
ICCBBA
Learning Lab
The ISBT 128 Standard in Action
Milan, Italy | 31 May 2025
Welcome!

Today's Team

Eoin McGrath
Executive Director

Karen Moniz
Technical Director

Robin Wilkinson
Deputy Technical Director

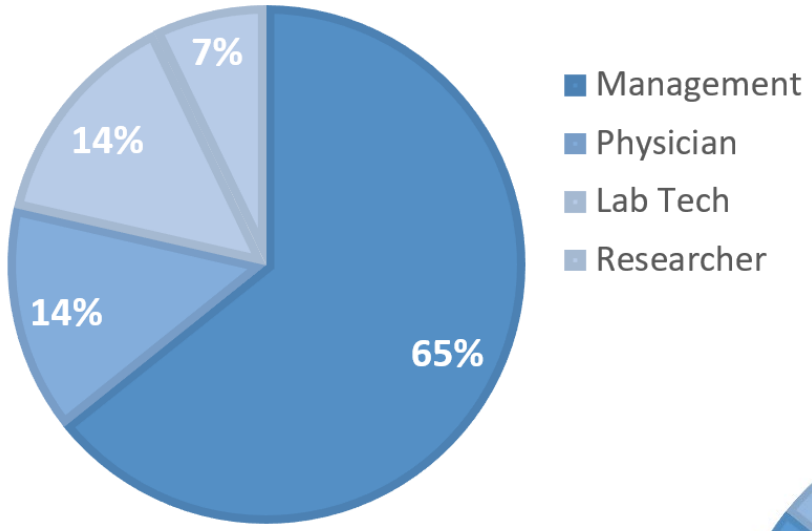
Erwin Cabana
Technical Manager

Kayla Perez
Education Specialist

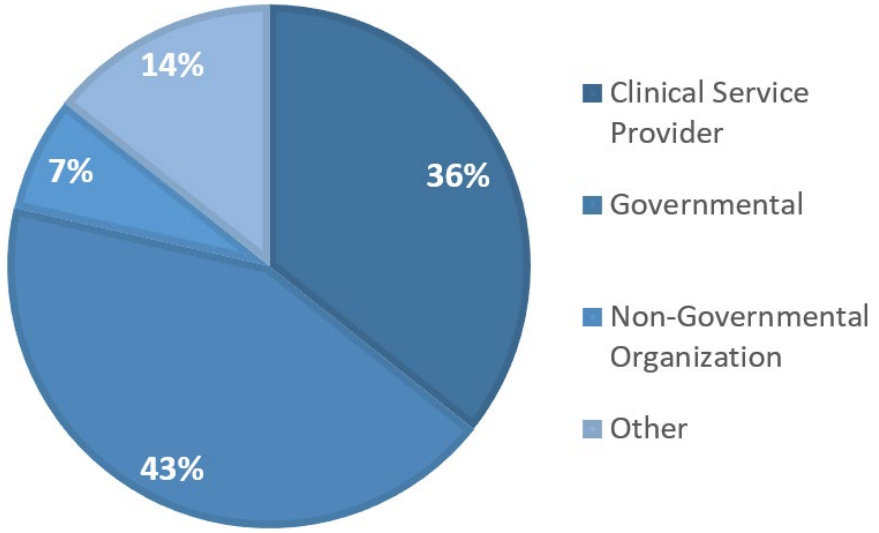
ISBT 128
More than Identification

Learning Lab Participants

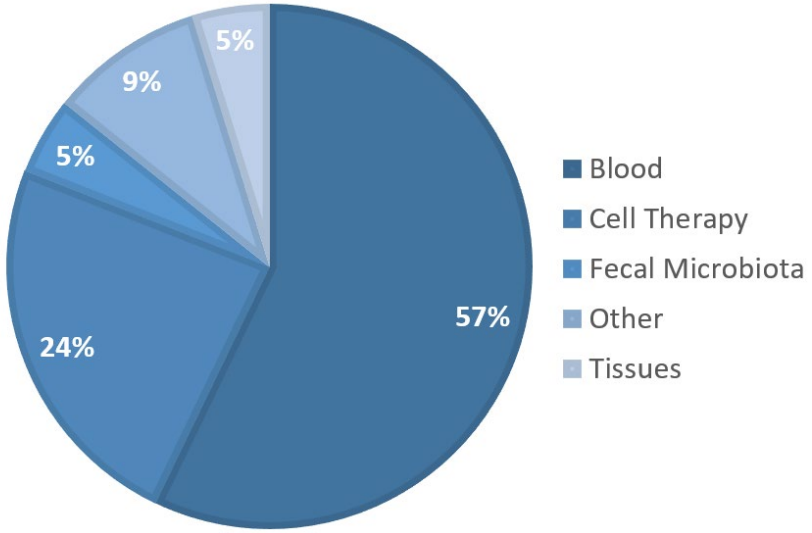
Position/Responsibility



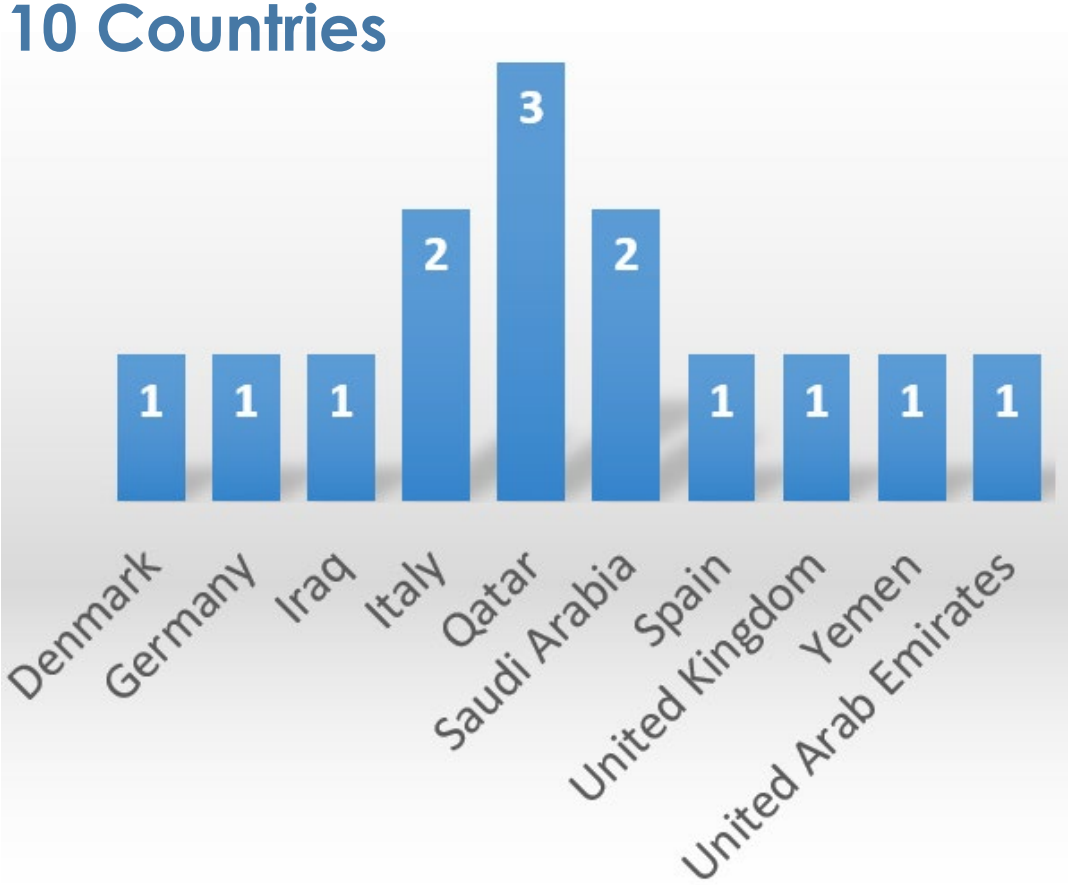
Organization Type



Area of Expertise



Learning Lab Participants



Agenda

1. Introduction to ICCBBA and the ISBT 128 Standard
2. ISBT 128 Implementation
3. ISBT 128 Labeling Part A
4. 15-Minute Break
5. ISBT 128 Labeling Part B
6. Red Cell Antigens and ISBT 128
7. Panel Questions & Answers
8. Survey

An Introduction to ICCBBA and the ISBT 128 Standard

ISBT 128
More than Identification

Origins of ISBT 128

- Codabar - no longer adequate for complex product coding needs
- Lack of globally unique donation identification
- Increasing need to exchange blood across regions

- ISBT working group on automation and data processing
- AABB and others joined the effort to develop a global standard

- Ability to bi-directionally trace to/from donor/recipient is essential for global biovigilance of MPHO

ISBT 128
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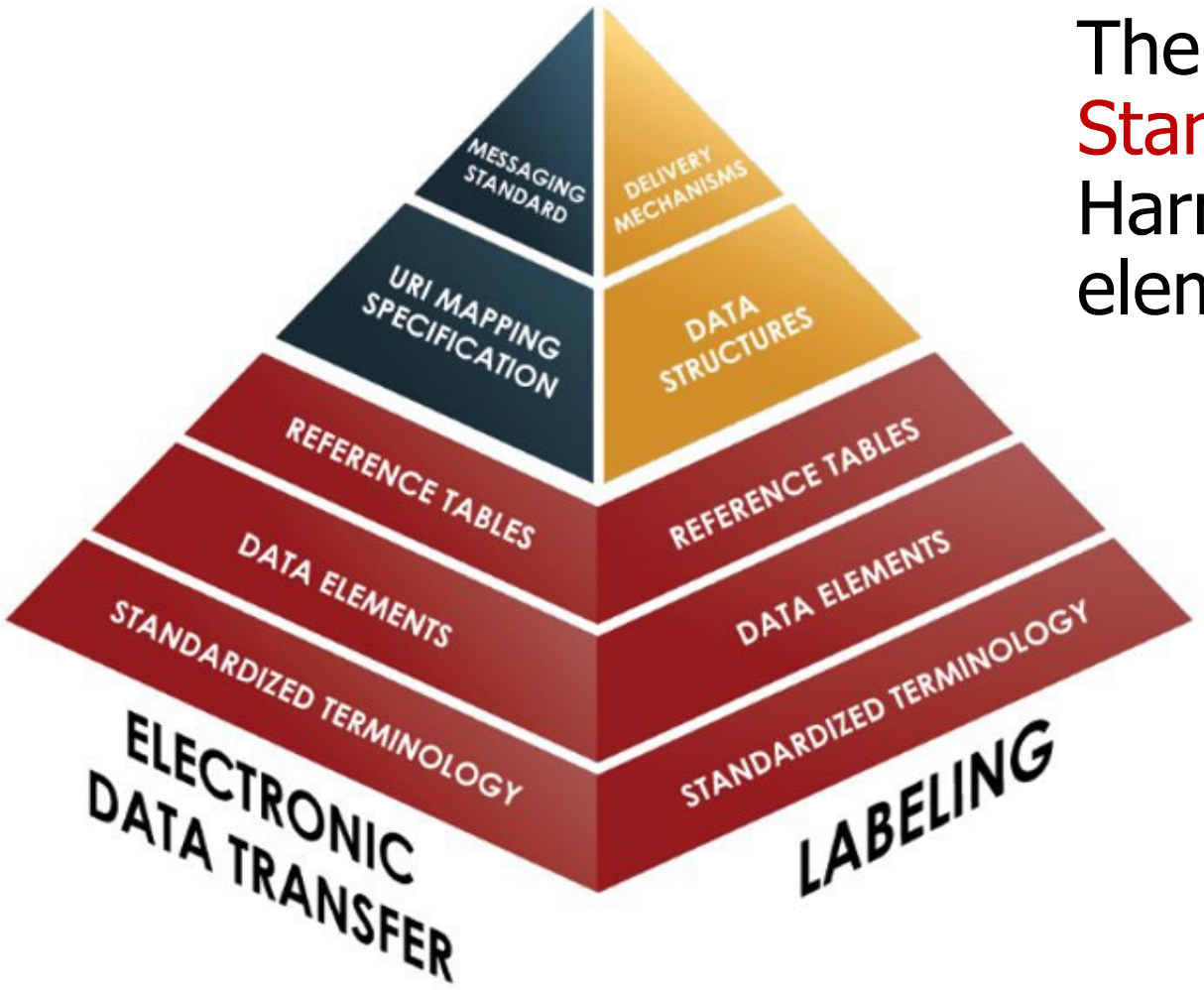
ICCBBA
ISBT 128 Standard for Traceability

- ICCBBA is an international non-profit, nonstate actor, supported by user fees, tasked with developing and maintaining the ISBT 128 standards for terminology, globally unique identification, labeling, and electronic data exchange for MPHO.

- ISBT 128 standards and implementation guides are developed with the aid of volunteers via Technical Advisory Groups. In the past 30 years, over 600 volunteers have contributed to developing and maintaining ISBT 128. https://www.isbt128.org/committees

ISBT 128 Information Environment



The foundation of ISBT 128 is Standardized Terminology. Harmonized terminology is a basic element of identification.

ISBT 128
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Traceability & Blood Safety Value Chain

Connected set of interdependent blood safety activities, enabling:

- Bidirectional Traceability
- Shipping across borders
- Overcoming language barriers
- Accurate documentation in medical records
- Electronic transfer of information

ISBT 128
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Expanding use of ISBT 128 for MPHO

1994	• ICCBBA formed
1996	• Blood
2000	• Cellular Therapy
2001	• Tissue
2008	• Plasma Derivatives, In Vivo Diagnostics
2012	• Human Milk, Ocular
2013	• Topical, Organs, Reproductive
2014	• Fecal Microbiota
2015	• Regenerated Tissues
2022	• Clinical Trials

ISBT 128
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The ISBT 128 Implementation Journey

ISBT 128
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Implementing the ISBT 128 Standard

1

Research & Register

- ✓ Get to know ISBT 128 standards
- ✓ Assess current systems
- ✓ Register with ICCBBA

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Implementing the ISBT 128 Standard

1 Research & Register

- ✓ Get to know ISBT 128 standards
- ✓ Assess current systems
- ✓ Register with ICCBBA

2 Design & Notify

- ✓ Design compliant labels and integrate software and hardware
- ✓ Notify stakeholders of upcoming changes
- ✓ Consult with ICCBBA as needed

ISBT 128
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Implementing the ISBT 128 Standard

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3 Implement & Stay Current

- ✓ Validate software, equipment, processes, and labels
- ✓ Train staff and implement the system
- ✓ Stay updated with ISBT 128 developments

ISBT 128
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Implementing the ISBT 128 Standard

1 **Research & Register**

- ✓ Get to know ISBT 128 standards

ISBT 128
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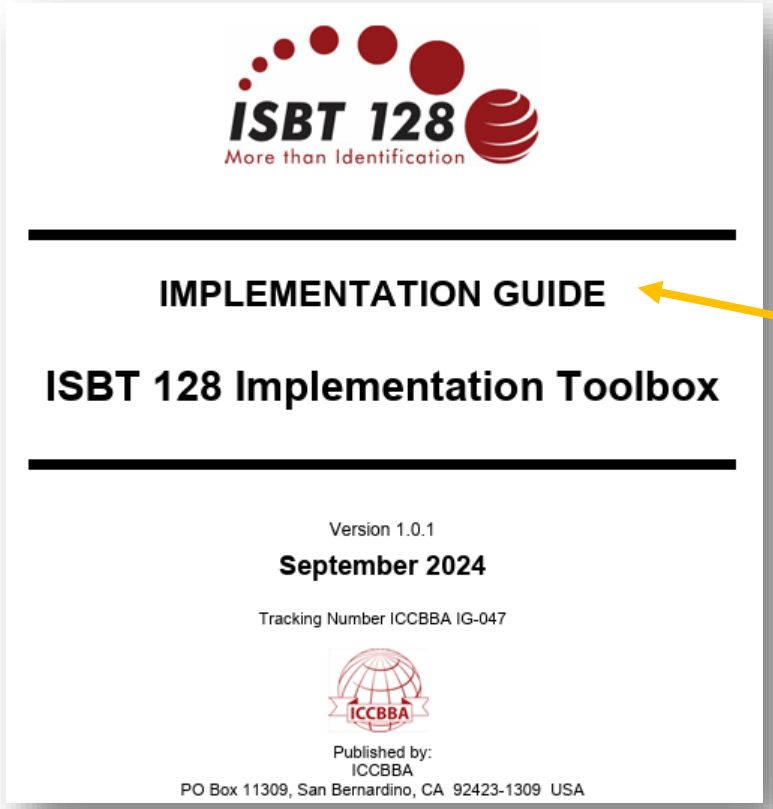
Implementing the ISBT 128 Standard

1 Research & Register

✓ Get to know ISBT 128 standards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IMPLEMENTATION GUIDE

ISBT 128 Implementation Toolbox

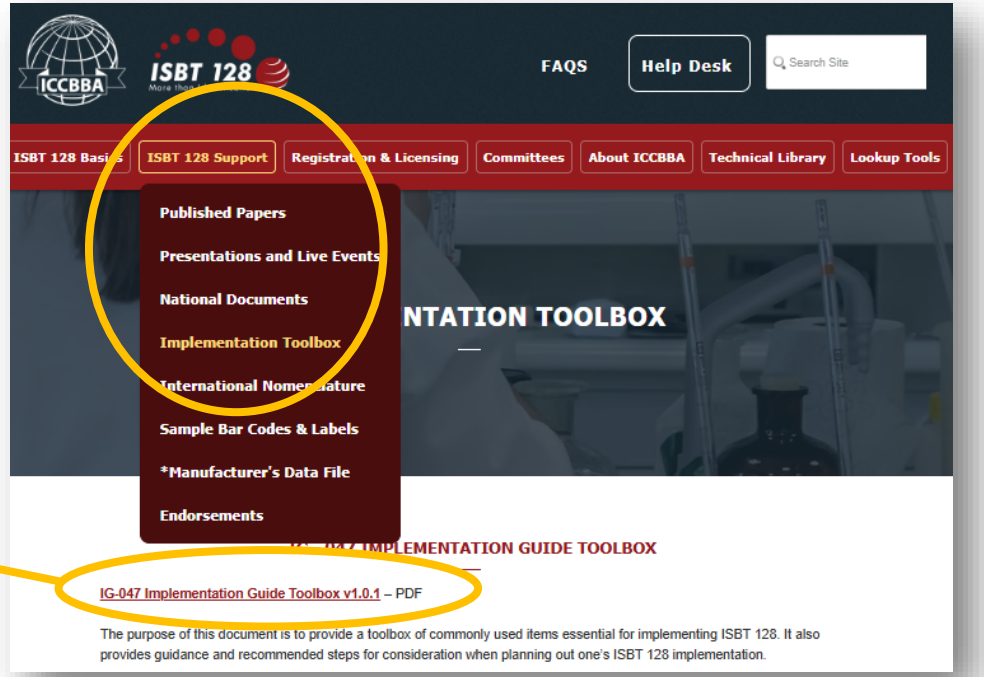
Version 1.0.1

September 2024

Tracking Number ICCBBA IG-047

ICCBBA

Published by:
ICCBBA
PO Box 11309, San Bernardino, CA 92423-1309 USA



A great place to start!

ISBT 128
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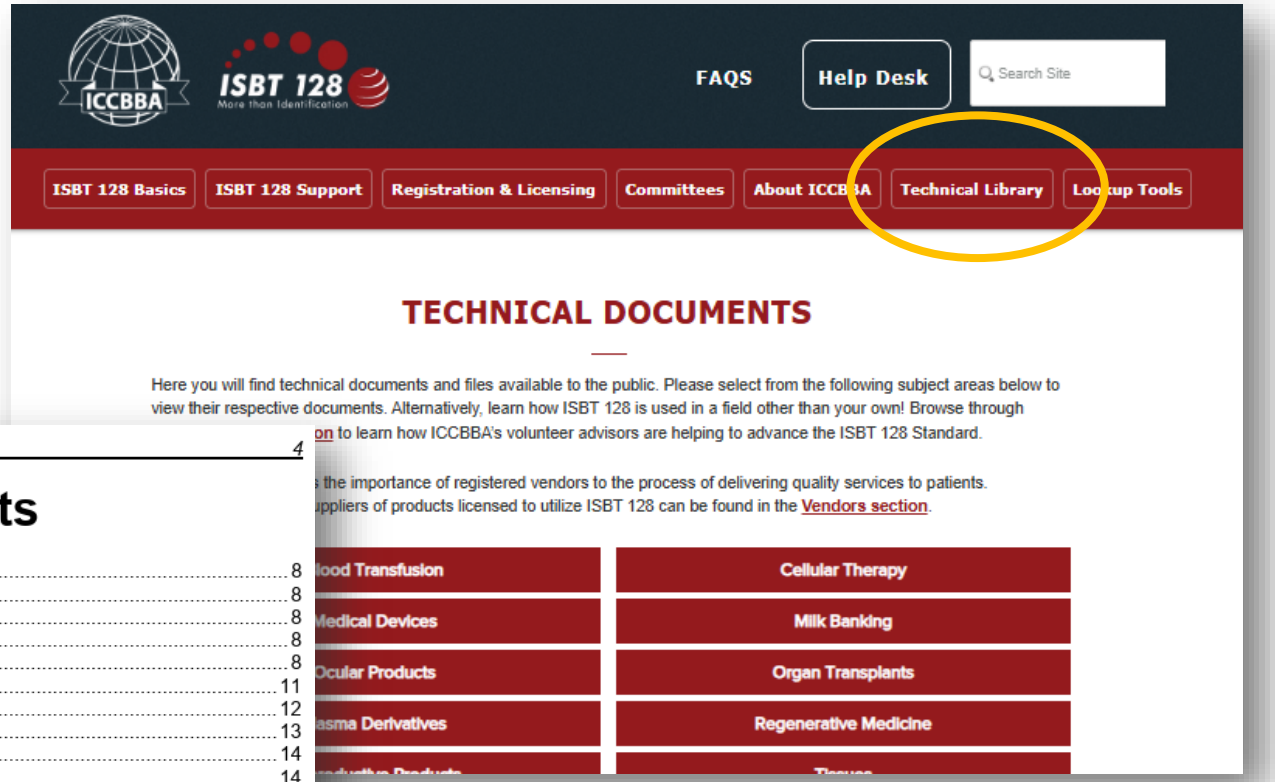
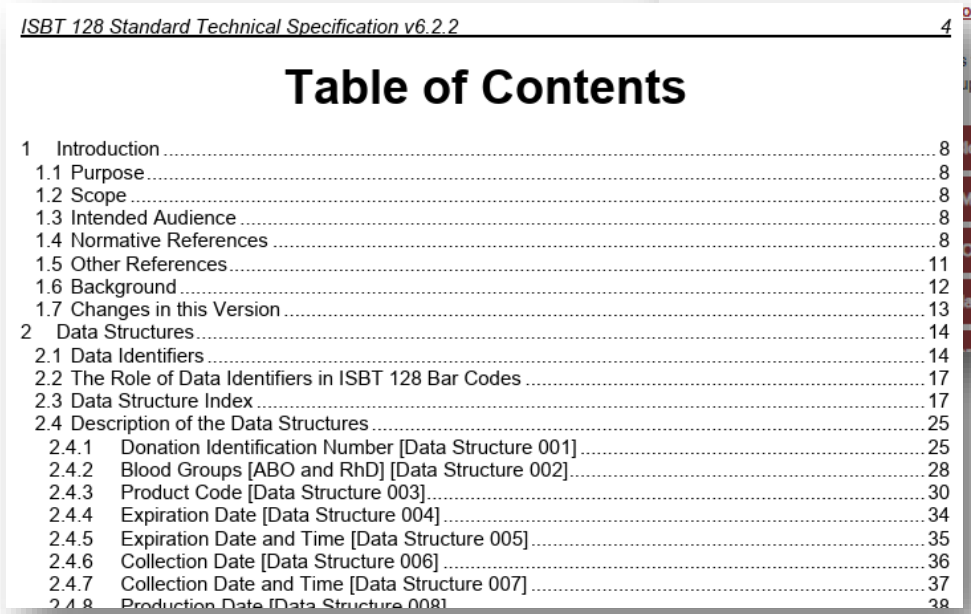
Implementing the ISBT 128 Standard

1 Research & Register

✓ Get to know ISBT 128 standards



Visit the Technical Library and review the Table of Contents in documents



ISBT 128 Standard Technical Specification v6.2.2 4

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Implementing the ISBT 128 Standard

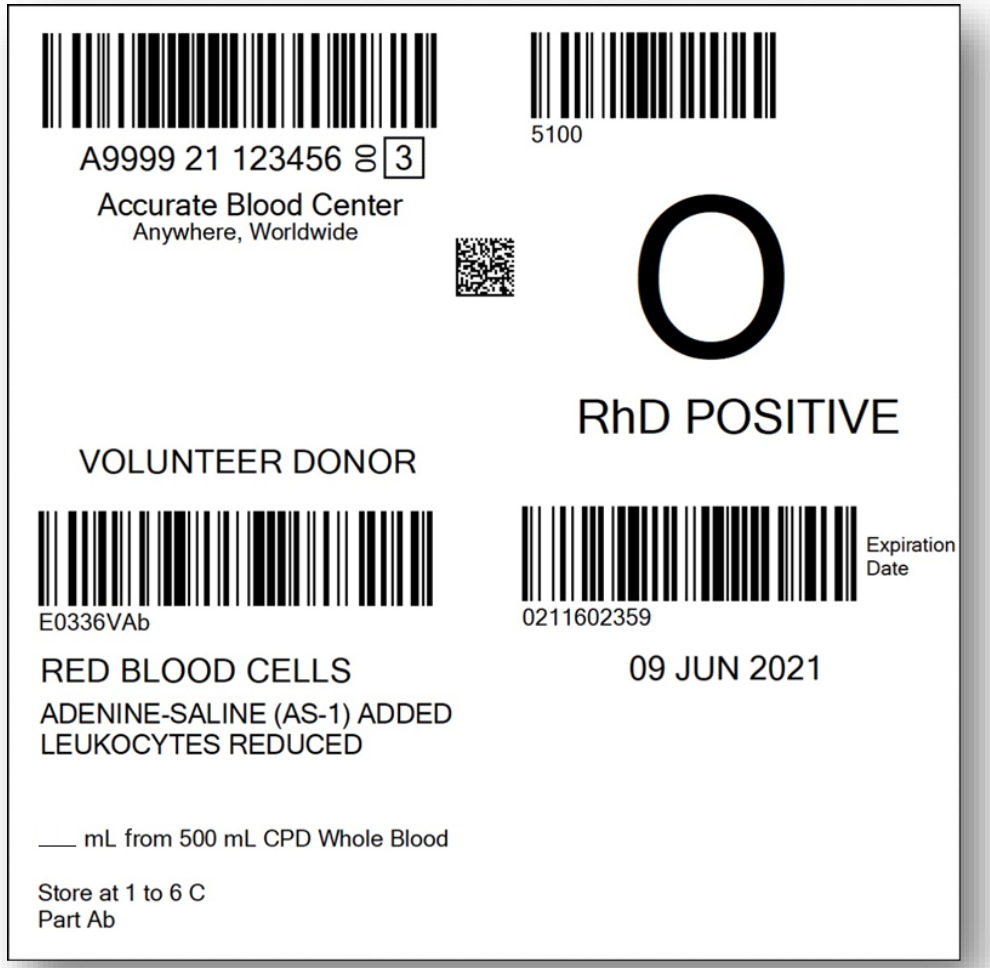
1 **Research & Register**

- ✓ Get to know ISBT 128 standards

Learn about the
Key Elements of Traceability

ISBT 128
More than Identification

ISBT 128 Key Elements of Traceability



A globally unique identifier can be built by combining the following four key elements of traceability:

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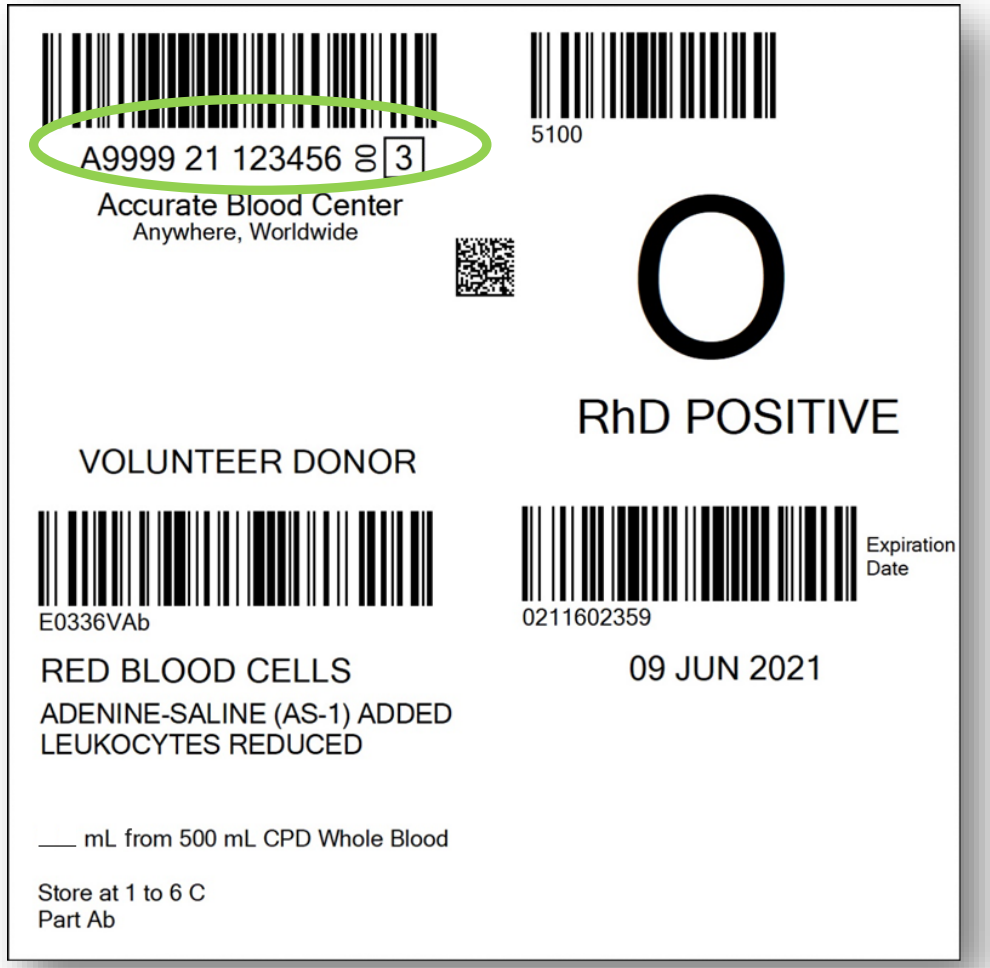
ISBT 128 Key Elements of Traceability



A999921123456

A globally unique identifier can be built by combining the following four key elements of traceability:

- Donation Identifier (DIN)

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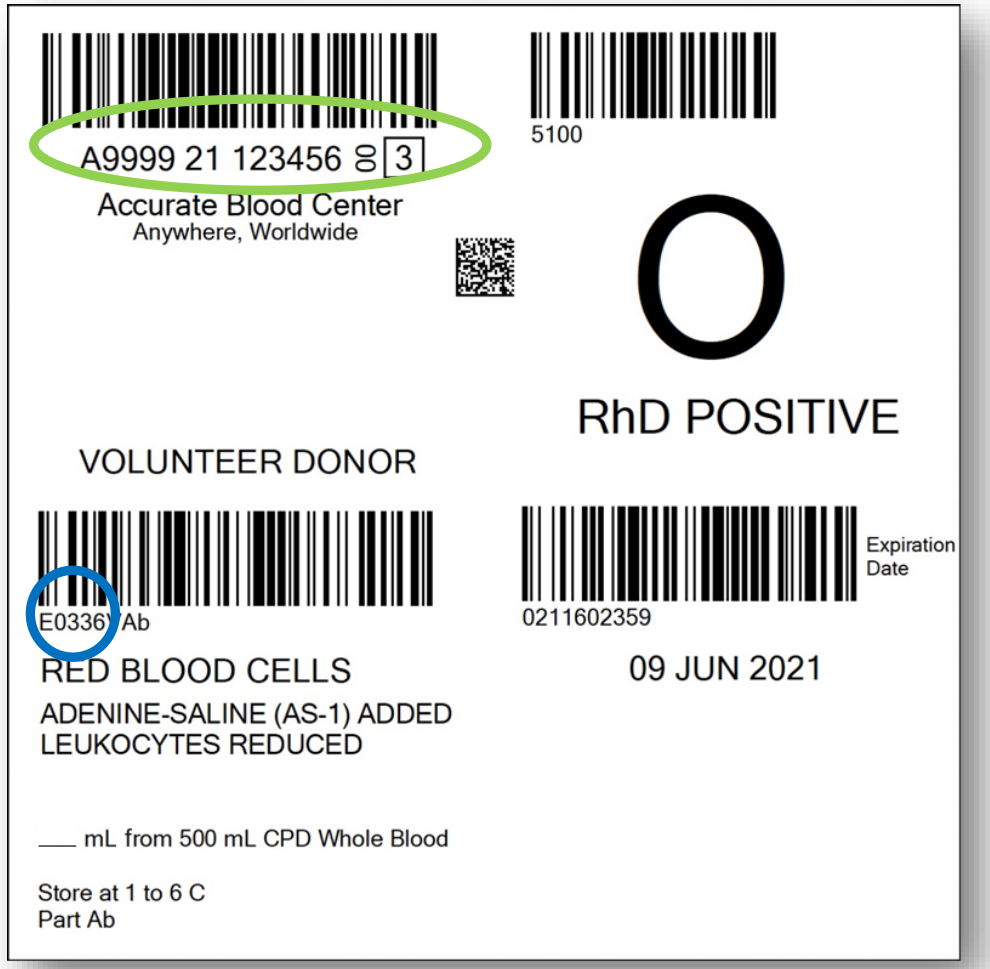
ISBT 128 Key Elements of Traceability



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A globally unique identifier can be built by combining the following four key elements of traceability:

- Donation Identifier (DIN)
- Standardized PDC

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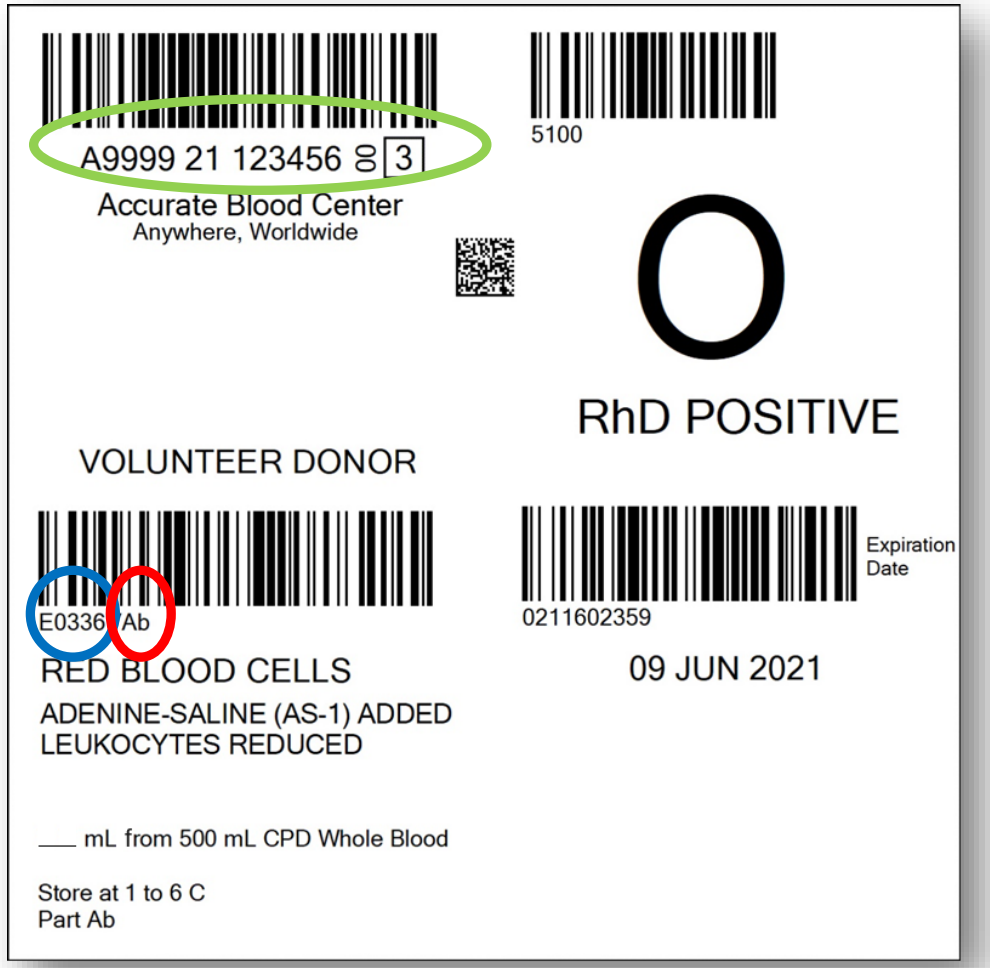
ISBT 128 Key Elements of Traceability



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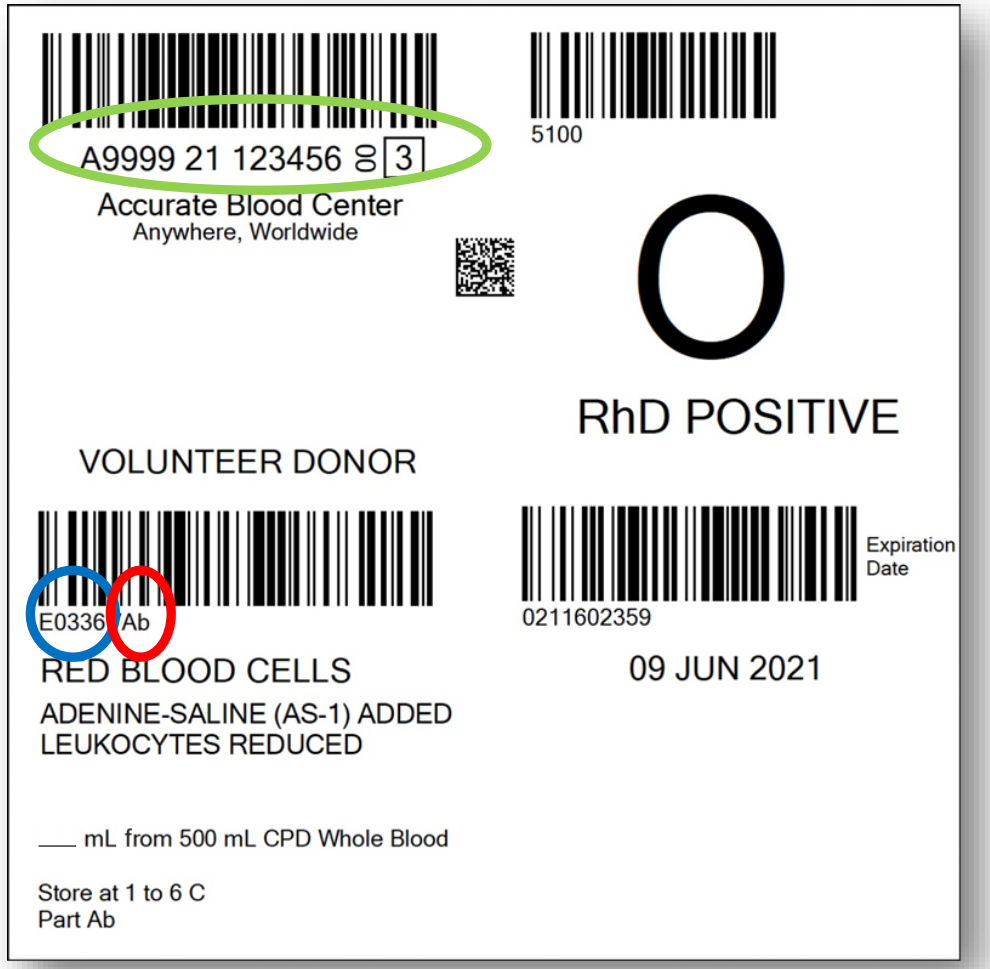
A globally unique identifier can be built by combining the following four key elements of traceability:

- Donation Identifier (DIN)
- Standardized PDC
- Division Identifier

ISBT 128
More than Identification

ISBT 128 Key Elements of Traceability



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A globally unique identifier can be built by combining the following four key elements of traceability:

- Donation Identifier (DIN)
- Standardized PDC
- Division Identifier
- Processing Facility FIN

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Implementing the ISBT 128 Standard

1 **Research & Register**

- ✓ Get to know ISBT 128 standards
- ✓ Assess current systems

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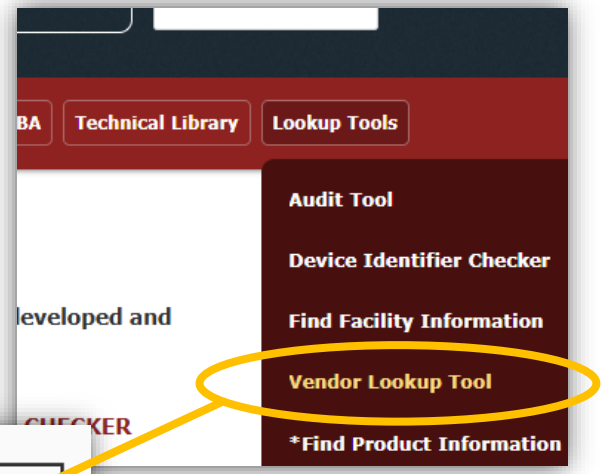

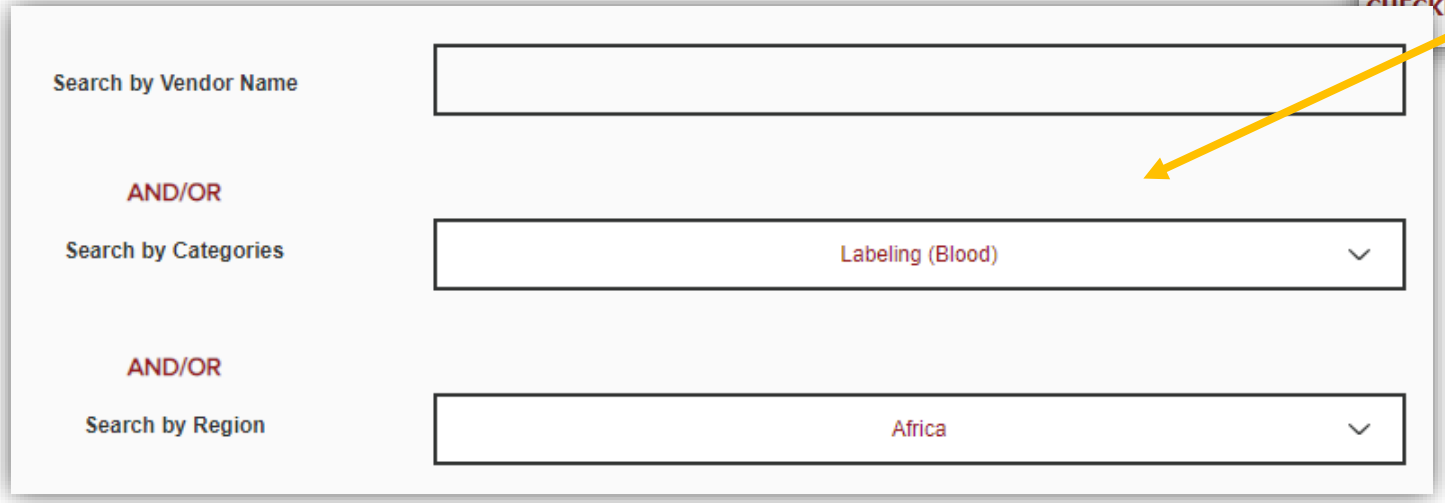

Search for label, software, and hardware vendors with ICCBBA's Vendor Lookup Tool

https://www.isbt128.org/vendor-lookup-tool

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Implementing the ISBT 128 Standard

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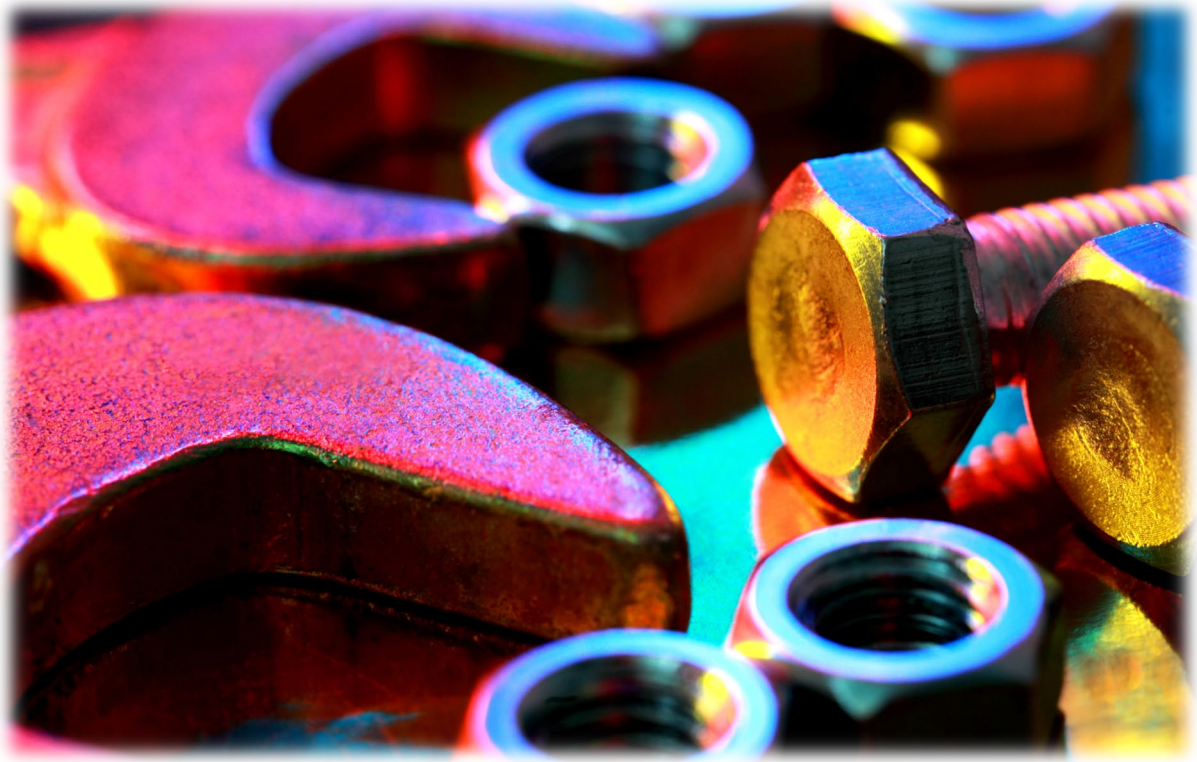

Does the software implement the Standard *standardly*?

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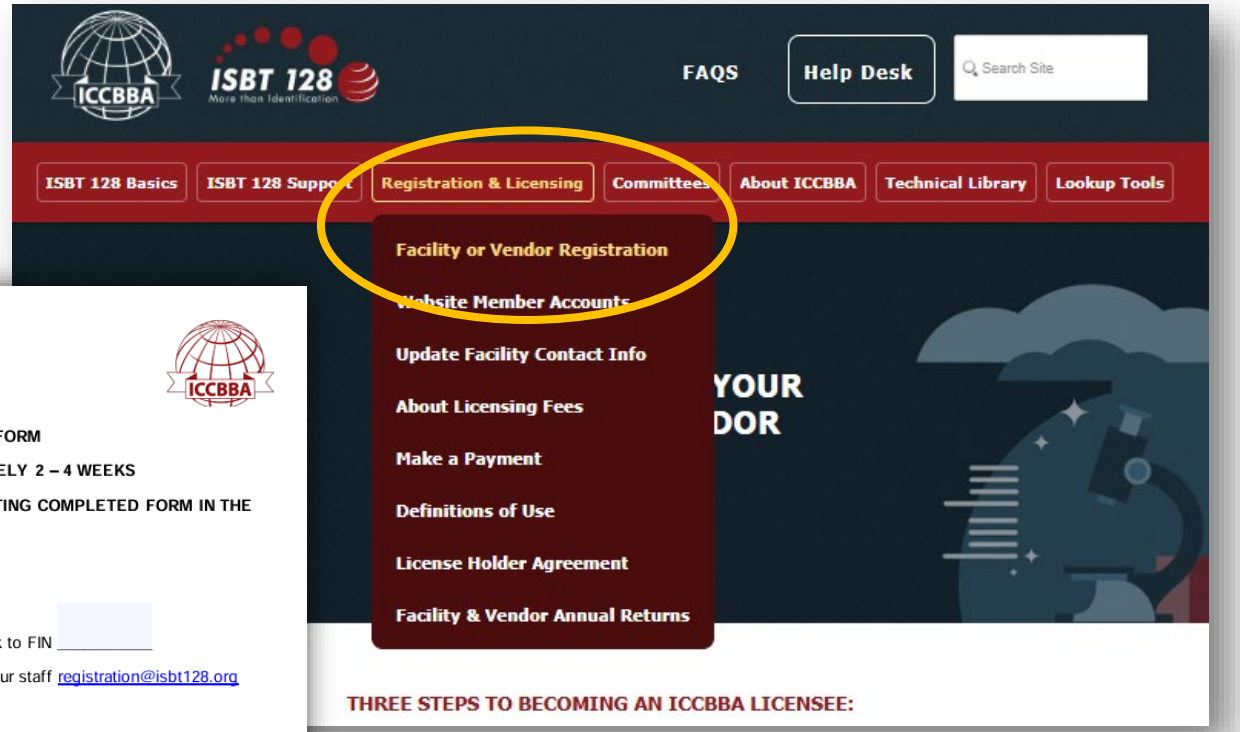

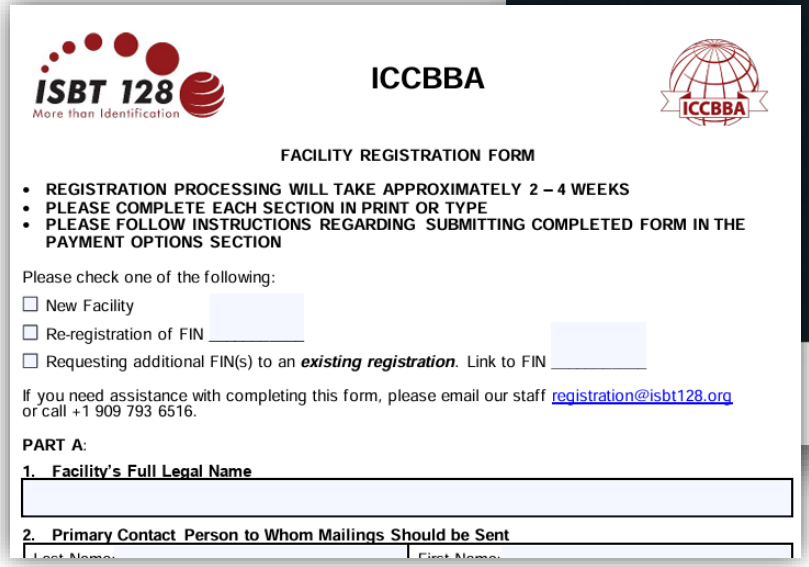

- ➢ **Obtain a FIN**
- ➢ **Access the PDC Database**

https://www.isbt128.org/how-to-register

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Implementing the ISBT 128 Standard

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- ✓ Design compliant labels and integrate software and hardware
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ISBT 128
More than Identification

Implementing the ISBT 128 Standard

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More than Identification

Implementing the ISBT 128 Standard

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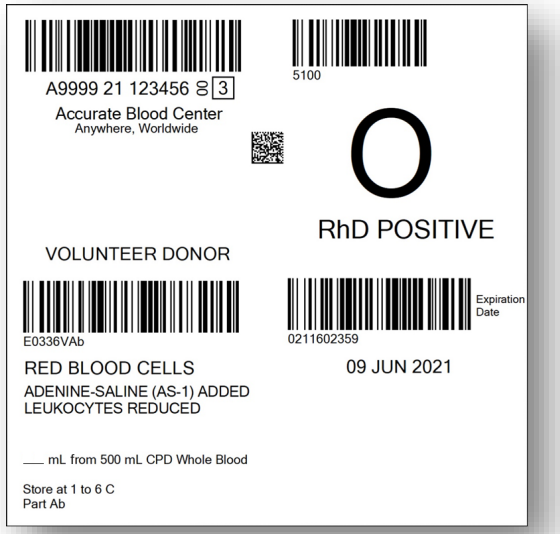

ICCBBA's help desk can check your labels!

support@isbt128.org

ISBT 128
More than Identification

Implementing the ISBT 128 Standard

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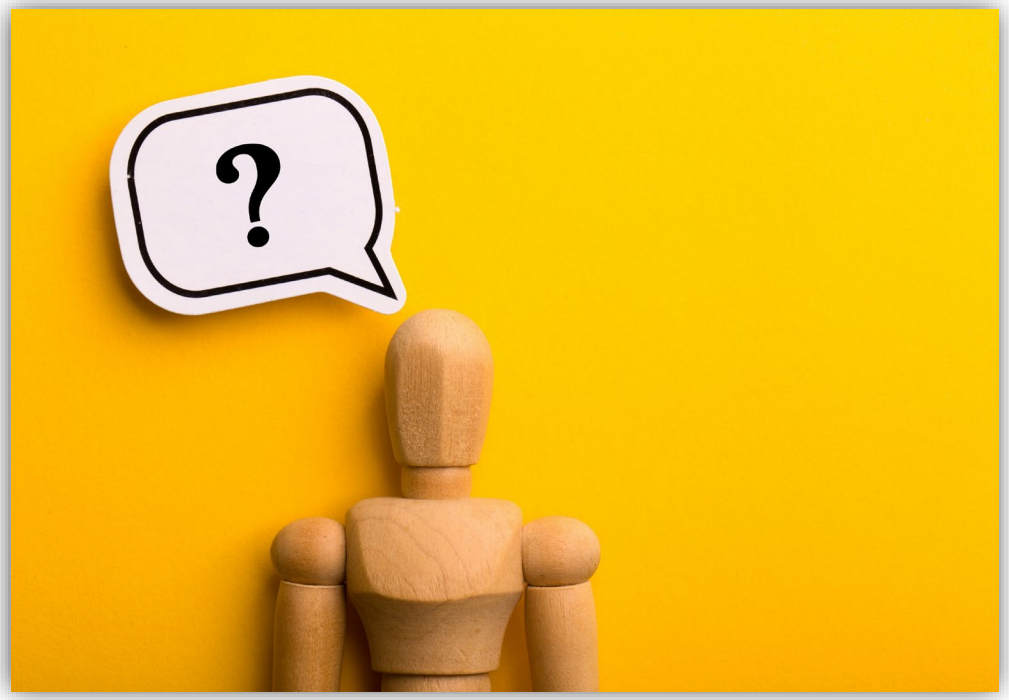

Help Desk: support@isbt128.org

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3 Implement & Stay Current

- ✓ Validate software, equipment, processes, and labels
- ✓ Train staff and implement the system
- ✓ Stay updated with ISBT 128 developments

ISBT 128
More than Identification

Implementing the ISBT 128 Standard

3 **Implement & Stay Current**

- ✓ Validate software, equipment, processes, and labels

ISBT 128
More than Identification

Implementing the ISBT 128 Standard

3

Implement & Stay Current

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ISBT 128
More than Identification

Implementing the ISBT 128 Standard

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More than Identification

Implementing the ISBT 128 Standard

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Implementing the ISBT 128 Standard

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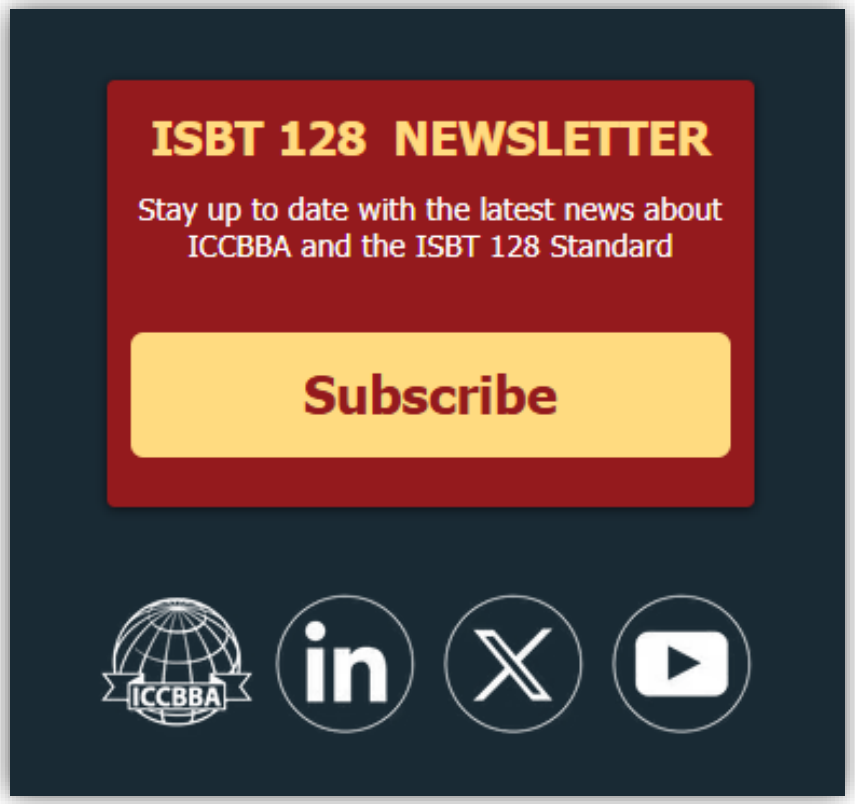

- ➢ **Complete annual reports**
- ➢ **Subscribe to the newsletter**
- ➢ **Follow ICCBBA online**

ISBT 128
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ISBT 128
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The ISBT 128 Implementation Journey

Learning Lab & Reflection

ISBT 128
More than Identification

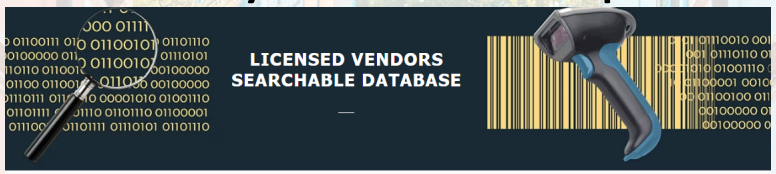
Implementation Learning Lab

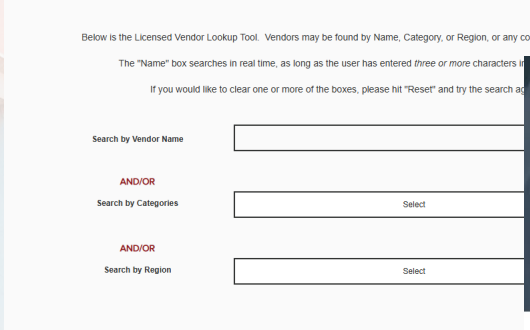
- Please work with your group to solve the scenario provided to you. You will develop an action plan for how you could implement ISBT 128.
- What will you need?
  - Computer
  - ISBT128.org
  - Writing materials
  - Scenario card

Time: 20 minutes

10 minutes group work

10 minutes presenting/questions





ISBT 128
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ISBT 128 Labeling, Part A

ISBT 128
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Learning Objectives

At the end of this presentation, participants will:

- Know the size of a standard ISBT 128 final blood label
- Know what type of information belongs in each quadrant
- Know which bar codes are required
- Be familiar with the placement of the 2-D symbol

ISBT 128 Standardized Blood Label

- 100mm x 100mm
  - 4 equal quadrants of 50mm x 50mm each

ISBT 128
More than Identification

100mm x 100mm Requirement

- **ST-005** ISBT 128 Standard Labeling of Blood Components (www.isbt128.org/ST-005)

4.4 Final Label Dimensions

4.4.1 100 mm by 100 mm Final Label

The default size of the final label is 100 (+/-2) mm by 100 (+/-2) mm. The final label may be applied as a single 100 mm x 100 mm label or may be built up with smaller labels applied at different stages during the process.

ISBT 128
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4 Equal Quadrants

- **ST-005** ISBT 128 Standard Labeling of Blood Components (www.isbt128.org/ST-005)

4.5 Final Label Bar Code Placement

When linear bar codes are used, the final label design shall be based upon the concept of four equal 50 (+/-1) mm by 50 (+/-1) mm quadrants.

ISBT 128
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Upper Left Quadrant

- Donation Identification Number (required)
- Collection date/time (optional)

ISBT 128
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Upper Right Quadrant

- ABO/RhD Blood Groups (required)

ISBT 128
More than Identification

Lower Left Quadrant

- Product Code (required)

ISBT 128
More than Identification

Lower Right Quadrant

- Expiration Date/Time (required)
- Special Testing (optional)

ISBT 128
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Transition Label

- 2-D symbol
  - DIN
  - ABO/RhD
  - Product Code
  - Expiration
  - Special Testing
  - Collection Date

ISBT 128
More than Identification

2-D Symbol

- Required to use Data Matrix
  - ST-001 ISBT 128 Standard Technical Specification (https://www.isbt128.org/tech-spec)

6.2 2-D Symbols

6.2.1 General Requirements

Data Matrix (ECC 200) shall be used as the 2-D symbology for ISBT 128 container labels. The ISO/IEC 16022 Information technology—International symbology specification—Data Matrix shall be followed.

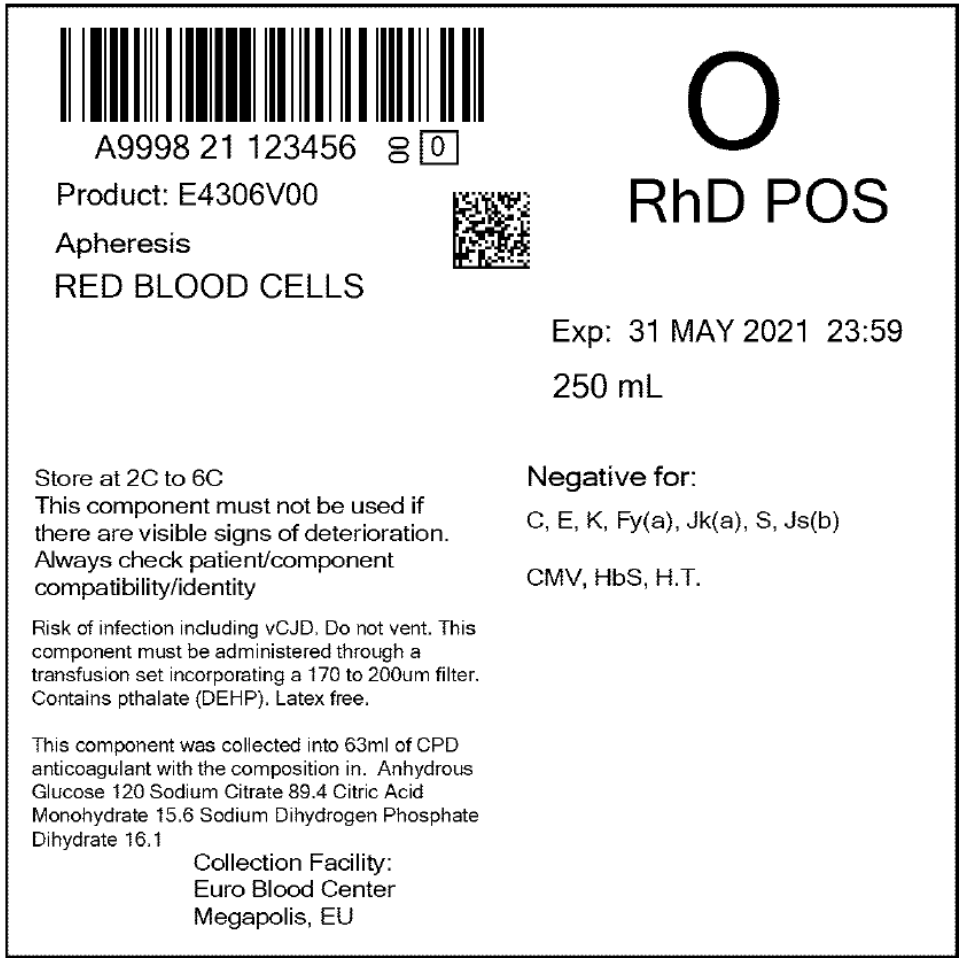
For applications of ISBT 128 other than container labels, Data Matrix is recommended.

Final 2-D Blood Label Example

- Encoded in 2-D
  - DIN
  - ABO/RhD
  - Product Code
  - Expiration

Optionally

- RBC antigen test results



ISBT 128
More than Identification

Summary

- Label size
- 4 quadrants
- Bar codes in each quadrant
- Use of 2-D symbol

ISBT 128 Labeling, Part A

Learning Lab
& Reflection

ISBT 128
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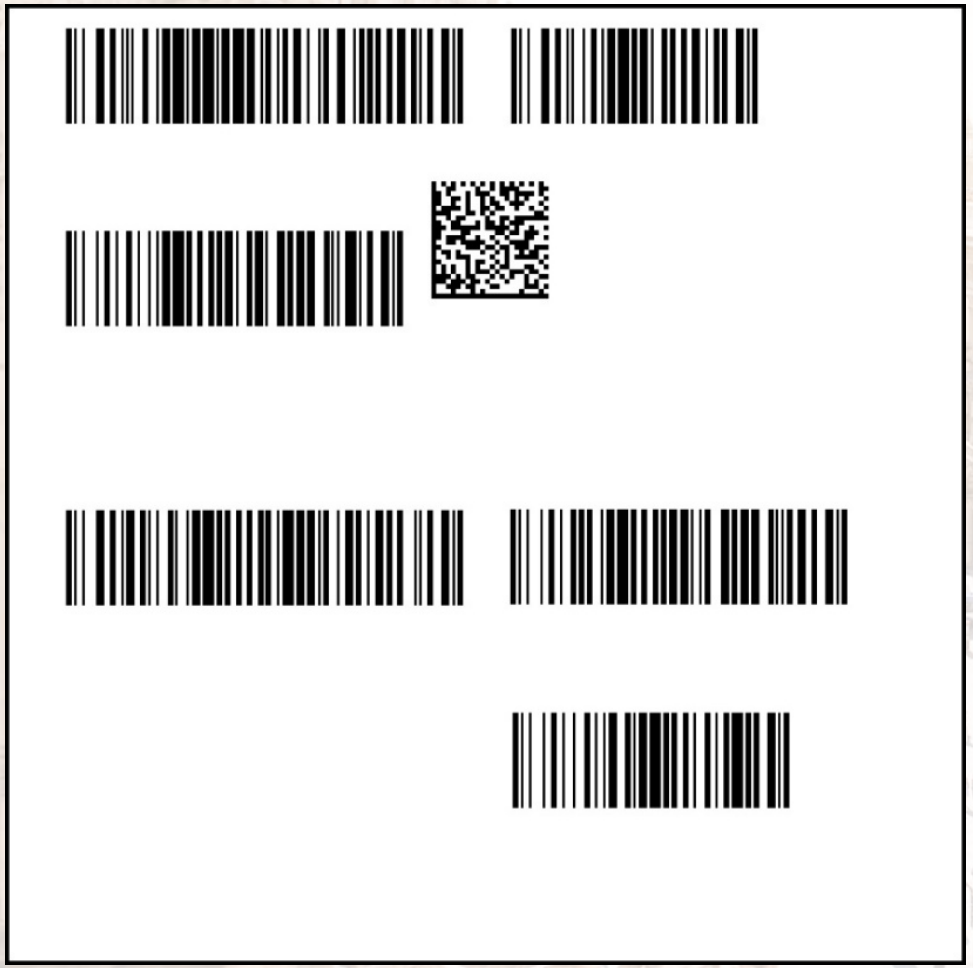
Labeling Learning Lab, Part A



- Please work with your group to match the ISBT 128 blood label components to their correct location on the label.
- What will you need?
  - Blank label
  - Velcro Attachments

Time: 10 minutes

5 minutes of group work

5 minutes of debriefing

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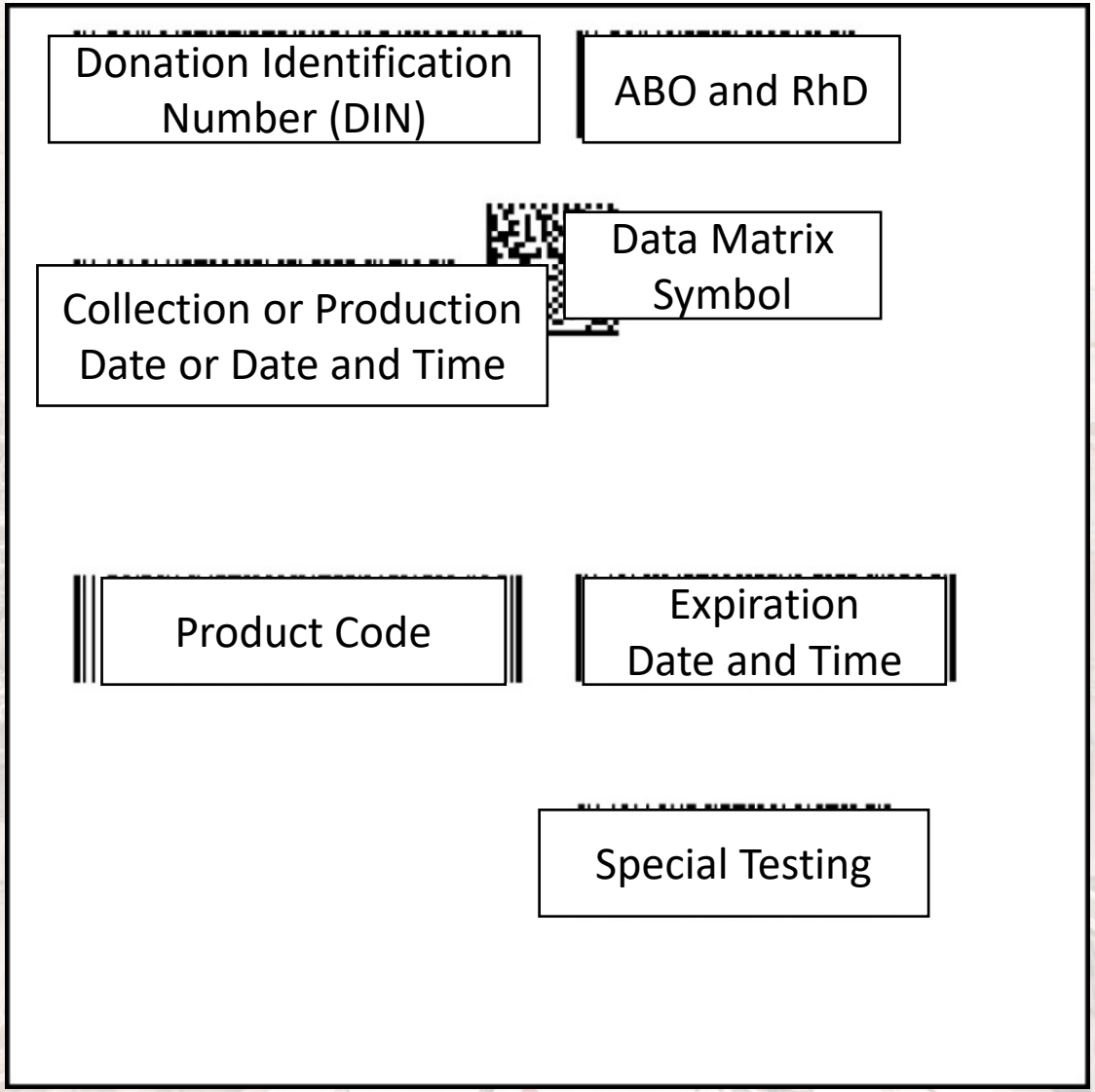
Labeling Learning Lab, Part A (Answers)



You will need a bar code scanning/reading app on your cell phone for the next session.

Android

Apple

ICCBBA Learning Lab

The ISBT 128 Standard in Action

Milan, Italy | 31 May 2025

15:00

Break Period

ISBT 128 Labeling, Part B

Learning Objectives

- At the end of this presentation, participants will:
  - Understand what is an ISBT 128 data structure
  - Be familiar with the common data structures used on an ISBT 128 final blood label
  - Be able to differentiate between encoded information vs. eye-readable text vs. label text
  - Know how to use the coding reference tables associated with the DIN, ABO/RhD Blood Groups, and Product Code

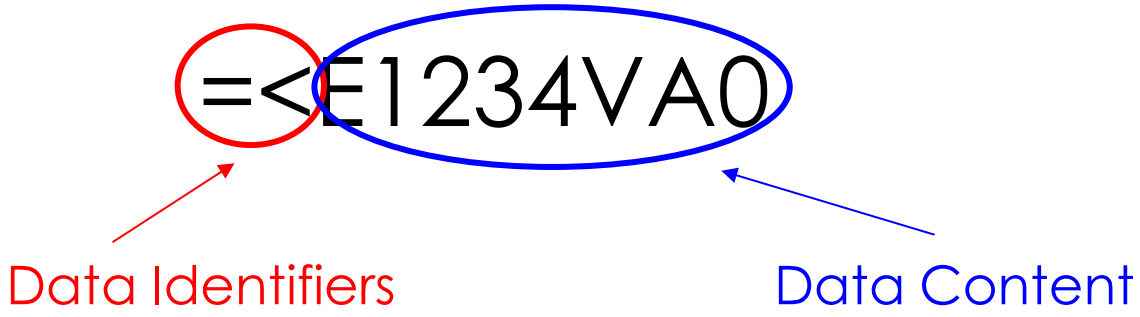
ISBT 128 Data Structures

- **A standardized way of conveying specific types of information**

- All ISBT 128 data structures will have:
  - Data Identifiers and
  - Data content

ISBT 128 Data Structure Example

Example of Product Code Data Structure [003]



ISBT 128 Data Structures

- Each ISBT 128 data structure is assigned its own:
  - Data structure number
  - Data identifiers

Examples		
Data Structure Number	**Data Identifiers**	**Data Structure Name**
001	=α	**Donation** Identification Number (DIN)
002	=%	Blood Groups [ABO and RhD]
003	=<	Product Code
005	&>	Expiration Date and Time
007	&*	Collection Date and Time

ISBT 128 Data Structure Example

2.4.5 Expiration Date and Time [Data Structure 005]

Purpose: Data Structure 005 shall indicate the date and time when the product expires.

Structure: &>cyyjjjhhmm

The elements of the Expiration Date and Time data structure are defined as follows:

Element	Length	Type
&	1	data identifier, first character
>	1	data identifier, second character
c	1	numeric {0–9}
yy	2	numeric {0–9}
jjj	3	numeric {0–9}
hh	2	numeric {0–9}
mm	2	numeric {0–9}

The ten (10)-character data content string, **cyyjjjhhmm**, shall be encoded and interpreted as follows:

c shall specify the century of the year in which the product expires.

yy shall specify the year within the century in which the product expires.

jjj shall specify the ordinal number within the calendar year (Julian date) on which the product expires.

hh shall specify the hour at which the product expires (00 to 23).

mm shall specify the minute at which the product expires (00 to 59).

ISBT 128
More than Identification

Data Identifiers

- Identifies the type of data that is being conveyed

- Used for process control
  - To ensure data is entered into the appropriate field
  - To ensure a valid data content length
  - To ensure valid characters are used in the data content

Donation Identification Number (DIN)

- Data Structure 001 (defined in ST-001 section 2.4.1)

=αppppyynnnnnnff

- Data Identifier
- Data Content consists of:
  - 13-character DIN
  - Flag characters [ff]

ISBT 128
More than Identification

Donation Identification Number (DIN)

=αppppyynnnnnnff

- The **13**-character DIN consists of:
  - 5-character Facility Identification Number (FIN) [αpppp]
    - All assigned FINs are listed in the FIN Database
  - 2-digit Year of assignment [yy]
  - 6-digit Sequence Number [nnnnnn]

- Flag characters [ff] are ***NOT*** part of the DIN

ISBT 128
More than Identification

ISBT 128 FIN Database

- https://www.isbt128.org/m-databases-ref-tables

- Must be registered and logged in to access the database

ISBT 128
More than Identification

Flag Characters

- NOT part of the DIN
- It is encoded in the bar code as part of the data content
- Printed *90 degrees clockwise* to differentiate it from the DIN
- Used for process control

ISBT 128
More than Identification

Flag Characters

Table 3 Data Structure 001: Donation Identification Number Flag Characters, ff [RT004]

Value of ff	Meaning When Used with the Donation Identification Number
00	Flag not used; null value
01	Container 1 of a set
02	Container 2 of a set
03	Container 3 of a set
04	Container 4 of a set
05	Second (or repeated) "demand-printed" label
06	Pilot tube label
07	Test tube label
08	Donor record label
09	Sample tube for NAT testing
10	Samples for bacterial testing
11	Match with Unit label
12	Affixed partial label
13	Attached label (intended to be used with affixed partial label)
14	Reserved for future assignment
15	Container 5 of a set
16	Container 6 of a set
17	Container 7 of a set
18	Container 8 of a set
19	Container 9 of a set
20-59	Reserved for assignment and use by each local facility. Therefore the meaning and interpretation of flag values 20–59 may differ with each FIN and should not be interpreted at any other site
60–96	ISO/IEC 7064 modulo 37-2 check character on the preceding thirteen (13) data characters, **αppppyynnnnnn** including the FIN, year and the unit sequence number — value is assigned as 60 plus the modulo 37-2 checksum
97–99	Reserved for future assignment
Alphanumeric using numbers in the range 0-9 and alphas in the range A-N, P, R-Y	Reserved for future assignment

=αppppyynnnnnnff

- ff coding values are found in reference table RT004
- Default "00" coding values when not used

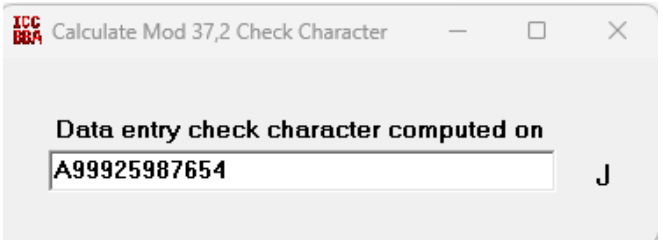
ISBT 128
More than Identification

Check Character

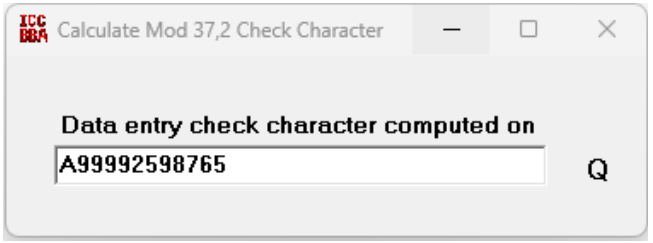
- NOT part of the DIN
- NOT encoded within the data content
- Used as a process control for ensuring that the manual entry of the DIN is accurate
- Calculated based on the 13-character DIN
- When printed, it is enclosed in a box

ISBT 128
More than Identification

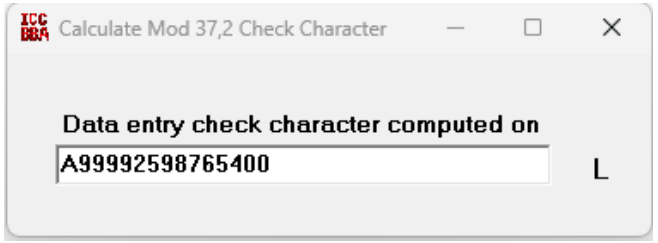
Check Character Calculation



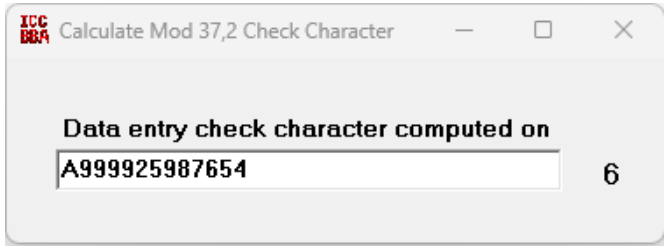
✗ Missing “9” from FIN



✗ Missing “4” from end



✗ Flags included in calculation



✓

ISBT 128
More than Identification

Labeling Example

- Encoded in the bar code:
  - =A99992598765400
  - =αppppyynnnnnnnff

- Eye-readable text below the bar code:
  - A9999 25 987654
  - 00 (rotated 90 degrees clockwise)
  - “6” enclosed in a box
  - Shall <u>not include</u> the data identifier =

ISBT 128
More than Identification

ABO/RhD Blood Groups Data Structure

- Data Structure 002 (defined in ST-001 section 2.4.2)

=%ggre

- Data identifiers =%

- Data content (ggre)
  - gg coding values are found in reference table RT005
  - r coding values are found in reference table RT007
    - This is set to zero when not used
  - e is reserved for future use and shall be set to "0" (zero)

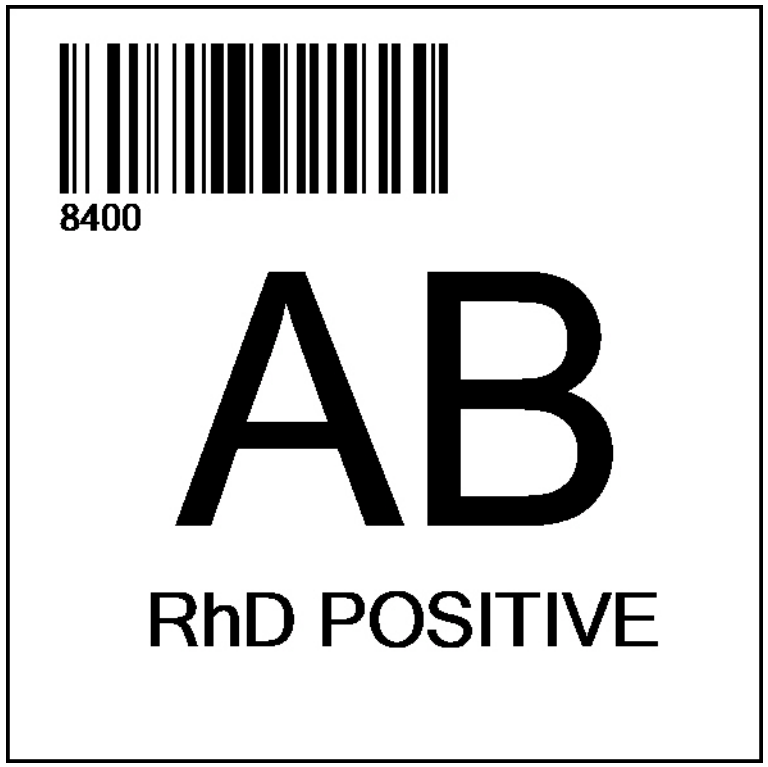
Reference Table RT005 for gg Values

=%**gg**re

Table 4 Data Structure 002: Blood Groups [ABO and RhD], Including Optional Type of Collection Information [RT005]

ABO and RhD Blood Groups	Default: Intended Use Not Specified	Directed (Dedicated/ Designated) Collection Use Only	For Emergency Use Only	Directed (Dedicated/ Designated) Collection/ Biohazardous	Directed (Dedicated/ Designated) Collection/ Eligible for Crossover	Autologous Collection/ Eligible for Crossover	For Autologous Use Only	For Autologous Use Only/ Biohazardous
O RhD negative	95	91	92	93	94	96	97	98
O RhD positive	51	47	48	49	50	52	53	54
A RhD negative	06	02	03	04	05	07	08	09
A RhD positive	62	58	59	60	61	63	64	65
B RhD negative	17	13	14	15	16	18	19	20
B RhD positive	73	69	70	71	72	74	75	76
AB RhD negative	28	24	25	26	27	29	30	31
AB RhD positive	84	80	81	82	83	85	86	87

ABO/RhD Label Example

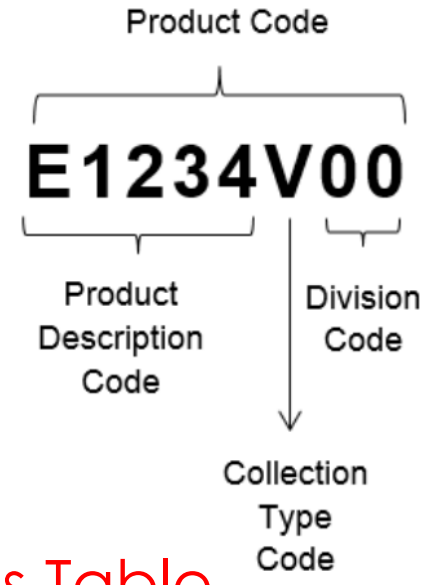


- Encoded in the bar code:
  - =%8400
  - =%ggre
- Eye-readable text below bar code:
  - 8400
  - Left justified
  - Shall not include the data identifiers =%
- Corresponding label text:
  - AB RhD POSITIVE (interpreted via RT005)

Product Code Data Structure

- Data Structure 003 (defined in ST-001 section 2.4.3)

=<αooootds



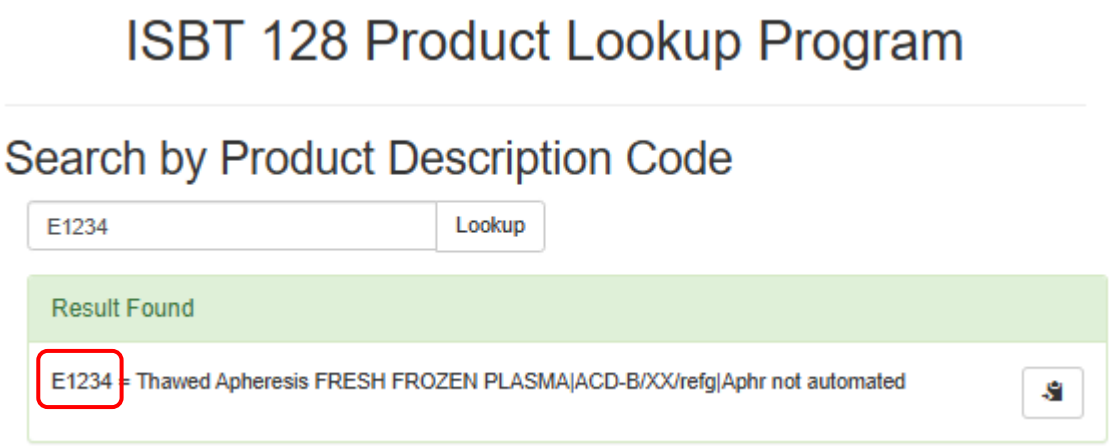
- Data Identifiers =<

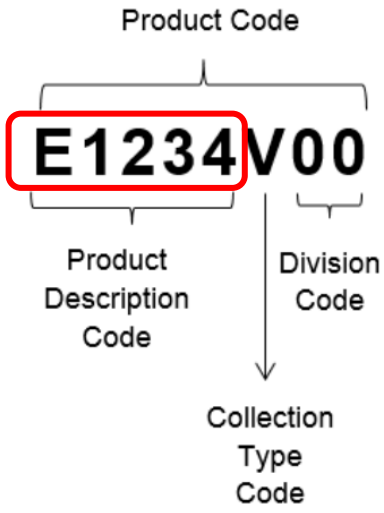
- Data content (αooootds → Product Code)
  - αoooo coding values found in Product Description Codes Table
  - t coding values found in reference table RT008
  - ds values represent divisions/aliquots (e.g., 00, A0, B0, Aa, Ba, etc.)

Product Lookup Program

- https://www.isbt128.org/find-product-info

- Must be registered and logged in to access the program





ISBT 128
More than Identification

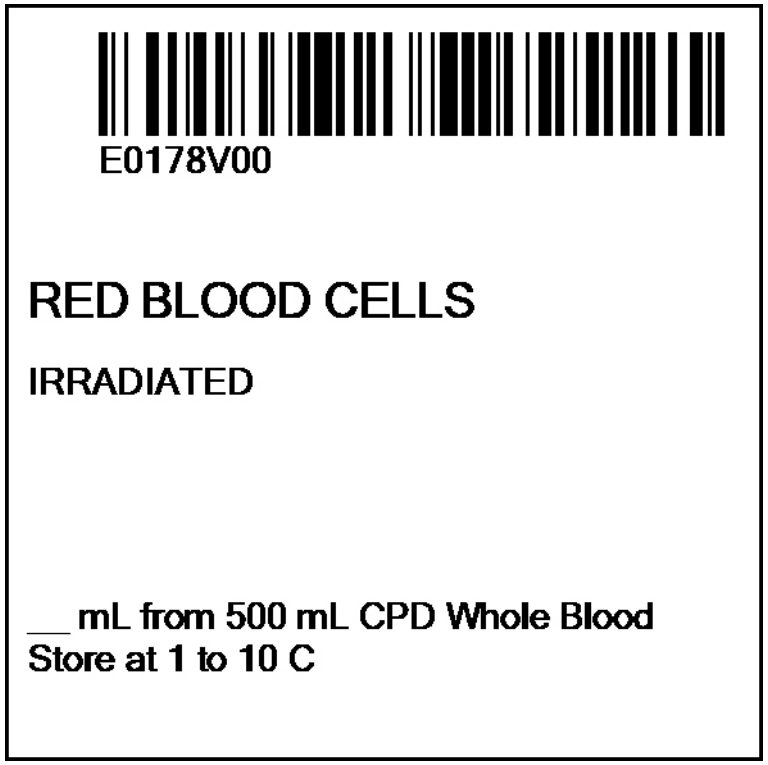
Collection Type Code

Data Structure 003: Type of Collection in 6th Position of Product Code [RT008]

Character	Type of Collection
0 (zero)	Not specified (null value)
V	Volunteer homologous (allogeneic) (default)
R	Volunteer research (Product not intended for human application)
S	Volunteer source
T	Volunteer therapeutic
P	Paid homologous (allogeneic)
r	Paid research (Product not intended for human application)
s	Paid source
A	Autologous, eligible for crossover
1 (one)	For autologous use only
X	For autologous use only, biohazard
D	Volunteer directed, eligible for crossover
d	Paid directed, eligible for crossover
2	For directed recipient use only
L	For directed recipient use only, limited exposure
E	Medical exception, for specified recipient only (allogeneic)
Q	See (i.e., read [scan]) Special Testing bar code
3	For directed recipient use only, biohazard
4	Designated
5	Dedicated
6	Designated, biohazard

ISBT 128
More than Identification

Product Code Label Example



- Encoded in the bar code:
  - =<E0178V00
  - =<αooootds
- Eye-readable text below bar code:
  - E0178V00
  - Left justified
  - Shall not include the data identifiers =<
- Corresponding label text
  - Class name
  - Attributes
  - Additional information

ISBT 128
More than Identification

Expiration Date and Time Data Structure

- Data Structure 005 (defined in ST-001 section 2.4.5)

&>cyyjjjhhmm

- Data Identifier &>
- Data content
  - c = Century (for 2**0**25, c = **0**)
  - yy = Year (for 2025, yy = **25**)
  - jjj = Julian Date (Jan 1 = **001**; Dec 31 = **365**; May 31= **151**)
  - hh = Hour (for 9am, hh = **09**; for 11pm, hh = **23**)
  - mm = Minute (for 10:45, mm = **45**)

ISBT 128
More than Identification

Expiration Date and Time Label Example

- Encoded in the bar code:
  - &>0251511200
  - &>cyyjjjhhmm
- Eye-readable text below bar code:
  - 0251511200
  - Left justified
  - Shall not include the data identifiers &>
- Corresponding label text
  - Only two date format options allowed to display
    - **31 May 2025 12:00**
    - **2025-05-31 12:00** (ISO 8601-1:2019)
- Time "2359" = End of Day
  - Encoded but not necessarily printed

ISBT 128
More than Identification

Collection Date and Time Data Structure

- Data Structure 007 (defined in ST-001 section 2.4.7)

&*cyyjjjhhmm

- Data Identifier &*
- Data content
  - c = Century (for 2**0**25, c = **0**)
  - yy = Year (for 2025, yy = **25**)
  - jjj = Julian Date (Jan 1 = **001**; Dec 31 = **365**; May 31= **151**)
  - hh = Hour (for 9am, hh = **09**; for 11pm, hh = **23**)
  - mm = Minute (for 10:45, mm = **45**)

ISBT 128
More than Identification

Collection Date and Time Example

- Collection date and time of May 31, 2025 at 10:45am
- This would be encoded into Data Structure 007 as:

&*025151 1045

- "2359" is used as the default time if the specific time is not important
  - Encoded but not printed

ISBT 128
More than Identification

Special Testing General Data Structure

- Data Structure 010 (defined in ST-001 section 2.4.10)

&(zzzz

- Data Identifier &(

- Data content (zzzzz)
  - zzzzz coding values found in Special Testing General Database

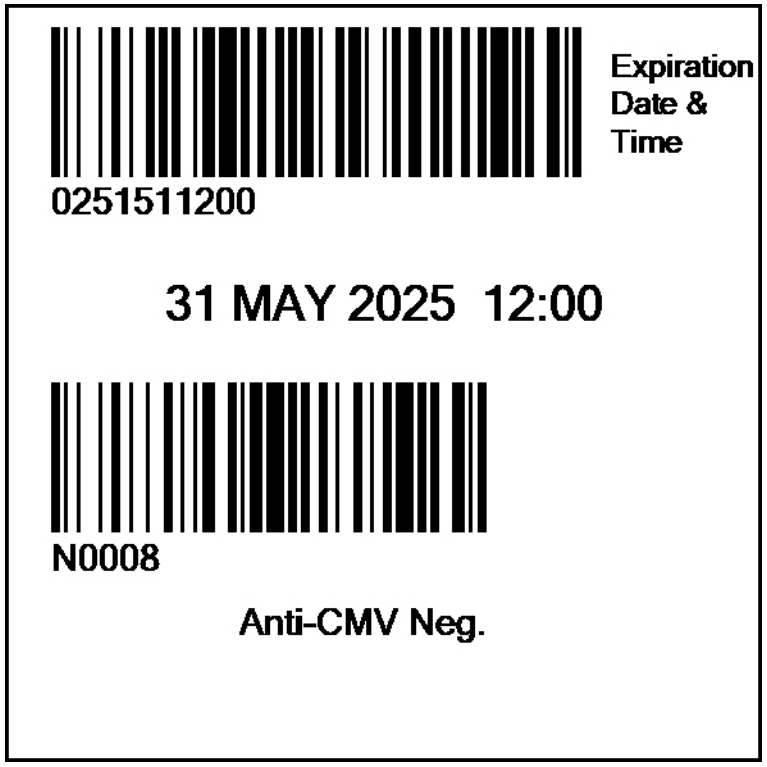
ISBT 128
More than Identification

Special Testing General Database

- https://www.isbt128.org/m-databases-ref-tables
- Must be registered and logged in to access the database

N0001	HLA phenotyped
N0002	HPA phenotyped
N0003	IgA deficient
N0004	RBC phenotyped
N0005	RBC antibody(ies) present
N0006	RBC antibody absent
N0007	Specific antibody present
N0008	CMV seronegative
N0009	CMV seropositive
N0010	HLA antibody(ies) present
N0011	HLA antibody absent
N0012	HPA antibody(ies) present
N0013	HPA antibody absent
N0014	HLA phenotyped; HPA phenotyped
N0015	HLA phenotyped; IgA deficient
N0016	HLA phenotyped; RBC phenotyped
N0017	HLA phenotyped; RBC antibody(ies) present
N0018	HLA phenotyped; RBC antibody absent
N0019	HLA phenotyped; CMV seropositive
N0020	HLA phenotyped; CMV seronegative
N0021	HLA phenotyped; HLA antibody(ies) present
N0022	HLA phenotyped; HLA antibody absent
N0023	HLA phenotyped; HPA antibody(ies) present
N0024	HLA phenotyped; HPA antibody absent

Special Testing General Label Example



- Encoded in the bar code:
  - &(N0008
  - &(zzzzz
- Eye-readable text below bar code:
  - N0008
  - Left justified
  - Shall not include the data identifiers &(
- Corresponding label text
  - Anti-CMV Neg.

ISBT 128
More than Identification

2-D Data Matrix Symbol

- Uses the Compound Message Data Structure 023

=+aabbb

- Data Identifier =+

- Data Content
  - aa indicates the number of additional data structures that follow
  - bbb can be set to “000”

ISBT 128
More than Identification

Compound Message Example

=+04000=A99992598765400=%5100=<E0001V00&>0251512359

- =+04000 (Data Structure 023)
- =A99992598765400 (Data Structure 001)
- =%5100 (Data Structure 002)
- =<E0001V00 (Data Structure 003)
- &>0251512359 (Data Structure 005)

ISBT 128
More than Identification

Common ISBT 128 Labeling Errors

- Data identifiers not encoded in the bar code
- Incorrect check character calculation
- Check character not enclosed in a box
- Incorrect eye-readable text beneath the bar code
- Flag characters are not rotated correctly
- Inconsistency between encoded information, eye-readable test, and label text
- Incorrect characters used in the encoded data structure
- Incorrect use of the date format

ISBT 128
More than Identification

ISBT 128 Labeling, Part B

Learning Lab
& Reflection

ISBT 128
More than Identification

Labeling Learning Lab, Part B

- Please work with your group to find the 4-5 intentional errors on the ISBT 128 blood label in your assigned quadrant.
  - Group 1: Upper left quadrant
  - Group 2: Lower left quadrant
  - Group 3: Upper right quadrant
  - Group 4: Lower right quadrant
- What will you need?
  - Label with errors
  - Bar code scanning app
  - Pencil
  - Quick K Calculator Program (Groups 1)
  - PDC Lookup Program (Groups 2)
  - RT-005 Table (Group 3)

Time: 25 minutes
15 minutes of group work
10 minutes of review

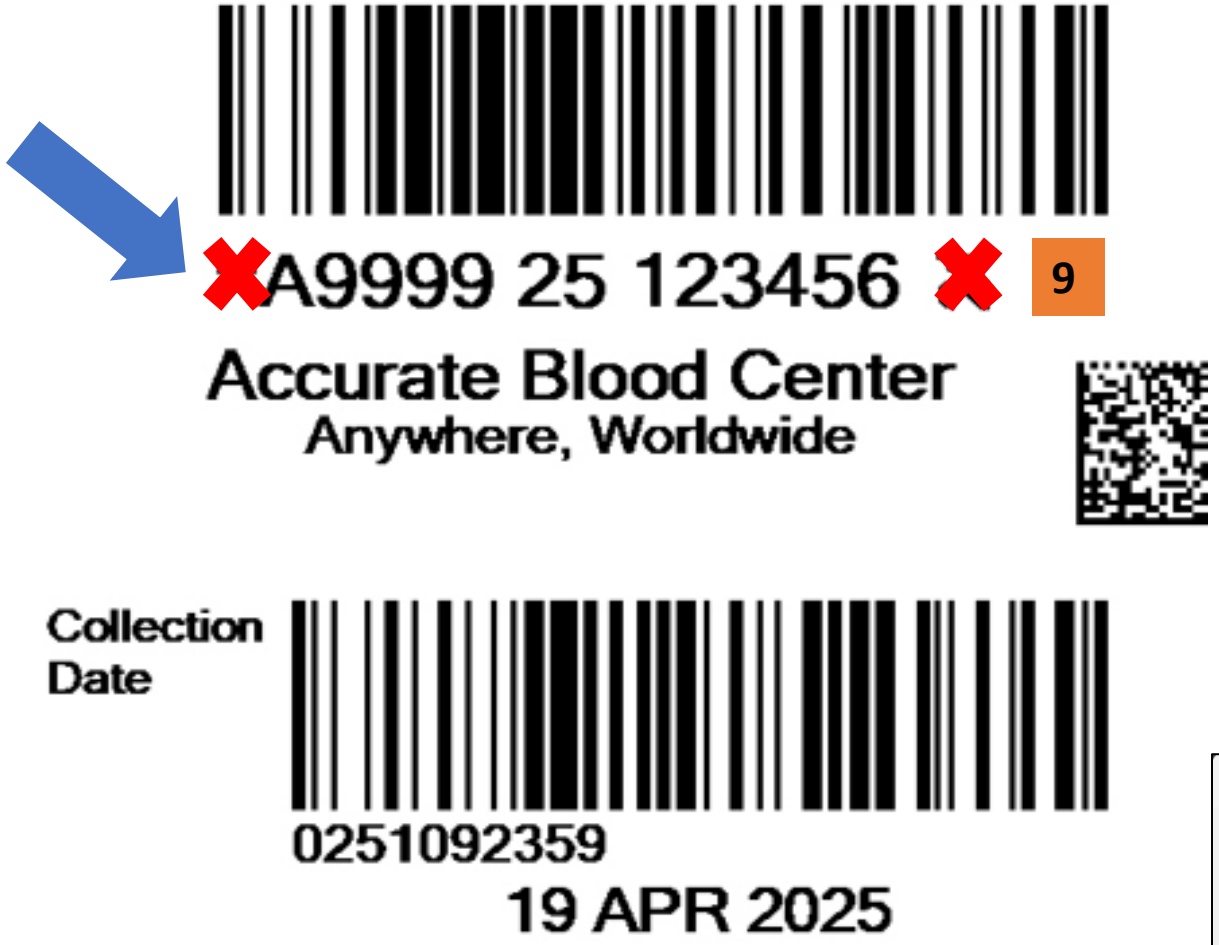
ISBT 128
More than Identification

Labeling Learning Lab, Part B (Answers)

You should have a copy of the Answer Key at your table. We will review one quadrant at a time. Please check your answers and feel free to take notes.

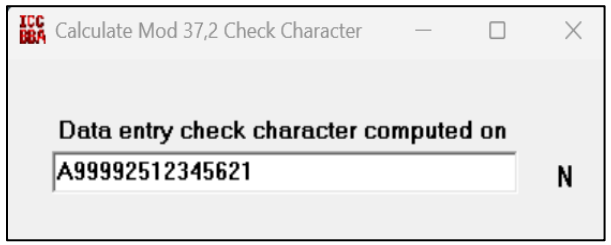
ISBT 128
More than Identification

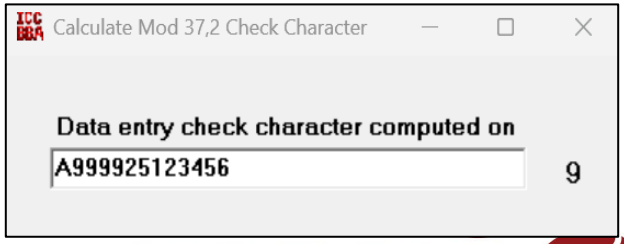
ISBT 128 Blood Label: Upper Left Quadrant



- The data identifier should not be printed as part of the eye-readable DIN.
- The DIN data identifier is not encoded in the bar code

- Check character is incorrect. The calculation should be based only on the 13-character DIN. It should not include the flag characters.





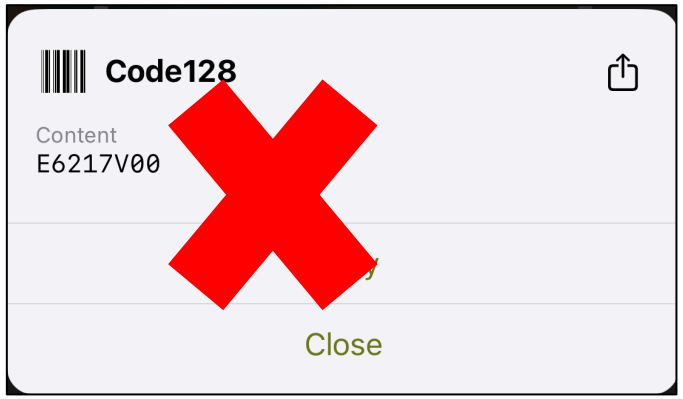
ISBT 128 Blood Label: Upper Left Quadrant

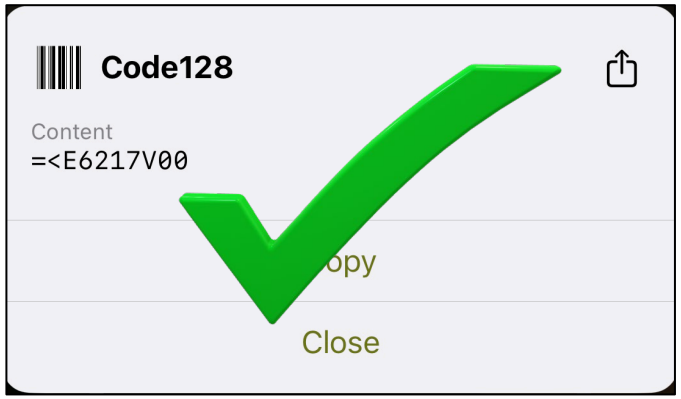
- The check character needs to be enclosed in a box.
- Flag characters should be rotated 90 degrees clockwise. It incorrectly appears rotated 90 degrees counter-clockwise.

ISBT 128
More than Identification

ISBT 128 Blood Label: Lower Left Quadrant

- The eye-readable text below the Product Code bar code is missing the collection type code & division code.
- The Product Code data identifiers are not encoded in the bar code.





- The eye-readable text below the Product Code bar code should be left justified.

ISBT 128
More than Identification

ISBT 128 Blood Label: Lower Left Quadrant

E6217V00

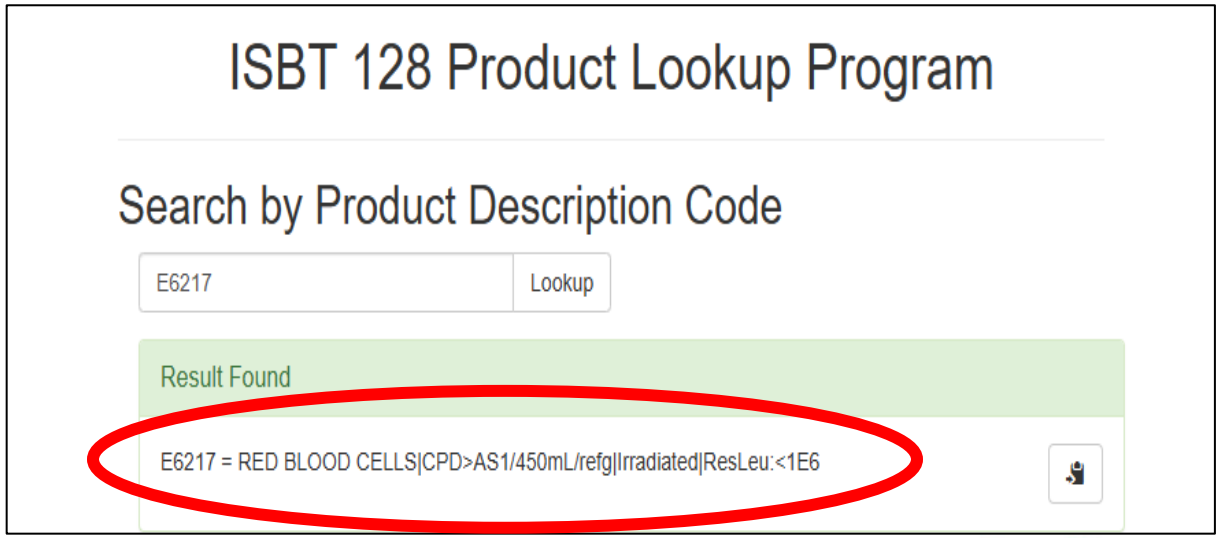
RED BLOOD CELLS

ADENINE-SALINE (AS-1) ADDED
IRRADIATED
LEUKOCYTES REDUCED

__ mL from 450 mL CPD Whole Blood
Store at 1 to 10 C

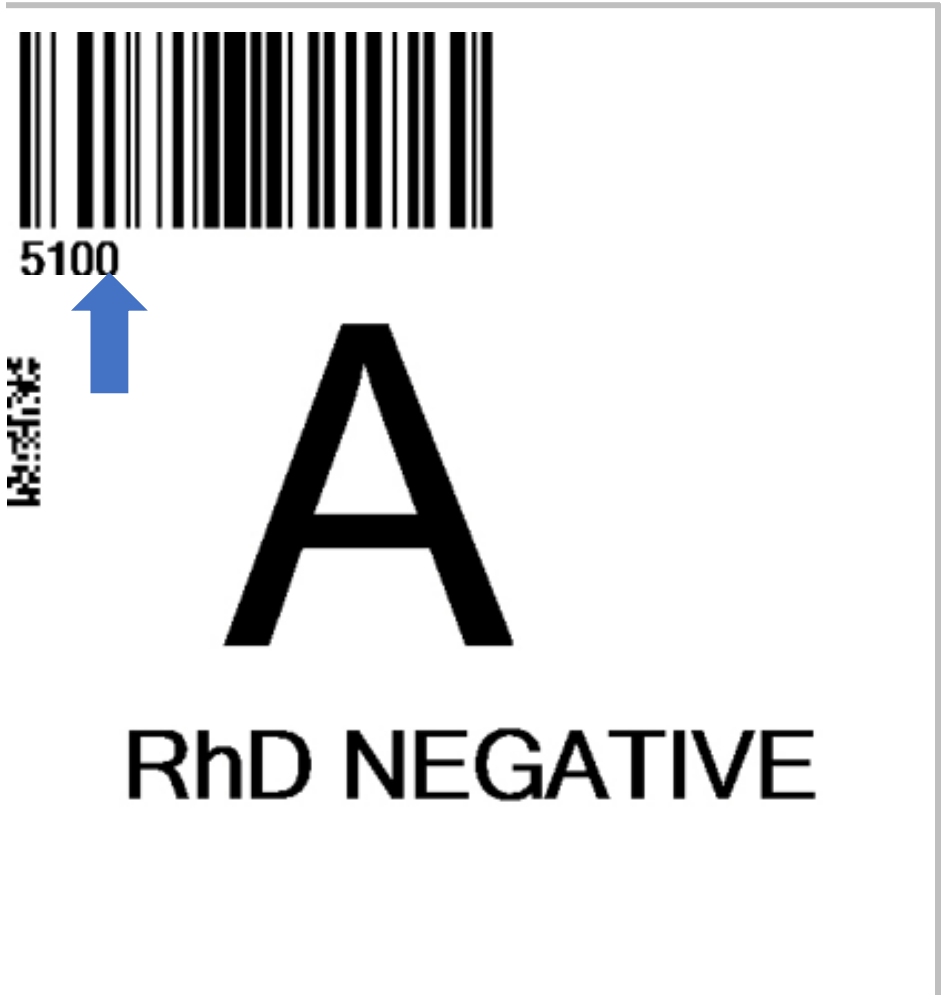
The product text does not match the product description for the encoded PDC (E6217).

- Additive on the label should be AS-1, not AS-3
- IRRADIATED attribute should be printed on the label
- Anticoagulant on the label should be CPD, not ACD-A

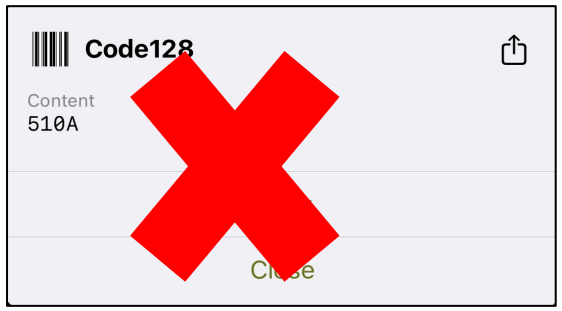


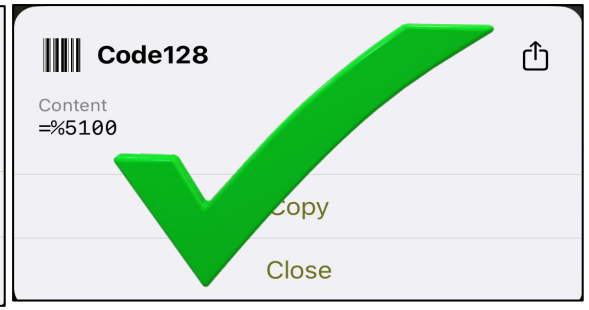
ISBT 128
More than Identification

ISBT 128 Blood Label: Upper Right Quadrant

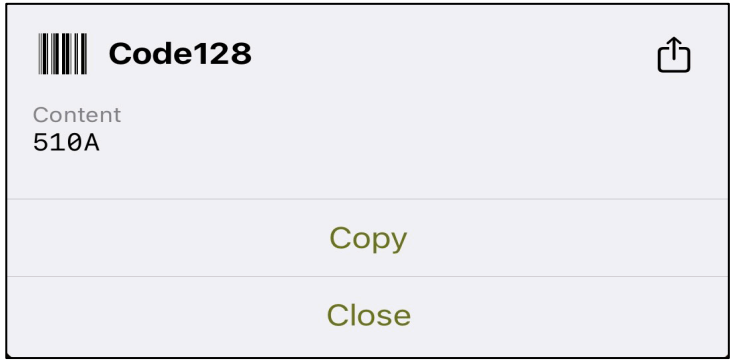


- Data identifiers are missing from the encoded message in the bar code.





- The eye-readable text below the ABO/RhD bar code is missing the 3rd and 4th characters of the data content.
- Improper use of the 4th character in the message. Section 2.4.2 of ST-001 says that the 4th character is reserved for future use and shall always be set to 0 (zero).



ISBT 128
More than Identification

ISBT 128 Blood Label: Upper Right Quadrant

51

A

RhD NEGATIVE

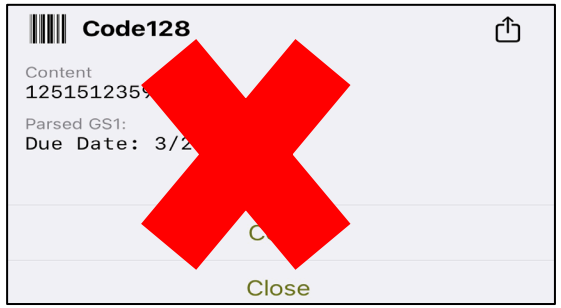
- Reference table RT005 defines the value 51 as O RhD Positive, but the label text says A RhD Negative.

Table 4 Data Structure 002: Blood Groups [ABO and RhD], Including Optional Type of Collection Information [RT005]

ABO and RhD Blood Groups	Default: Intended Use Not Specified	Directed (Dedicated/ Designated) Collection Use Only	For Emergency Use Only	Directed (Dedicated/ Designated) Collection/ Biohazardous	Directed (Dedicated/ Designated) Collection/ Eligible for Crossover	Autologous Collection/ Eligible for Crossover	For Autologous Use Only	For Autologous Use Only/ Biohazardous
O RhD negative	95	91	92	93	94	96	97	98
O RhD positive	51	47	48	49	50	52	53	54
A RhD negative	06	02	03	04	05	07	08	09
A RhD positive	62	58	59	60	61	63	64	65
B RhD negative	17	13	14	15	16	18	19	20
B RhD positive	73	69	70	71	72	74	75	76
AB RhD negative	28	24	25	26	27	29	30	31
AB RhD positive	84	80	81	82	83	85	86	87
O	55	P2	P3	P4	P5	P7	P8	P9
A	66	A2	A3	A4	A5	A7	A8	A9
B	77	B2	B3	B4	B5	B7	B8	B9
AB	88	C2	C3	C4	C5	C7	C8	C9
para-Bombay, RhD negative	D6	D2	D3	D4	D5	D7	D8	D9
para-Bombay. RhD positive	E6	E2	E3	E4	E5	E7	E8	E9

ISBT 128 Blood Label: Lower Right Quadrant

- Expiration date and time data identifiers are missing from the encoded message in the bar code.



- The data identifiers should not be printed as part of the eye-readable text below the expiration date/time bar code.
- The encoded time (2359) is missing from the eye-readable data content text below the expiration date/time bar code.

ISBT 128
More than Identification

ISBT 128 Blood Label: Lower Right Quadrant

- Improper identification of century marker

2025

- Incorrect format for day – month – year on label text (Should be 31 May 2025, or 2025-05-31 per ST-005)

5.3.4 Dates [Data Structures 004, 005, 006, 007, 008, 009, 024]

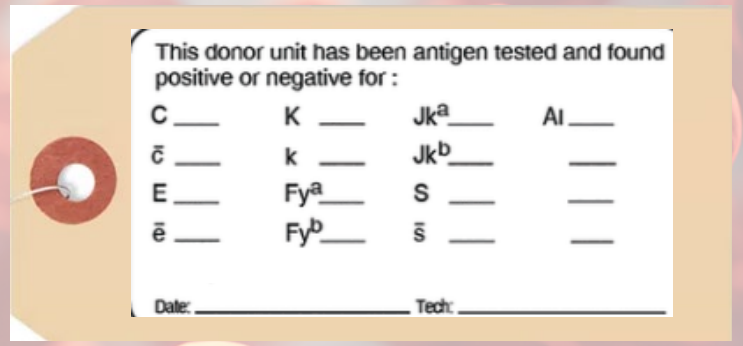
Dates shall be printed in compliance with ISO 8601-2004 extended format or in the format day — month — year. In the latter case, the day shall be numerical, the month alphabetical, using a three-letter abbreviation. The year shall be a four-digit numerical representation.

Expiration Date:

2017-03-17
OR
17 MAR 2017

ISBT 128
More than Identification

Red Cell Antigens and ISBT 128



ISBT 128
More than Identification

Printed Label Text

- Reverse Printing

k- C+ E- c- e+ K+

- Superscripts/Subscripts

k- M-, S-, E-, c-, C^{w}-

- Separators

Js(b-); S-; C-, E-; K-; Fy(a-); Jk(a-)
Js(b-), S-, C-, E-, K-, Fy(a-), Jk(a-)
Js(b-) S- C- E- K- Fy(a-) Jk(a-)
Jsb- S- C- E- K- Fya- Jka-

Special Testing: Red Cell Antigens – Data Structure 012

Structure:
=\aaaaaaaaaaaaaaaaii

Element	Length	Type
=	1	data identifier, first character
\	1	data identifier, second character
aaaaaaaaaaaaaaaa	16	numeric {0–9}
ii	2	numeric {0–9}

- Red cell phenotypes
- CMV antibody
- IgA status
- Hemoglobin S
- Etc…

ISBT 128
More than Identification

Reference Table RT009 - Data Structure 012

Position	1	2		3			14	15		16	
Antibody											CMV
Antigen / Value	Rh*	K	k	C^w	Mi^a†		Js^a	C*	c*	E*	e*	
0	C+c-E+e-	nt	nt	nt	nt		nt	nt	nt	nt	nt	nt
1	C+c+E+e-	nt	neg	nt	neg		nt	neg	nt	neg	nt	neg
2	C-c+E+e-	nt	pos	nt	pos		nt	pos	nt	pos	nt	pos
3	C+c-E+e+	neg	nt	neg	nt		neg	nt	neg	nt	neg	nt
4	C+c+E+e+	neg	neg	neg	neg		neg	neg	neg	neg	neg	neg
5	C-c+E+e+	neg	pos	neg	pos		neg	pos	neg	pos	neg	pos
6	C+c-E-e+	pos	nt	pos	nt		pos	nt	pos	nt	pos	nt
7	C+c+E-e+	pos	neg	pos	neg		pos	neg	pos	neg	pos	neg
8	C-c+E-e+	pos	pos	pos	pos	p	os	pos	pos	pos	pos	pos
9	ni	ni	ni	ni	ni	n	i	ni	ni	ni	ni	ni

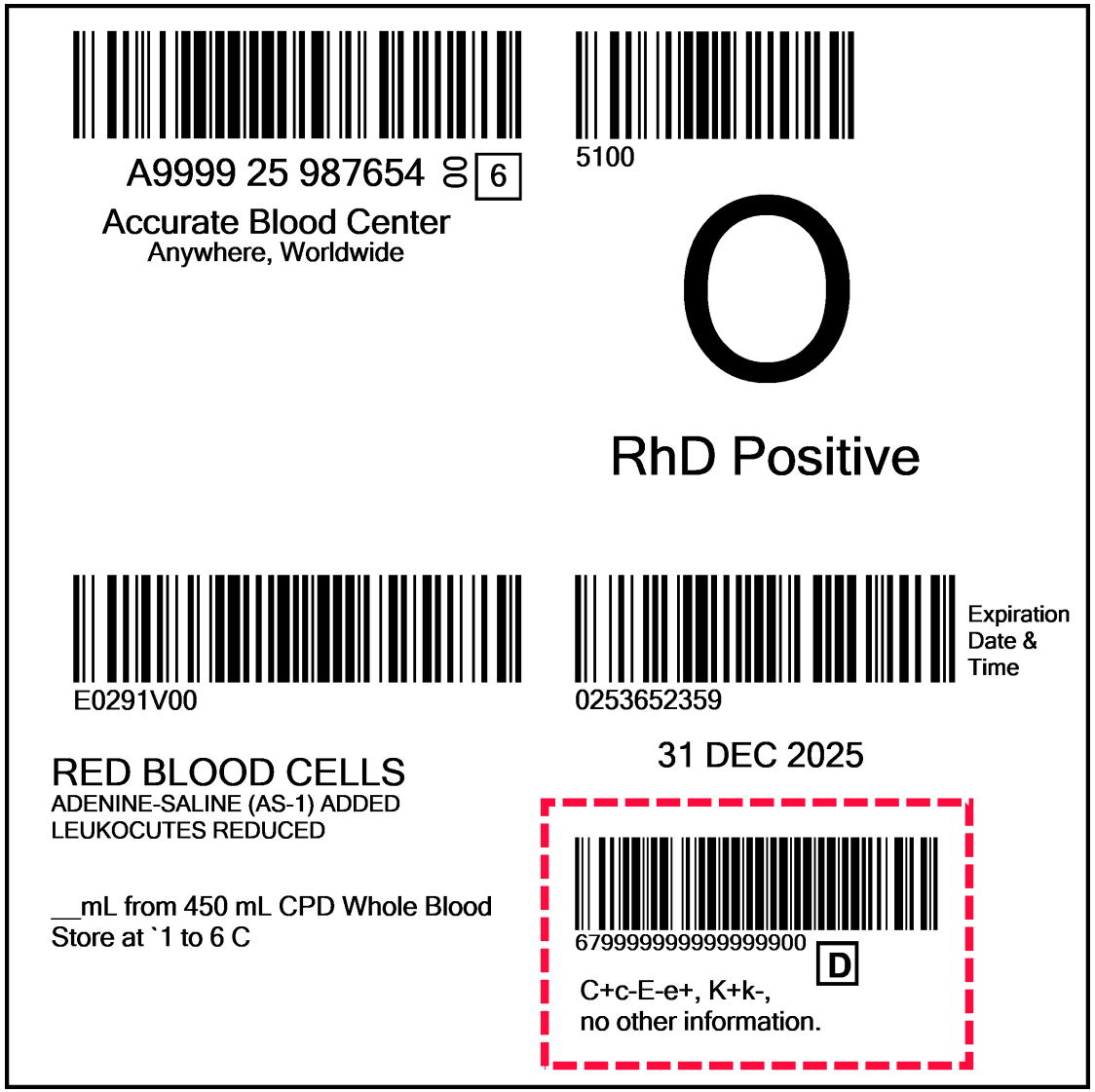
ISBT 128
More than Identification

Value	Antigen
00	information elsewhere
01	En^{a}
02	‘N’
03	V^{w}
04	Mur*
05	Hut
06	Hil
…	…
96	Hemoglobin S negative
97	parvovirus B19 antibody present
98	IgA deficient
99	no information provided

Reference Table RT011 -Data Structure 012

ISBT 128
More than Identification

Linear Bar Code



ISBT 128
More than Identification

Red Cell Antigen with Test History – Data Structure 030

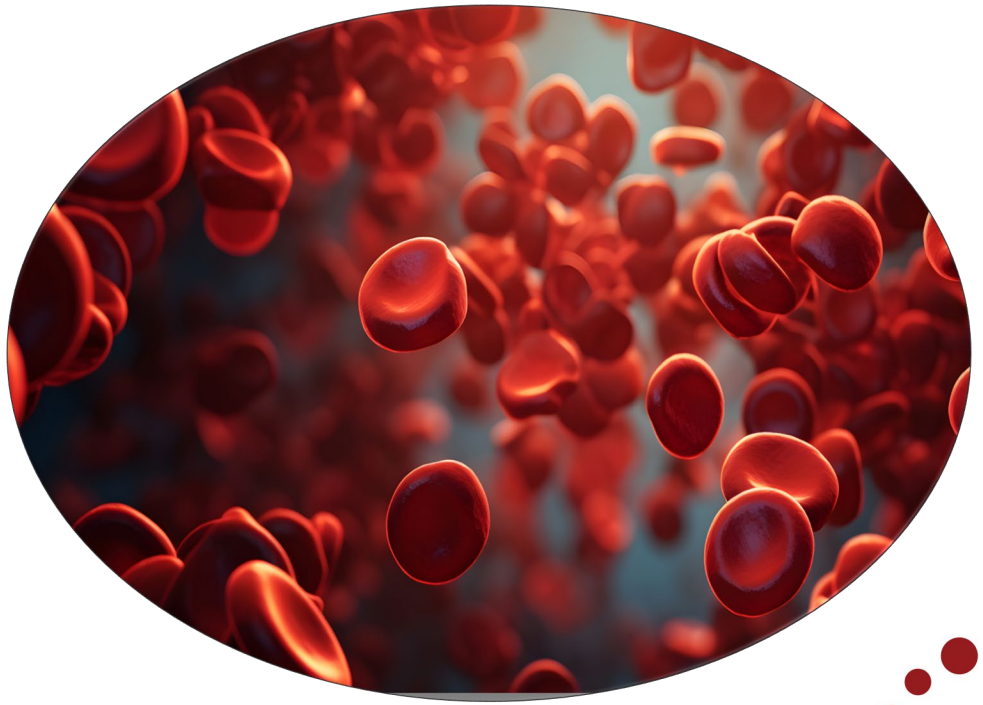
Element	Length	Type
&	1	data identifier, first character
%	1	data identifier, second character
nnn	3	numeric {0–9}
		Repeating segment (repeats nnn times):
pppppp	6	numeric {0–9}
rr	2	numeric {0–9}
ss	2	numeric {0–9}

- nnn – how many antigens are described
- pppppp – ISBT defined antigen
- rr – result interpretation
- ss – number of tests

ISBT 128
More than Identification

Reference Tables for Data Structure 030

- ISBT Defined Antigens – maintained by ISBT
- RT040 – RBC Results
- RT041 – Number of Tests



ISBT Defined Antigens

System		Antigen number												Total in system
		001	002	003	004	005	006	007	008	009	010	011	012	
001	ABO	A	B	A,B	A1	...								4
002	MNS	M	N	S	s	U	He	Mi^a	M^c	Vw	Mur	M^g	Vr	50
003	P1PK	P1	...	P^k	NOR									3
004	RH	D	C	E	c	e	f	Ce	C^w	C^x	V	E^w	G	56
005	LU	Lu^a	Lu^b	Lu3	Lu4	Lu5	Lu6	Lu7	Lu8	Lu9	...	Lu11	Lu12	28
006	KEL	K	k	Kp^a	Kp^b	Ku	Js^a	Js^b	...	...	Ul^a	K11	K12	38
007	LE	Le^a	Le^b	Le^{ab}	Le^{bH}	ALe^b	BLe^b							6
008	FY	Fy^a	Fy^b	Fy3	...	Fy5	Fy6							5
009	JK	Jk^a	Jk^b	Jk3										3
010	DI	Di^a	Di^b	Wr^a	Wr^b	Wd^a	Rb^a	WARR	ELO	Wu	Bp^a	Mo^a	Hg^a	23
011	YT	Yt^a	Yt^b	YTEG	YTLI	YTOT	YTGT							6
012	XG	Xg^a	CD99											2
013	SC	Sc1	Sc2	Sc3	Rd	STAR	SCER	SCAN	SCAR	SCAC	SCAB			10
014	DO	Do^a	Do^b	Gy^a	Hy	Jo^a	DOYA	DOMR	DOLG	DOLC	DODE			10
015	CO	Co^a	Co^b	Co3	Co4									4
016	LW	...	...	...	...	LW^a	LW^{ab}	LW^b	LWEM					4
017	CH/RG	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	WH				Rg1	Rg2	9
018	H	H												1
019	XK	Kx												1

RT040 – Red Cell Results

Value	Meaning
01	Negative – Test methodology not specified
02	Positive – Test methodology not specified
03	Negative – Serological testing
04	Positive – Serological testing
05	Negative – Predicted phenotype based on genotyping
06	Positive – Predicted phenotype based on genotyping

RT041 – Number of Tests

Value	Meaning
01	Tested once on this collection
02	Tested once on prior collection
03	Tested ≥ twice on different collections (current and historic) with concordant results
04	Tested ≥ twice on different collections (historic only) with concordant results
05	Tested ≥ twice on this collection only, different samples, with concordant results
06	Test history not specified.

ISBT 128 Transitional Label with Special Antigen Testing Status Included

Data encoded in the 2-D Data Matrix symbol:

=+05020=A99992598765400=%9500=<E0311V00&>0253652359

Compound Message | DIN+Flag | Blood Type | Product Code | Expiration Date & Time

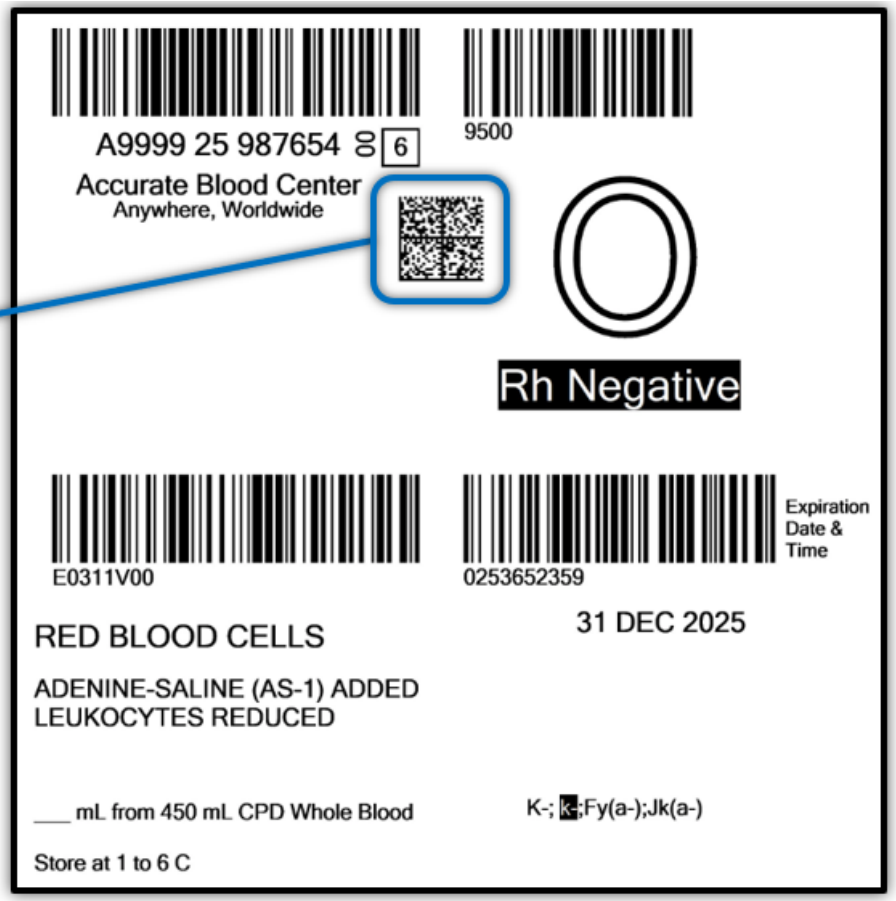
&%00400600101040060020104009001010400800101 04

Red Cell Antigens with Test History

Red Cell Antigens with Test History
[Data Structure 030]

&%00400600101040060020104009001010400800101 04

Number of Repeating Segments
ISBT-Defined Antigen Identifier
RBC Serological Results and Testing Methodology
Number of Tests (Current/Historic/Not Specified)



ISBT 128
More than Identification

Electronic Messaging - XML

- Data Element Name: Red Cell Antigen with Test History, Individual
- XML Element Tag: RedCellAntigen
- Example: 0040020104
  - Blood Group System 004 – Rh
  - Blood Group Antigen 002 – C
  - Result Interpretation 01 - Negative – Test methodology not specified
  - Number of Tests 04 - Tested ≥ twice on different collections (historic only) with concordant results

Sample XML message

```
<?xml version="1.0" encoding="UTF-8"?>
<MPHOProduct xsi:schemaLocation="https://www.isbt128.org/MPHOProductXSD">
<MPHOUniqueIdentifier Identifier="https://www.isbt128.org/uri/MPHOUniqueIdentifier"
value="W9999E0001W000020123456A00000"/>
<DonationIdentificationNumber Identifier="https://www.isbt128.org/uri/DonationIdentificationNumber"
value="W000020123456"/>
<CollectionDateTime Identifier="https://www.isbt128.org/uri/CollectionDateTime" value="2020-03-02T14:49:32-
06:00"/>
<ABORhD Identifier="https://www.isbt128.org/uri/ABORhD" value="62"/>
<ProductDescriptionCode Identifier="https://www.isbt128.org/uri/ProductDescriptionCode" value="E0001"/>
<CollectionType Identifier="https://www.isbt128.org/uri/CollectionType" value="V"/>
<DivisionIdentifier Identifier="https://www.isbt128.org/uri/DivisionIdentifier" value="A00000"/>
<ExpirationDateTime Identifier="https://www.isbt128.org/uri/ExpirationDateTime" value="2020-03-02T20:49:32"/>
<ProcessorFIN Identifier="https://www.isbt128.org/uri/ProcessorFIN" value="W9999"/>
<TTIResults Identifier="https://www.isbt128.org/uri/TTIResults" value="3444140000000000000"/>
<RedCellAntigen Identifier="https://www.isbt128.org/uri/RedCellAntigen" value="0040020204"/>
<RedCellAntigen Identifier="https://www.isbt128.org/uri/RedCellAntigen" value="0040040104"/>
<RedCellAntigen Identifier="https://www.isbt128.org/uri/RedCellAntigen" value="0040030104"/>
<RedCellAntigen Identifier="https://www.isbt128.org/uri/RedCellAntigen" value="0040050204"/>
<RedCellAntigen Identifier="https://www.isbt128.org/uri/RedCellAntigen" value="0060010103"/>
</MPHOProduct>
```

ISBT 128 Labeling for Red Cell Antigens

Learning Lab & Reflection

ISBT 128
More than Identification

Red Cell Antigens Learning Lab

- Please discuss the following topic with your group:
  - What options are available for the transfer of red cell antigen status of red cell components?
- What will you need?
  - Discussion card
  - Writing materials

Time: 13 minutes

8 minutes group work

5 minutes for questions/debrief

ICCBBA Learning Lab

The ISBT 128 Standard in Action

Milan, Italy | 31 May 2025

Summary

Implementing the ISBT 128 Standard

1 Research & Register

- ✓ Get to know ISBT 128 standards
- ✓ Assess current systems
- ✓ Register with ICCBBA

2 Design & Notify

- ✓ Design compliant labels and integrate software and hardware
- ✓ Notify stakeholders of upcoming changes
- ✓ Consult with ICCBBA as needed

3 Implement & Stay Current

- ✓ Validate software, equipment, processes, and labels
- ✓ Train staff and implement the system
- ✓ Stay updated with ISBT 128 developments

ISBT 128
More than Identification

Labeling with ISBT 128

- ✓ Label size and 4 quadrants
- ✓ Bar codes in each quadrant
- ✓ Use of 2-D symbol
- ✓ Encoded vs. eye-readable text vs. label text
- ✓ Data Structures
- ✓ Coding reference tables
  - ✓ DIN
  - ✓ ABO/RhD Blood Groups
  - ✓ Product Codes

ISBT 128
More than Identification

Red Cell Antigens Summary

- ✓ ISBT Defined Antigens – Maintained by ISBT
- ✓ RT040 – RBC Results
- ✓ RT041 – Number of Tests

Data encoded in the 2-D Data Matrix symbol:

=+05020=A99992598765400=%9500=<E0311V00&>0253652359

Compound Message | DIN+Flag | Blood Type | Product Code | Expiration Date & Time

&%00400600101040060020104009001010400800101 04

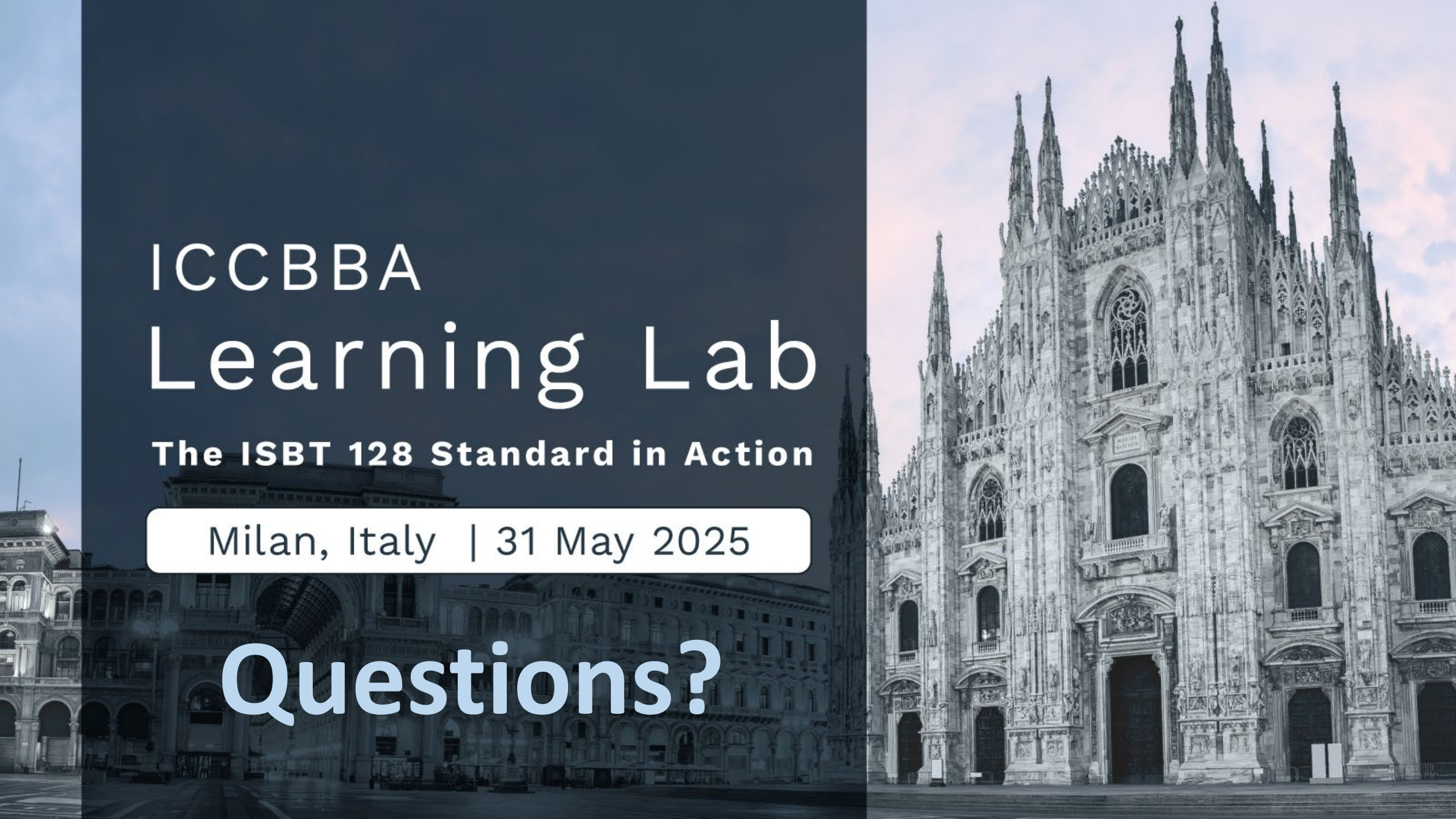
Red Cell Antigens with Test History

Red Cell Antigens with Test History
[Data Structure 030]

&%00400600101040060020104009001010400800101 04

Number of Repeating Segments
ISBT-Defined Antigen Identifier
RBC Serological Results and Testing Methodology
Number of Tests (Current/Historic/Not Specified)

ISBT 128
More than Identification


ICCBBA
Learning Lab
The ISBT 128 Standard in Action
Milan, Italy | 31 May 2025
Questions?

THANK YOU!

Please Take Our Survey