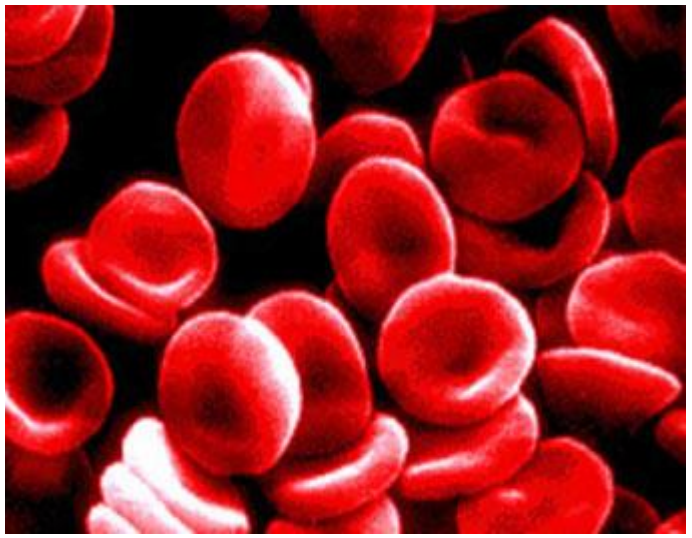
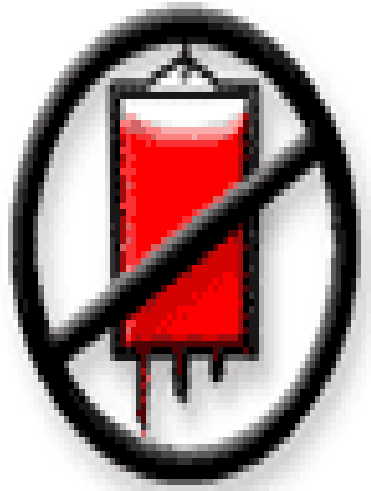

بسم الله الرحمن الرحیم

هموویژلانس





History and Significance

First blood transfusion

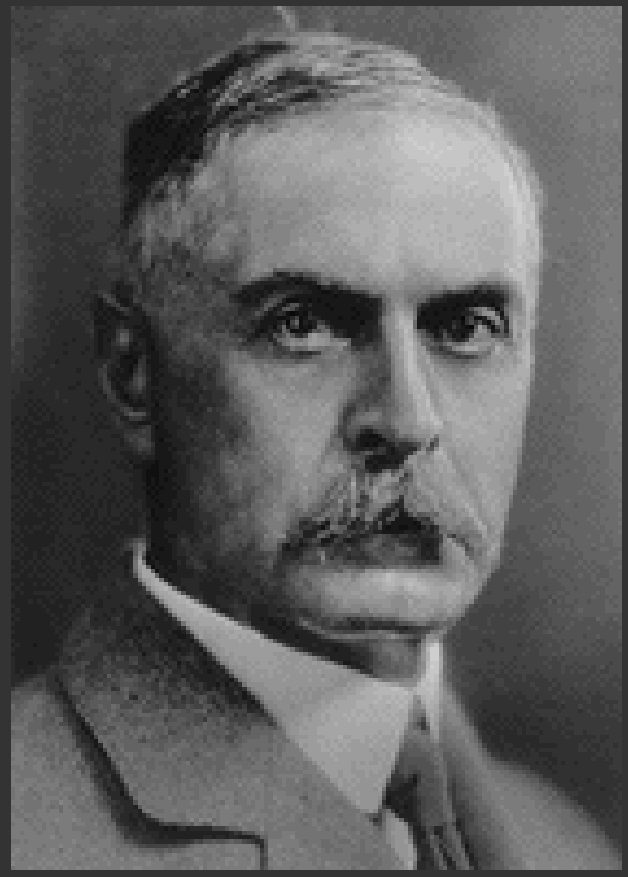
Lower **(1665)**

First human blood transfusion

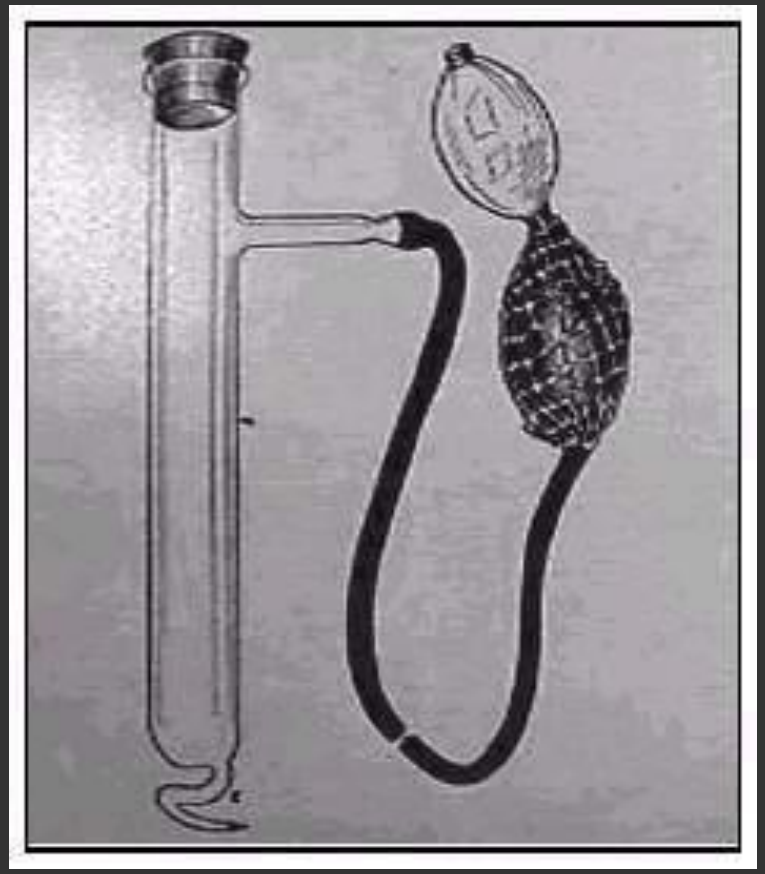
Philip (1825)

Discovery of ABO type

Landsteiner **(1900)**



World war I



How to store blood longer?

World war II

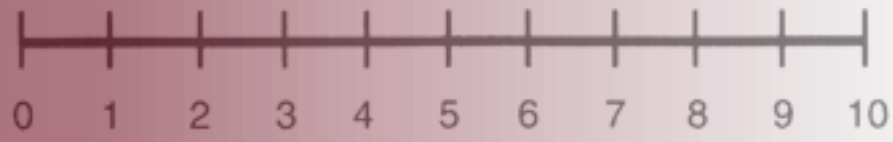
Is there any suitable

Blood Substitutes

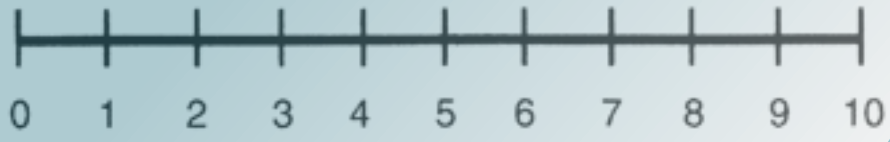
Self Assessment of Transfusion Knowledge

Haemovigilance
What does it mean?
How do I fit in?

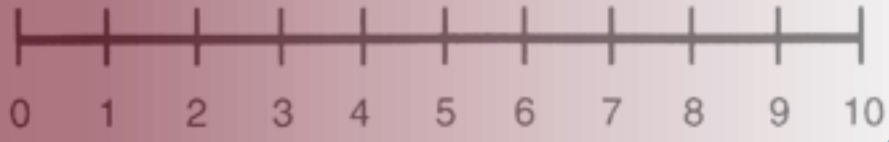
Blood Group Serology
ABO and RhD?
Compatability?



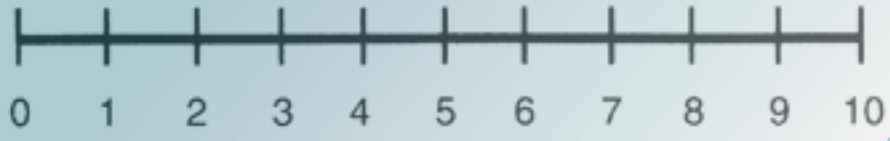
PROCEDURES
Sampling & labeling
Indications for blood, platelets, FFP, cryoprecipitate



SPECIAL REQUIREMENTS
Irradiated CMV negative?
Which patients?



TRANSFUSION REACTIONS
Identifying
Managing & reporting



Right Patient, Right Blood

Southern Health and Social Care Trust

patient blood Management

synonymous with

appropriate transfusion medicine

The appropriate use of blood and blood components
With a goal of

minimizing their use

Is it safe ??????????????

Why Haemovigilance?

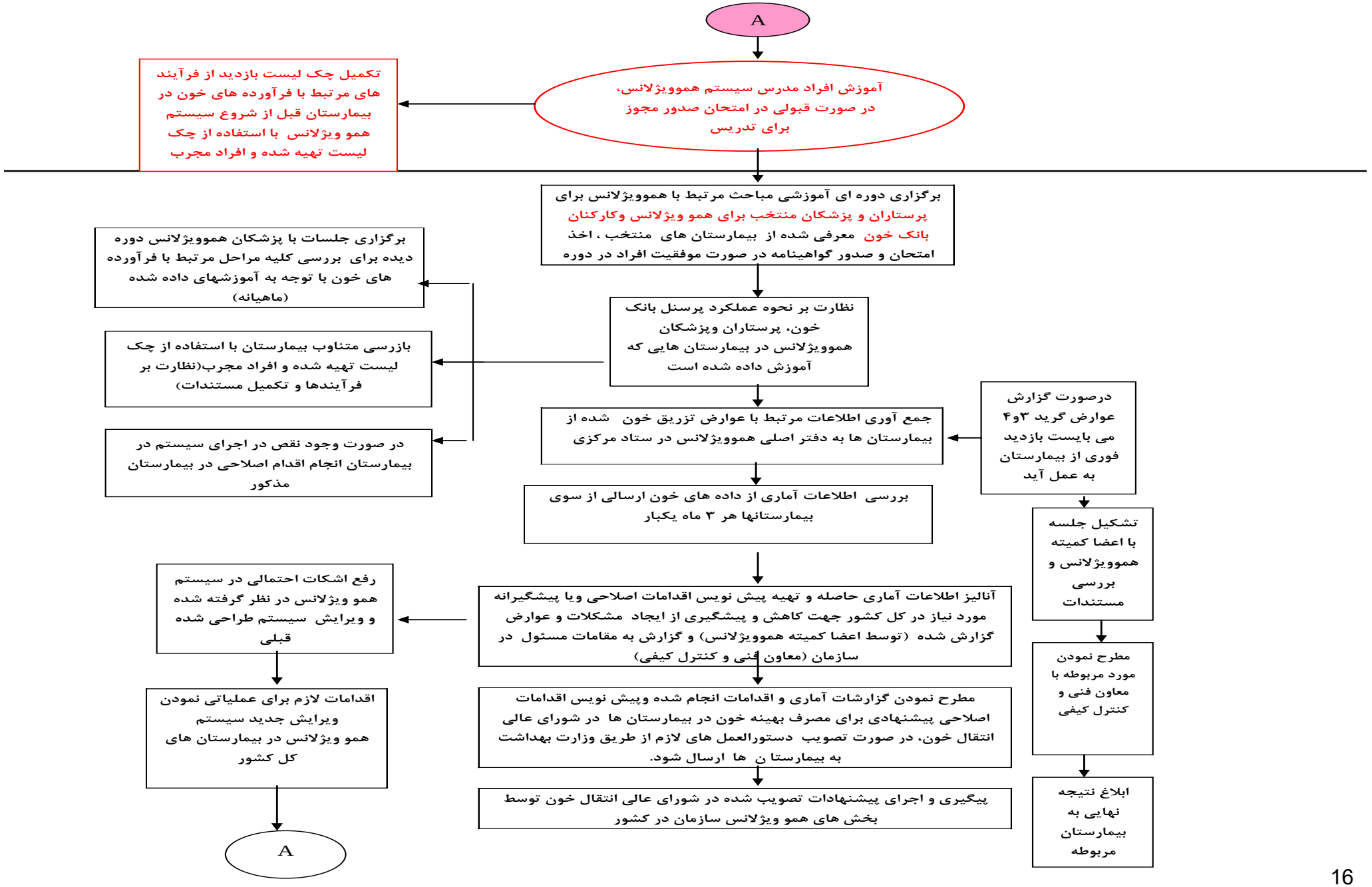
- **Better Blood Transfusion**
- **Appropriate use of Blood**
- make blood transfusion safer
- Provide better information to patients and the public
- Avoid unnecessary blood in clinical practice

Patient safety and quality improvement.

- Interface between blood bank and clinical areas.
- Assessment and management of risk.
- Incident investigation and reporting.
- Monitor appropriateness of transfusion and of waste.
- Information resource
- Education for all those involved in the blood transfusion process.

Role of the Haemovigilance Practitioner

الگوریتم اجرای سیستم هموویژلانس درکشور



SCOPE

- Products
  - Blood components (mainly)
  - Plasma derivatives (in some countries)
    - In many countries under pharmacovigilance (drug post-market surveillance)

- Donations
  - Donor safety
    - Incidence of undesirable effects of donations in donors
  - Blood safety
    - Prevalence of ID markers in first-time donors
    - Incidence of ID markers in repeat donors
    - Surveillance of donor exclusion factors

SCOPE….2

- Transfusion process
  - Errors at blood center
  - Errors at the hospital
  - Blood utilization
  - Traceability

SCOPE…3

- Recipients
  - Identification of transfusion-transmitted infections
  - Incidence of adverse transfusion events
  - Identification of long term effects of transfusion

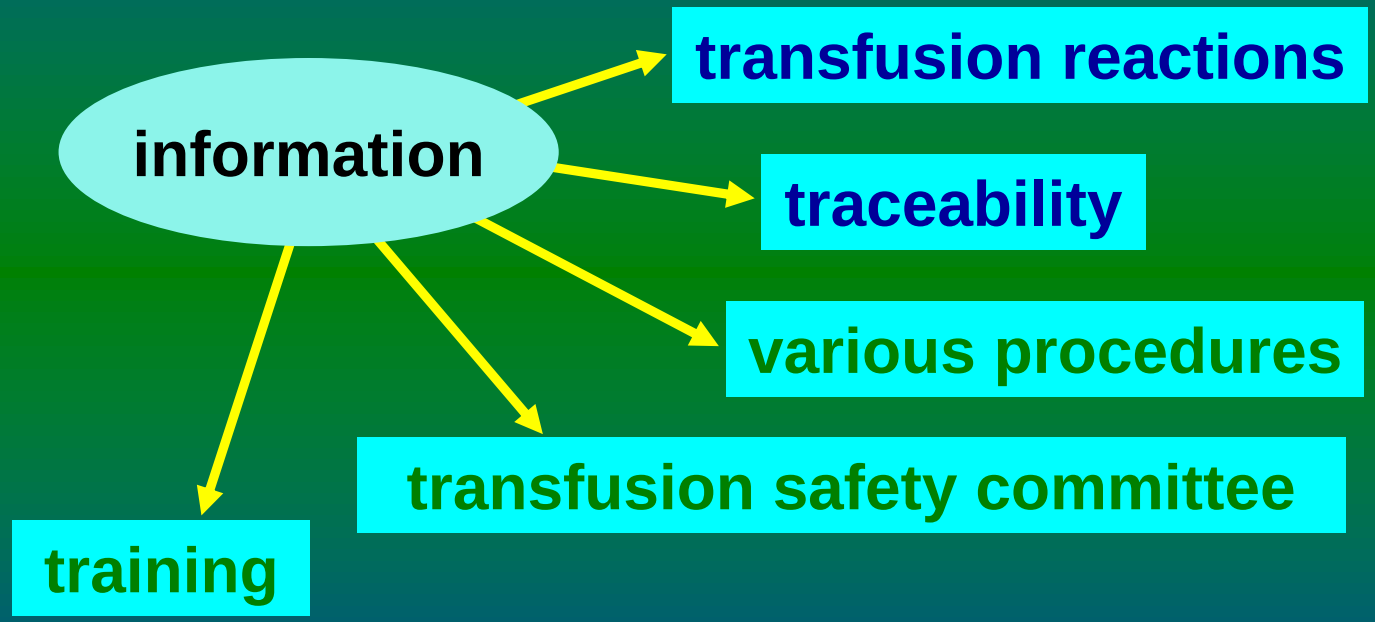
SETTINGS

- Local
  - Hospital
- Regional
  - Health District
  - State
  - Province
- National
  - Blood organizations
  - Public Health
  - Regulatory Agency
  - Professional bodies
- Supra national
  - Voluntary organizations
    - EHN
  - Existing organizations
    - ISBT WP Haemovigilance

Requirements

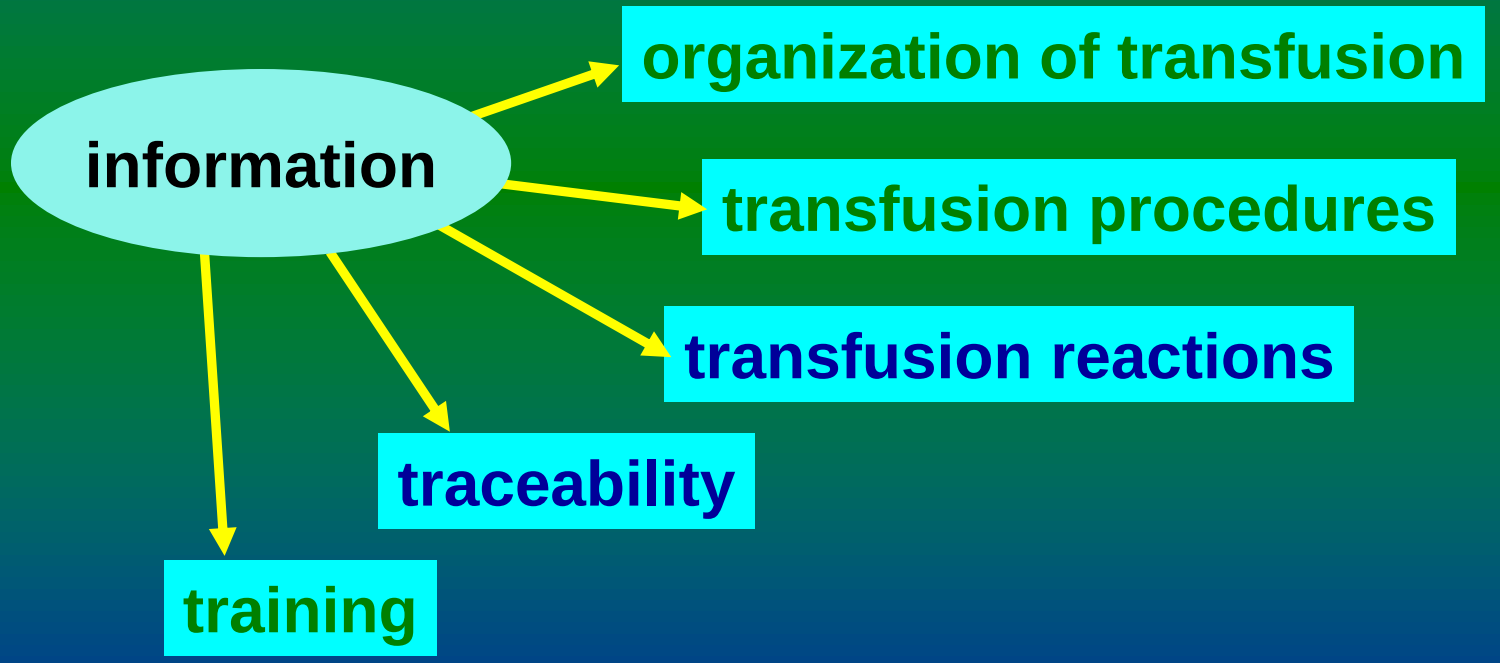
- Hospital
  - Personnel dedicated to blood safety
    - Transfusion safety officer
    - Blood bank director
    - Chief technologist
    - Role
      - Investigation and reporting of transfusion reactions and errors
      - Training
      - Oversee implementation of preventive measures
  - Transfusion committee
    - Multidisciplinary
    - Review transfusion reactions
    - Propose and evaluate preventive actions

The local level

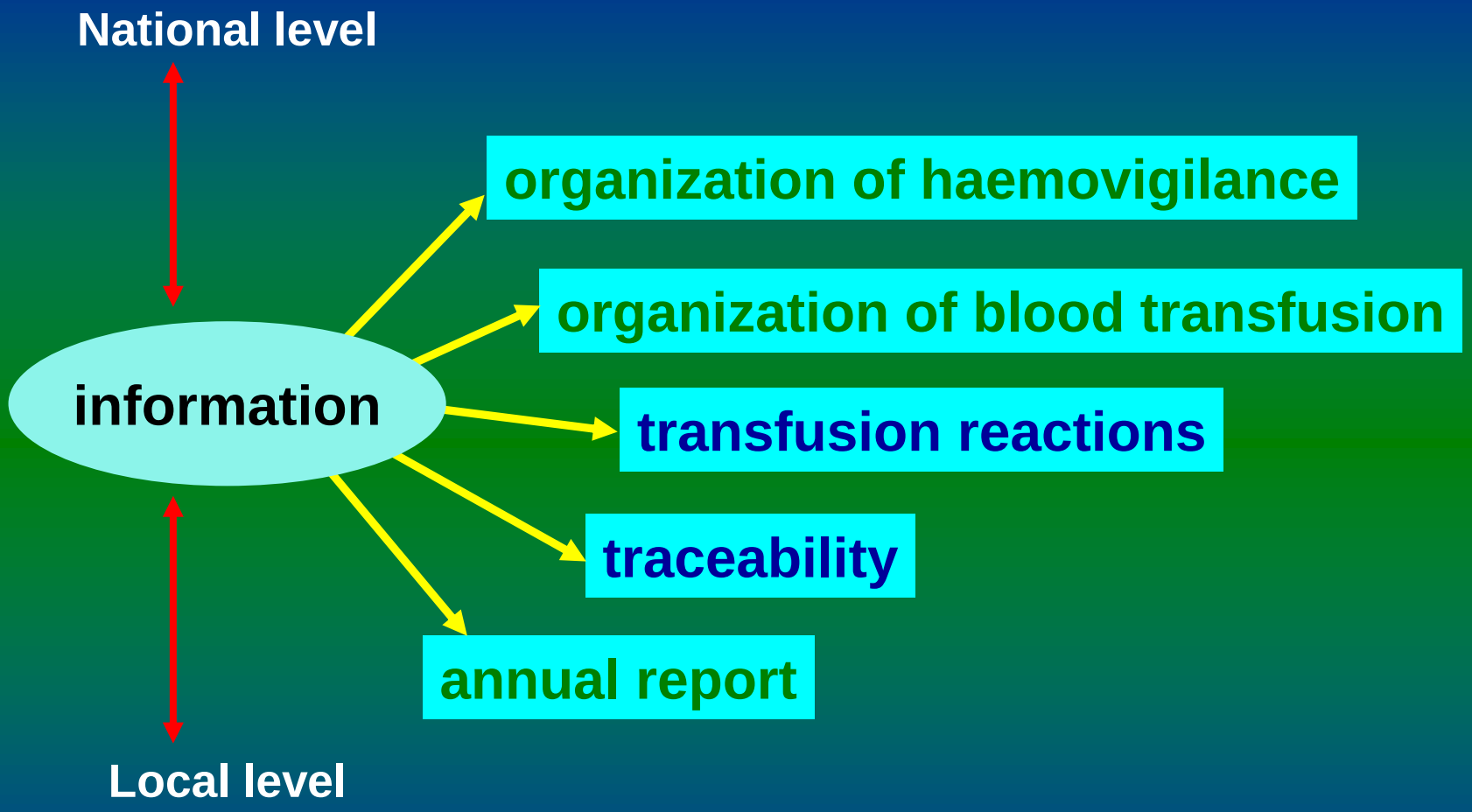


The local transfusion safety and hemovigilance committee

Management, HO, prescribers, nurses, regional coordinator

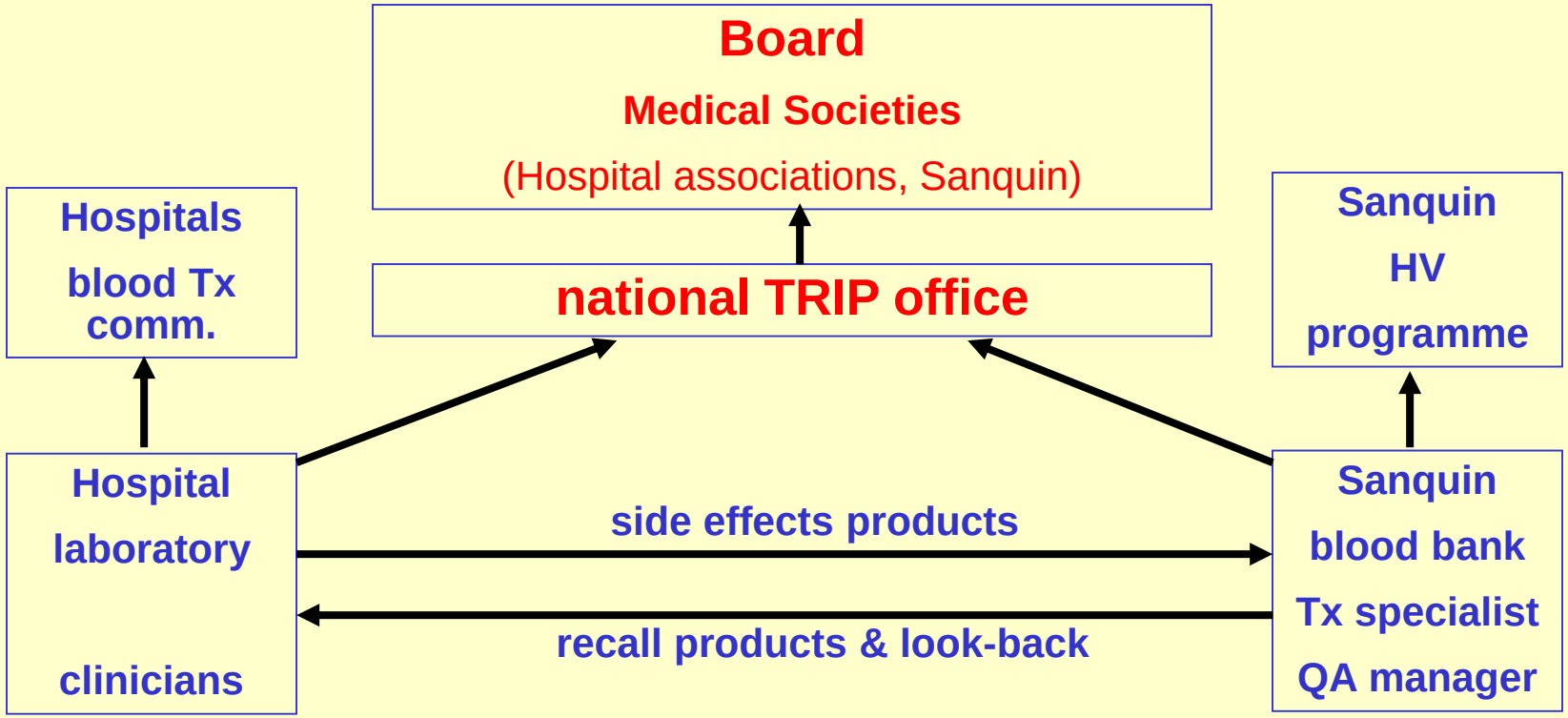


The regional level



Development of hemovigilance

TRIP foundation created in 2001



TRIP (Transfusion Reactions In Patients)

Reporting system

- what types, definitions, recommended further investigation
- how to report: paper / online

Verification (expert review)

Denominator data, statistical analysis

Publication (transparency)

Advantages of the TRIP system

- scientifically validated data
- stimulus for research
- learning from each other
- development of professional standards

Weaknesses of TRIP system

- **Dependent on willingness of professionals to report**
- **Late reporting (cold hemovigilance)**
- **Difficult to fund staff in the hospitals**

- **many people decide. Democratic, effective but slow !**

Background

- **Public Health Agency of Canada (PHAC) Transfusion Transmitted Injuries Surveillance System (TTISS) to monitor adverse transfusion events (ATEs)**

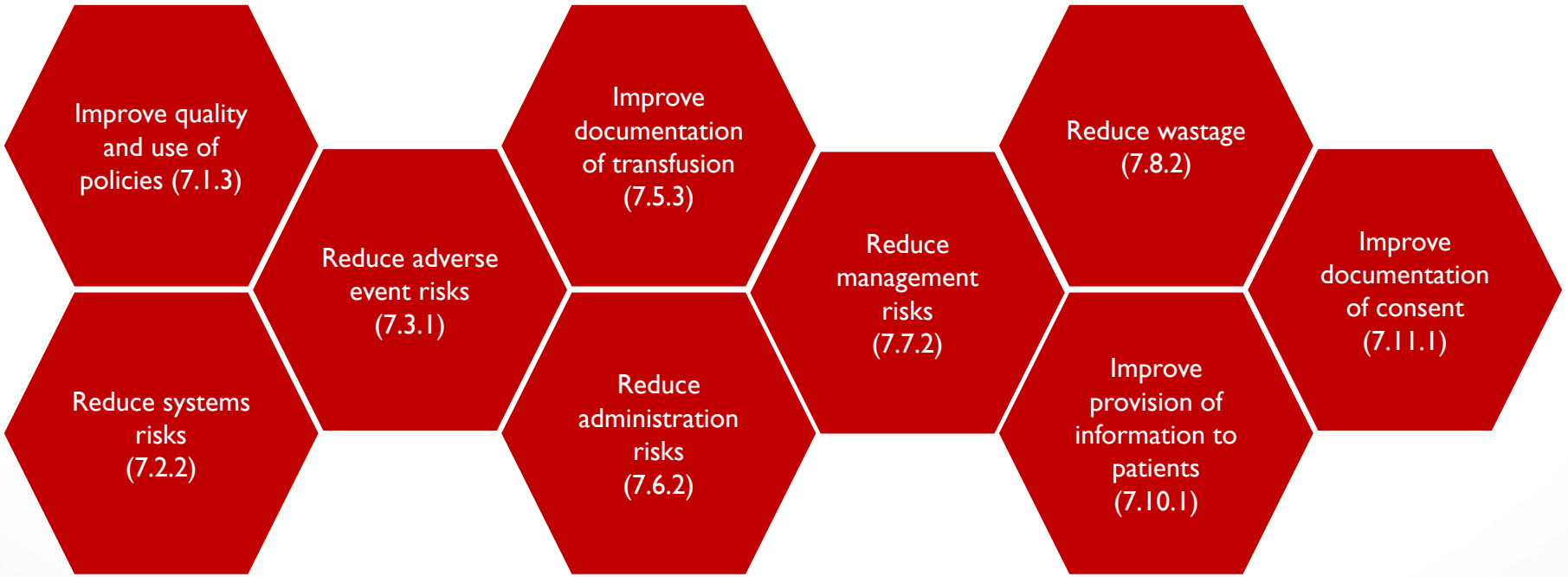
Why a blood standard?

- risks associated with transfusion practice
- increased morbidity and mortality
- Transfusion is ingrained in the culture of medical practice
- a significant proportion of transfusions are inappropriate
- high wastage rates
- improve quality and safety

Scope - activities

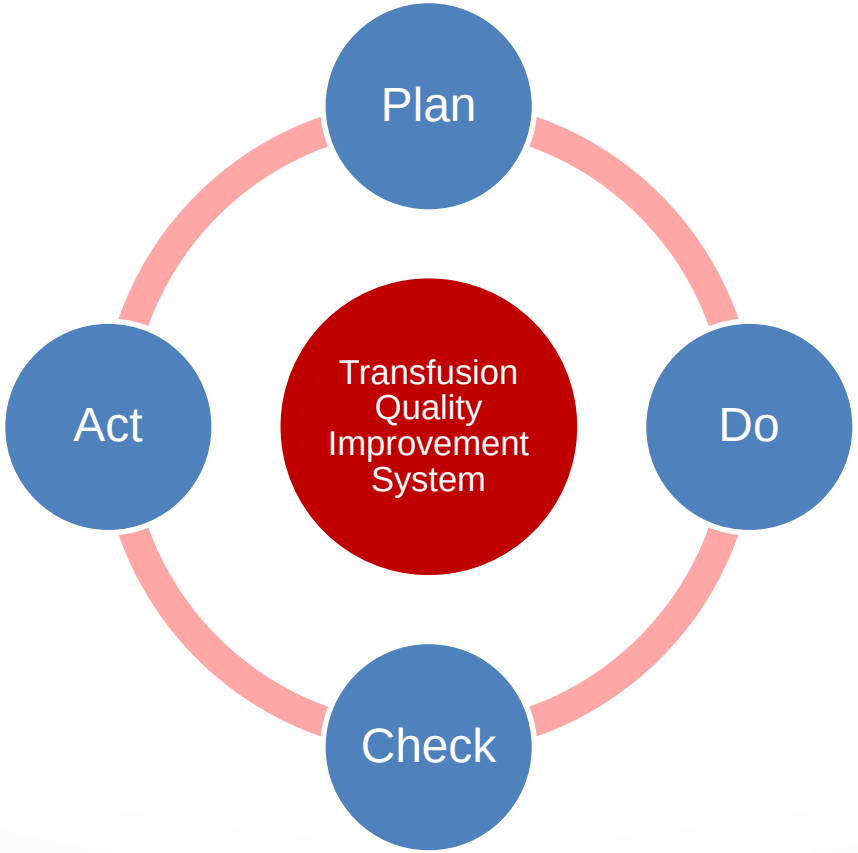
- The Blood Standard covers:
  - **Use of blood and blood products**
  - **Management of blood and blood products**
  - **Administration of blood and blood products**

Transfusion quality improvement system (Action 7.4.1)



Quality improvement cycle

Identify what you will do - develop or identify policies, procedures or protocols



Implement the policies

Monitor their use AND monitor their quality

Take action to improve uptake and improve their quality

NATIONAL BLOOD AUTHORITY
AUSTRALIA

Communicating with patients and carers

Communication
(Actions 7.9.1, 7.9.2 and 7.10.1)

- Develop or identify resources to inform patients and their carers about the alternatives, risk and benefits of transfusion (Action 7.9.1)
- Provide this information to patients and their carers in a format that is understood and meaningful (7.10.1)
- Allow patients and carers to partner in decisions on their care based on the communication on the alternatives, risks and benefits of transfusion (Action 7.9.2)

Consent (Action 7.11.1)

- Have a documented consent policy which is specific to, or includes transfusion of blood and blood products
- Ensure written and documented consent meets local policy
- Ensure the consent is actually informed – link with 7.9 and 7.10
- Assess compliance with the consent policy is assessed, and take actions to increase compliance

Types of haemovigilance systems

France	Singapore	Netherlands	Canada	*Québec/ Canada*
Hemovigilance	Hemovigilance	TRIP	TTISS	*QHS*
1994	2002	2002	2002	*2000*
Confidential	Confidential	Confidential	Anonymous	*Confidential*
Mandatory	Voluntary	Voluntary	Voluntary	*Voluntary*
Non-punitive	Non-punitive	Non-punitive	Non-punitive	*Non-punitive*
All reactions	All reactions	All reactions	Only serious reactions	*All reactions*

Person Involved in Error

Job Description	N	%
Nurse	9972	47.6
Technologist	7572	36.2
MD	2149	10.3
Clerk	294	1.4
Lab Assistant	283	1.4
Supplier	197	0.9
Supervisor	32	0.2
QA/TSO	7	0.03
Other	436	2.1
TOTAL*	**20,942**	**100%**

*37 (0.2%) not specified

Type of errors reported

Clinical		N	%
PR	Product/Test Request	1487	7.1
SC	Sample Collection	5444	25.9
SH	Sample Handling	1832	8.7
RP	Request for Pick-up	322	1.5
UT	Unit Transfusion	4292	20.5
MS	Miscellaneous	186	0.9
	Subtotal	**13563**	**64.7**

Laboratory		N	%
PC	Product Check-in	1156	5.5
DC	Donor Codes	204	1.0
SR	Sample Receipt	1114	5.3
ST	Sample Testing	2588	12.3
US	Unit Storage	636	3.0
AV	Available for Issue	149	0.7
SE	Unit Selection	79	0.4
UM	Unit Manipulation	355	1.7
UI	Unit Issue	1135	5.4
	Subtotal	**7416**	**35.3**

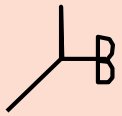
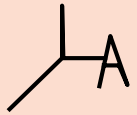
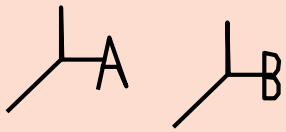
High Severity Top 5 List

Event Type & Description		N	%
SC 01	Sample labeled with incorrect name	356	26.9
SH 02	Sample label and requisition do not match	216	16.3
SC 02	Sample with no label	181	13.7
SC 07	Other mislabeling	99	7.5
RP 01	Request for pick-up on wrong patient	83	6.3
	Subtotal	**935**	**70.6**

- 1901
  - The first blood group system to be discovered
- 4 possible groups
  - A, B, AB and O
- Whenever an antigen (A or B) is not present on the red cells, the corresponding antibody is found in the serum
- ABO antibodies are capable of producing intravascular haemolysis

ABO Blood Group System

Red Blood Cells

Patient's Cells	Patient's Abs
A 	Anti B 
B 	Anti A 
AB 	None
O 	Anti A and B 

Transfusion safety

ABO compatibility rules

		Patient = Recipient			
		A	B	AB	O
Red blood cells = Donor	A	Yes	No	Yes	No
	B	No	Yes	Yes	No
	AB	No	No	Yes	No
	O	Yes	Yes	Yes	Yes

- **Henry's Clinical Diagnosis & Laboratory Management By Laboratory Methods. 2007**
- chapter 35 page:669-684

Transfusion safety

ABO compatibility rules

plasma = Donor	Patient = Recipient: A	B	AB	O
A	Yes	No	No	Yes
B	No	Yes	No	Yes
AB	Yes	Yes	Yes	Yes
O	No	No	No	Yes

- **Henry's Clinical Diagnosis & Laboratory Management By Laboratory Methods. 2007**
- chapter 35 page:669-684

Blood blank practices

#Crossmatching (50 min)

1) Confirms ABO and Rh typing
2) Detects antibodies to the other blood group systems
3) Detects antibodies in low titers or those that do not agglutinate easily

Type and screen vs Type and crossmatch

T&S -determines ABO and Rh status and the presence of most commonly encountered antibodies – risk of adverse rxn is 1:1000

-takes about 5 mins

T&C -determines ABO and Rh status as well as adverse rxn to even low incidence antigens – risk of rxn is 1:10,000

-takes about 45 mins

Remember

The Aim is to have the

Right blood, Right Patient, Right time

A consistent professional approach can save lives

I agree O-positive is rather nice,
but my favourite by far is AB-negative...


THANKS!