyyy

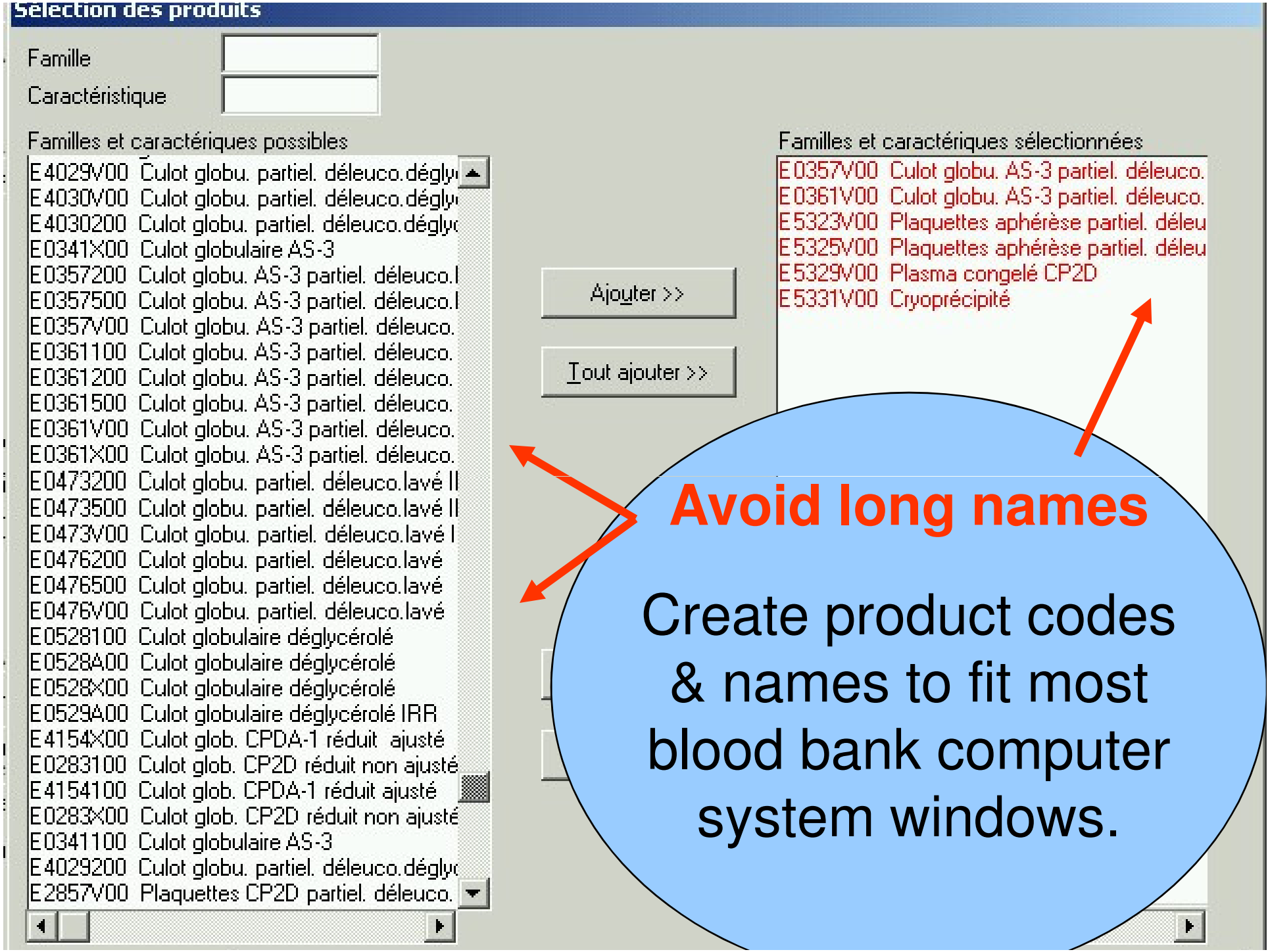
yyyy mm dd

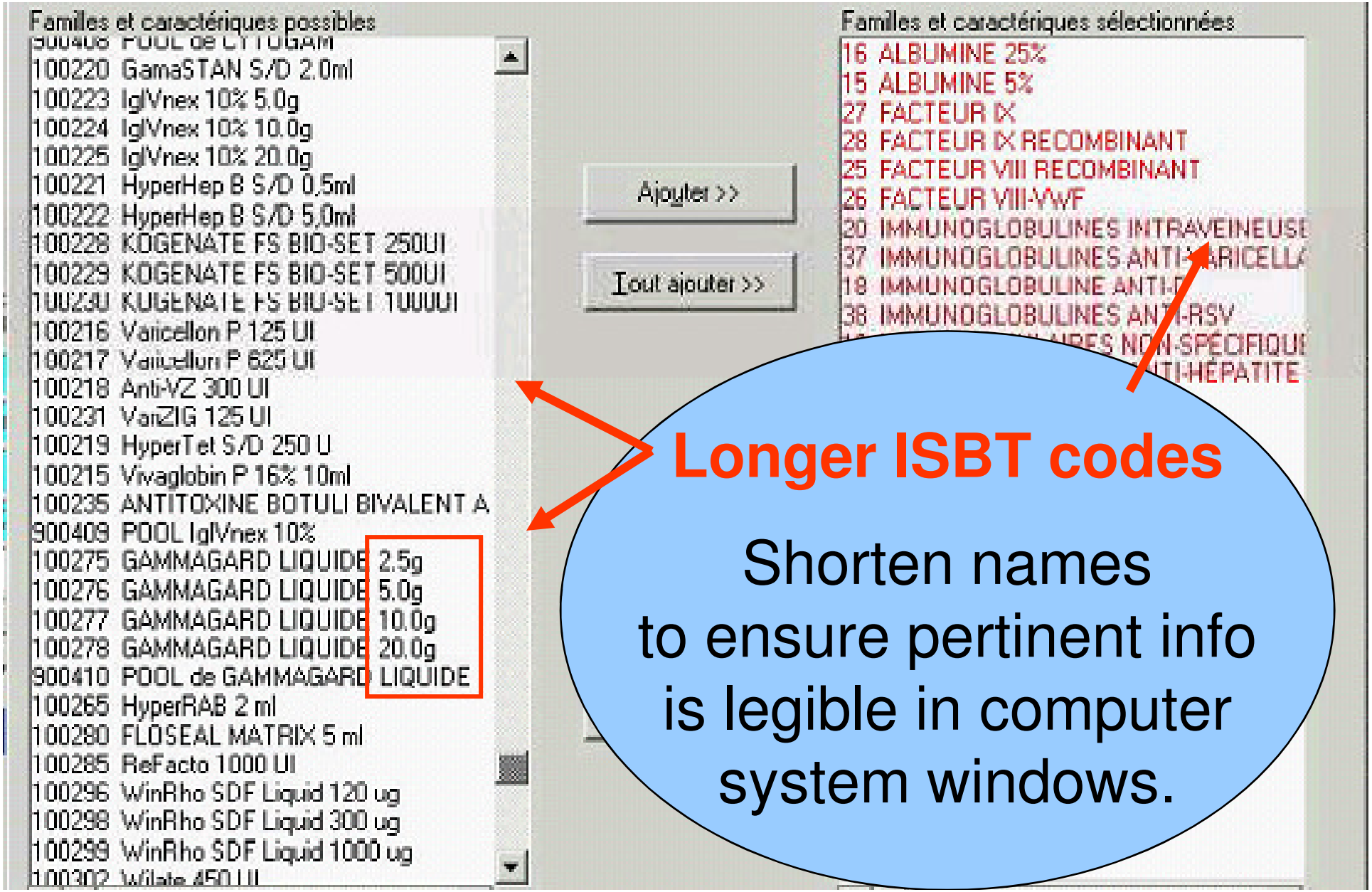
m-d-yyyy

d mmm aa

mm/dd/yy

dd mmm yyyy

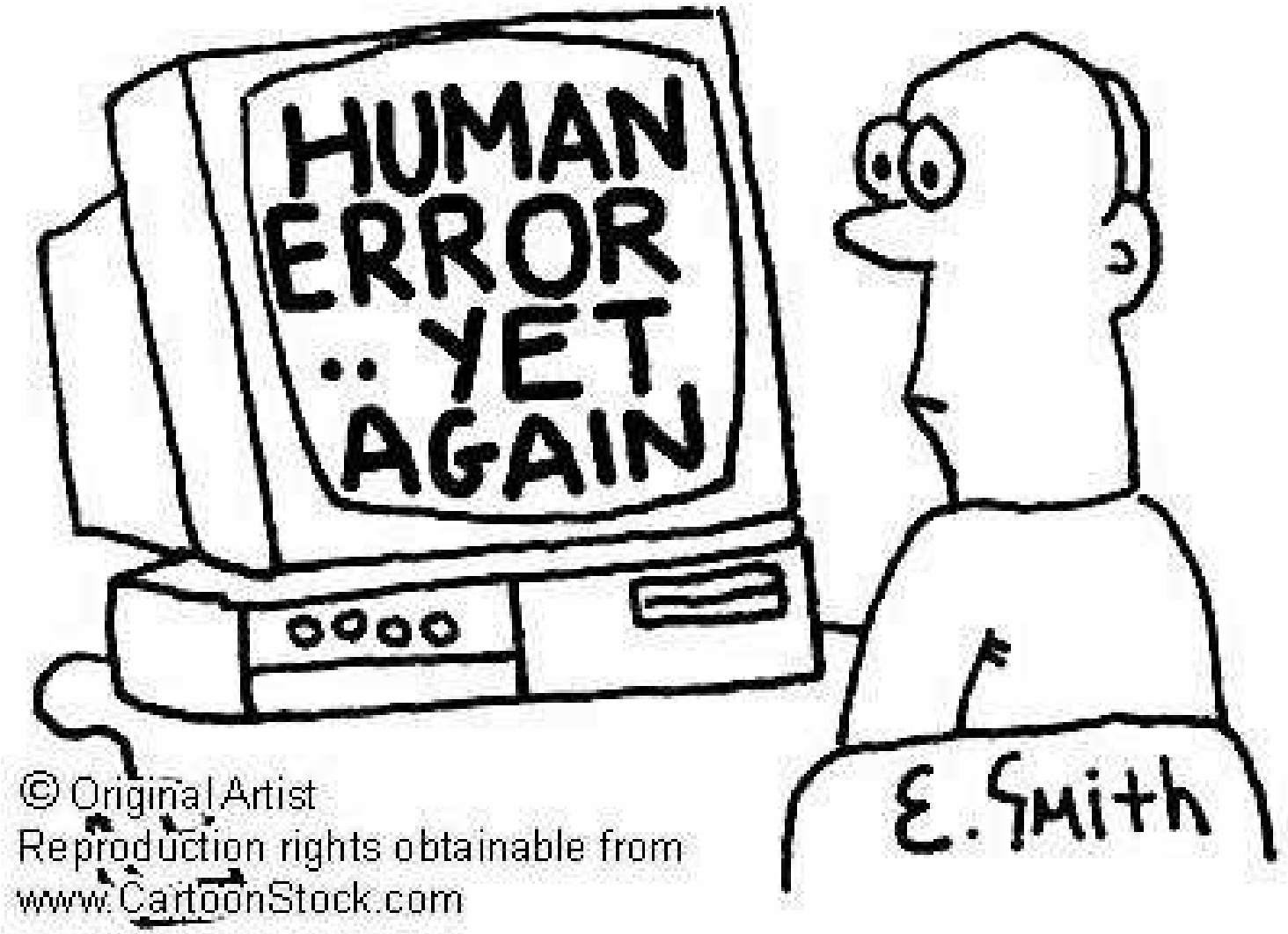

Sélection des produits
Famille
Caractéristique
Familles et caractériques possibles
E4029V00 Culot globu. partiel. déleuco.déglyc
E4030V00 Culot globu. partiel. déleuco.déglyc
E4030200 Culot globu. partiel. déleuco.déglyc
E0341X00 Culot globulaire AS-3
E0357200 Culot globu. AS-3 partiel. déleuco.l
E0357500 Culot globu. AS-3 partiel. déleuco.l
E0357V00 Culot globu. AS-3 partiel. déleuco.
E0361100 Culot globu. AS-3 partiel. déleuco.
E0361200 Culot globu. AS-3 partiel. déleuco.
E0361500 Culot globu. AS-3 partiel. déleuco.
E0361V00 Culot globu. AS-3 partiel. déleuco.
E0361X00 Culot globu. AS-3 partiel. déleuco.
E0473200 Culot globu. partiel. déleuco.lavé II
E0473500 Culot globu. partiel. déleuco.lavé II
E0473V00 Culot globu. partiel. déleuco.lavé I
E0476200 Culot globu. partiel. déleuco.lavé
E0476500 Culot globu. partiel. déleuco.lavé
E0476V00 Culot globu. partiel. déleuco.lavé
E0528100 Culot globulaire déglycérolé
E0528A00 Culot globulaire déglycérolé
E0528X00 Culot globulaire déglycérolé
E0529A00 Culot globulaire déglycérolé IRR
E4154X00 Culot glob. CPDA-1 réduit ajusté
E0283100 Culot glob. CP2D réduit non ajusté
E4154100 Culot glob. CPDA-1 réduit ajusté
E0283X00 Culot glob. CP2D réduit non ajusté
E0341100 Culot globulaire AS-3
E4029200 Culot globu. partiel. déleuco.déglyc
E2857V00 Plaquettes CP2D partiel. déleuco.
Ajouter >>
Tout ajouter >>
Familles et caractériques sélectionnées
E0357V00 Culot globu. AS-3 partiel. déleuco.
E0361V00 Culot globu. AS-3 partiel. déleuco.
E5323V00 Plaquettes aphérèse partiel. déleu
E5325V00 Plaquettes aphérèse partiel. déleu
E5329V00 Plasma congelé CP2D
E5331V00 Cryoprécipité
Avoid long names
Create product codes & names to fit most blood bank computer system windows.


Familles et caractériques possibles
100220 GamaSTAN S/D 2.0ml
100223 IgIVnex 10% 5.0g
100224 IgIVnex 10% 10.0g
100225 IgIVnex 10% 20.0g
100221 HyperHep B S/D 0,5ml
100222 HyperHep B S/D 5,0ml
100228 KOGENATE FS BIO-SET 250UI
100229 KOGENATE FS BIO-SET 500UI
100230 KOGENATE FS BIO-SET 1000UI
100216 Varicellon P 125 UI
100217 Varicellun P 625 UI
100218 Anti-VZ 300 UI
100231 VariZIG 125 UI
100219 HyperTet S/D 250 U
100215 Vivaglobin P 16% 10ml
100235 ANTITOXINE BOTULI BIVALENT A
900409 POOL IgIVnex 10%
100275 GAMMAGARD LIQUIDE 2.5g
100276 GAMMAGARD LIQUIDE 5.0g
100277 GAMMAGARD LIQUIDE 10.0g
100278 GAMMAGARD LIQUIDE 20.0g
900410 POOL de GAMMAGARD LIQUIDE
100265 HyperRAB 2 ml
100280 FLOSEAL MATRIX 5 ml
100285 ReFacto 1000 UI
100296 WinRho SDF Liquid 120 ug
100298 WinRho SDF Liquid 300 ug
100299 WinRho SDF Liquid 1000 ug
Ajouter >>
Tout ajouter >>
Familles et caractériques sélectionnées
16 ALBUMINE 25%
15 ALBUMINE 5%
27 FACTEUR IX
28 FACTEUR IX RECOMBINANT
25 FACTEUR VIII RECOMBINANT
26 FACTEUR VIII-VWF
20 IMMUNOGLOBULINES INTRAVEINEUSE
37 IMMUNOGLOBULINES ANTI-VARICELLE
18 IMMUNOGLOBULINE ANTI-D
38 IMMUNOGLOBULINES ANTI-RSV
Longer ISBT codes
Shorten names
to ensure pertinent info
is legible in computer
system windows.

Plasma derivatives – to bar code:

- **Product code & name** → limit length
- **Manufacturer**
- **Lot numbers**
  - avoid O's & I's, & being too similar
  - Tisseel sub-vial lot # on exterior packaging
- **Expiry date** → standardize format
- **IU per vial**
- Get ready to enable bedside scanning
  - To scan the actual product instead of voucher

Everyone makes mistakes.



Quality Assurance is about making it difficult to do it wrong and easy to do it right.

Let's make it easy to do it right. by bar coding all products.