Medicines & Healthcare products Regulatory Agency

NIBSC
Confidence in Biological Medicines

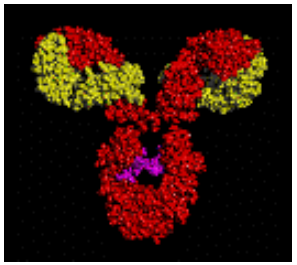
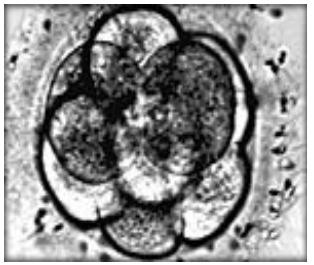
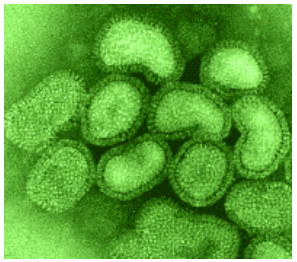
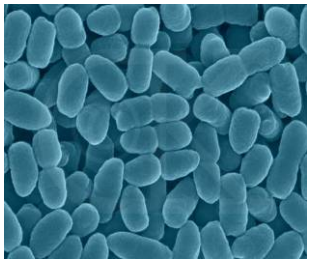
Development of WHO International Standards.

Clare Morris, NIBSC, UK

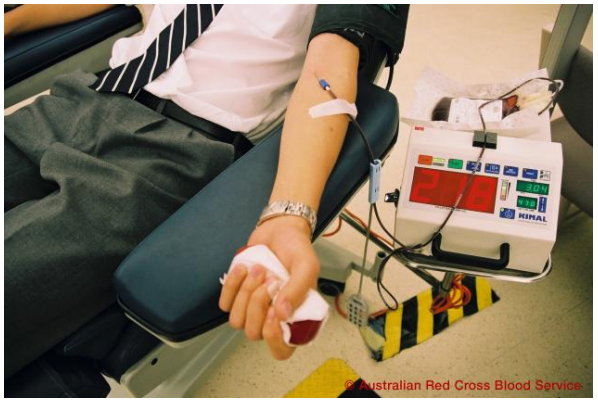
WHO International Standards

Biological medicines are complex products, and are a huge growth area:

- Made from biological sources
- Presented in complex matrices
- Special risks (e.g. infectious)

Many of these products cannot be completely defined by chemical means alone and the biological assays that are necessary for their characterisation are inherently variable



WHO International Standards

Biological measurements that are harmonised by the use of WHO International Standards (or secondary standards traceable to the IS) form the basis of:

- Agreement on minimum requirements for CQA (e.g. vaccine potency)
- Therapeutic product labelling & dosing (e.g. Factor VIII products)
- Definition of thresholds for correlates of protection (e.g. tetanus antibody levels)
- Definition of thresholds for safety markers in blood and transfusion medicine (e.g. Hepatitis C virus RNA)
- Definition (and improvement) of diagnostic assay sensitivity
- Consistency in clinical decision making (e.g. PSA)

WHO International Standards

- Highest order of reference for biological materials medicines
- Intended for use as a calibrant
- Allows direct comparison between different assays and methodologies
- Control all steps of the assay
- Behave in similar way to clinical material
- Stable over many years
- Are quantified following a multicentre collaborative study using multiple assays
- Quantify “relative potency” in a specific but arbitrarily defined International Unit (IU)

Anyone for coffee?

19.95 francs

498 pesetas

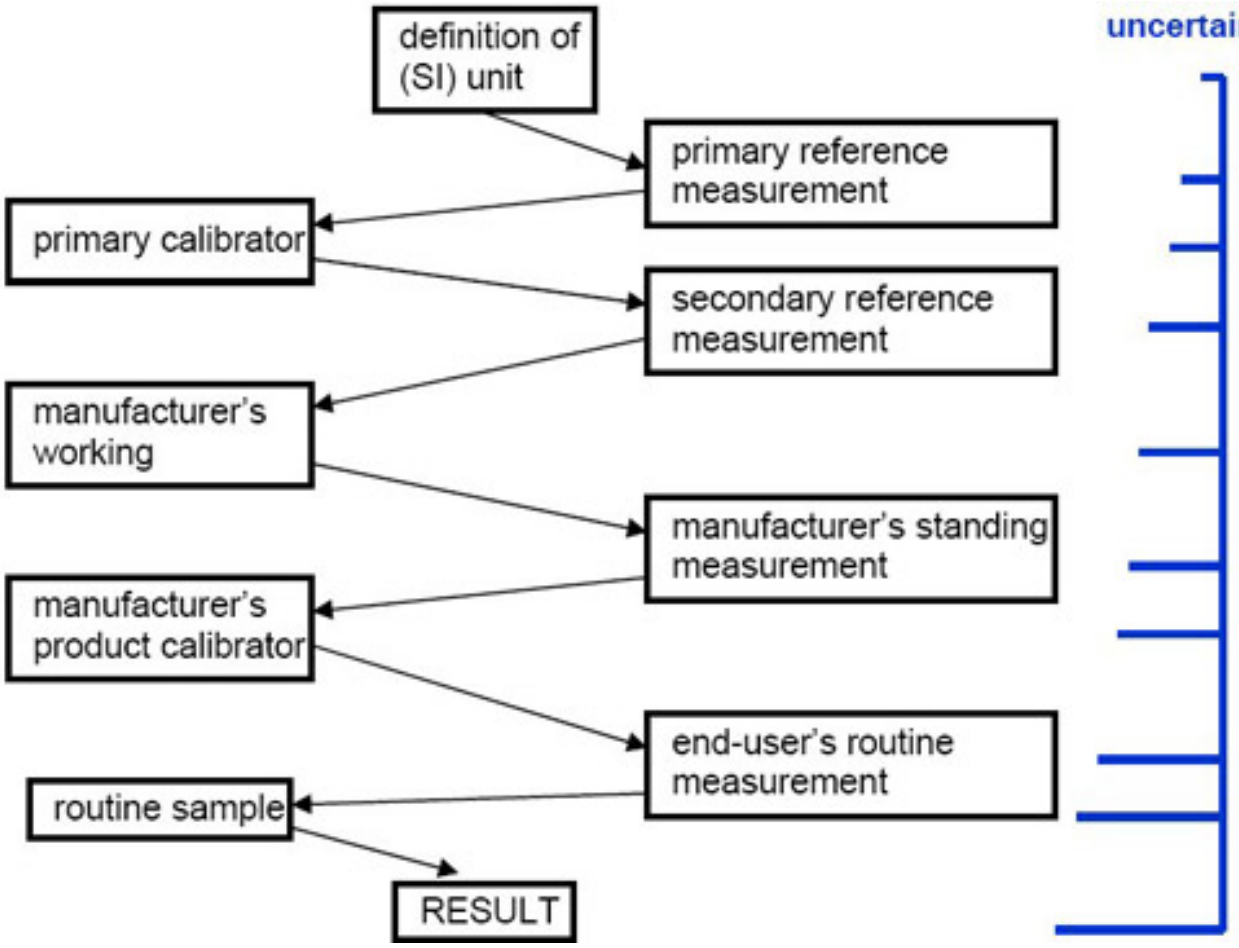
5730 lira

5.70 marks

Which coffee is the most expensive?

3 Euro

Metrological Traceability Chain



Reference system

Reference Materials

+

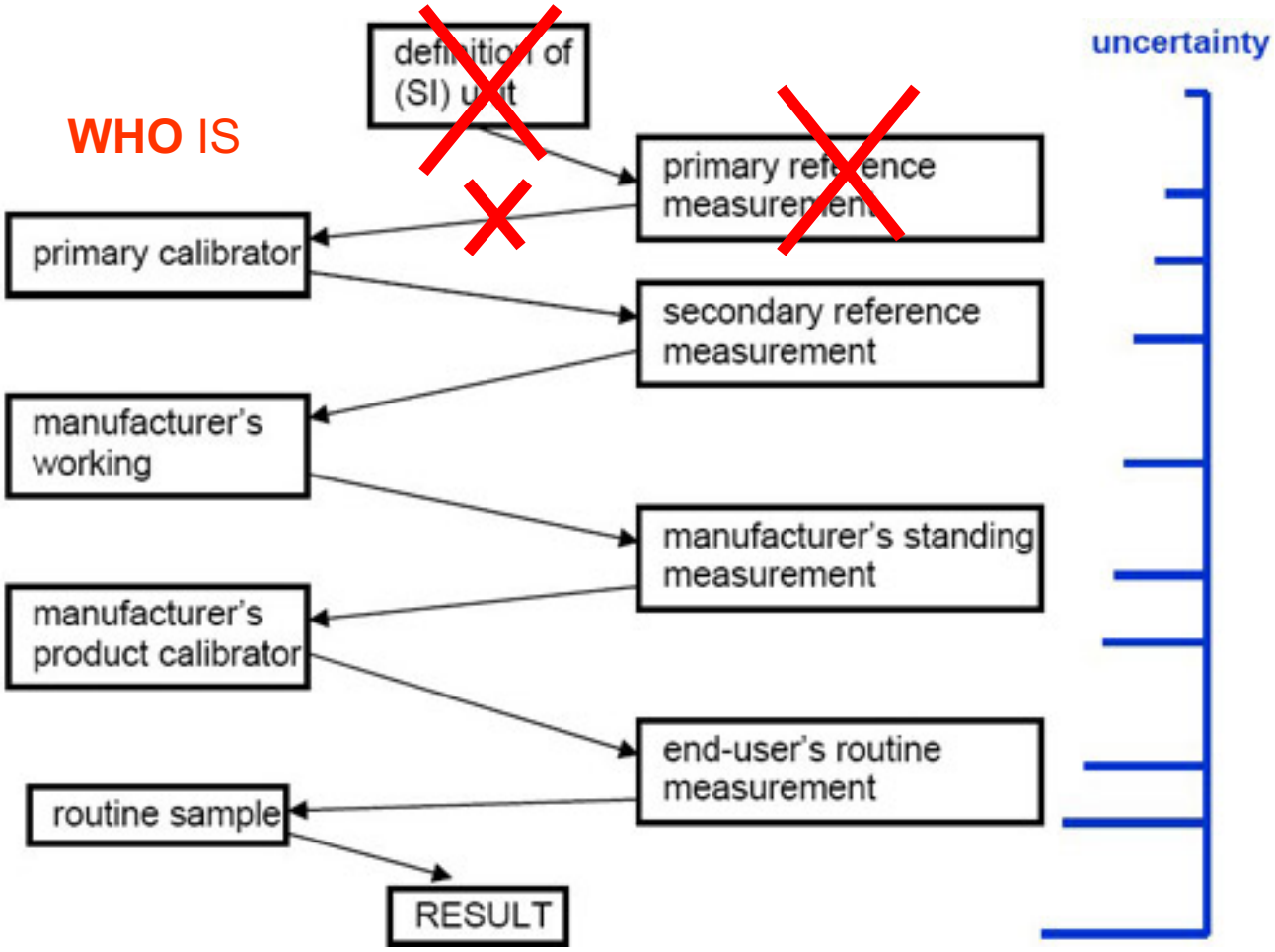
Reference Method

+

Reference Lab

ISO 17511

Traceability Chain of Biological Reference Preparations



WHO IS

Reference system

Reference Materials

+

Reference Method

+

Reference Lab

WHO and ECBS

WHO Expert Committee on Biological Standardization (ECBS)

The WHO Expert Committee on Biological Standardization (ECBS) was established in 1947 to provide detailed recommendations and guidelines for the manufacturing, licensing and control of blood products and related *in vitro* diagnostic tests, biotechnology products and vaccines along with the establishment of WHO Biological Reference Materials. The ECBS meets on an annual basis and reports directly to the Executive Board, the executive arm of the World Health Assembly.

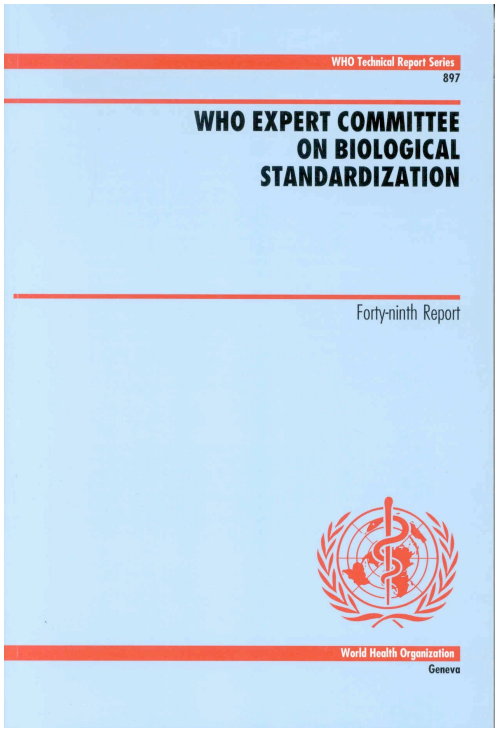
"…to develop, establish and promote **international standards** with respect to biological and pharmaceutical products".

This has been done for more than 60 years now

The norms and standards are established by Expert Committees

WHO Global standards and Norms

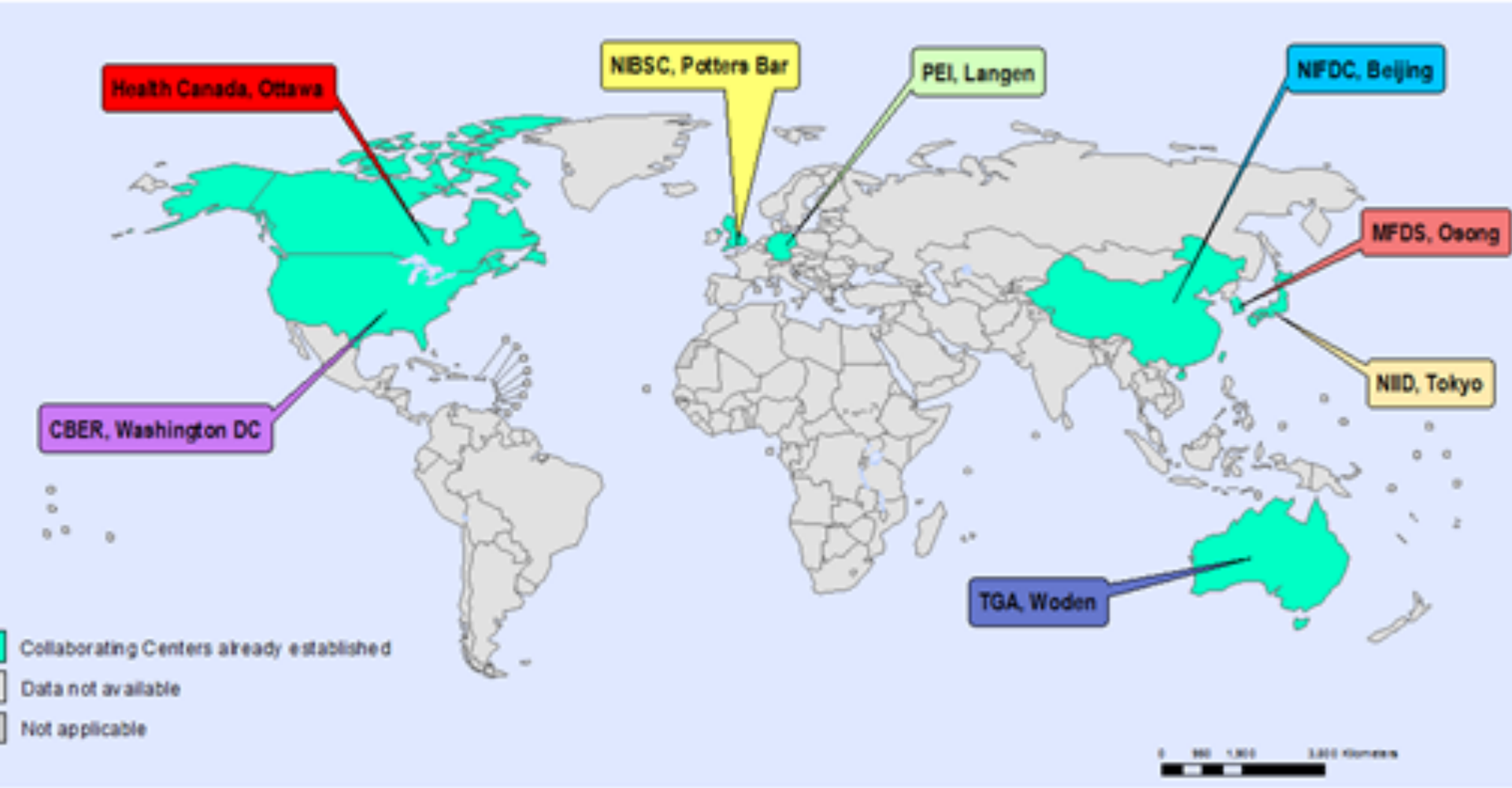
Global written standards



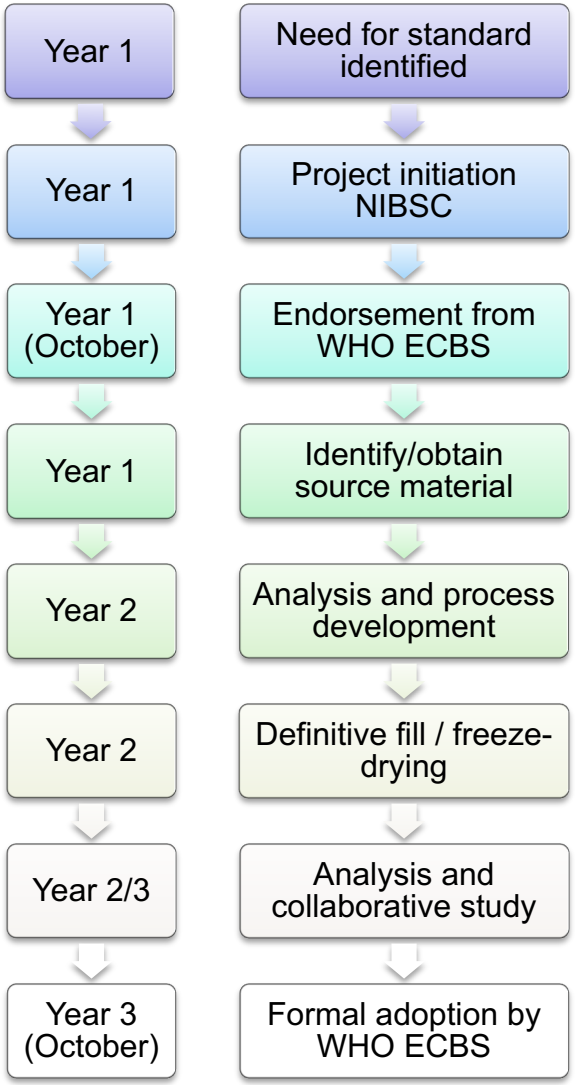
Tools for appropriate regulation of quality, safety and efficacy

Global measurement standards

WHO Collaborating Centres



Typical process for WHO Standard



A project to develop a WHO standard typically takes 2-3 years

A formal decision is needed from WHO ECBS at two points:

- at the outset to endorse the proposal to make the standard
- At the end to formally adopt the standard as a WHO standard – based on the evidence provided in a comprehensive study report

The fixed ECBS timetable (meeting convened once per year, usually October) is a significant factor in the overall duration of WHO standards projects

Fast track where needed…

Press release

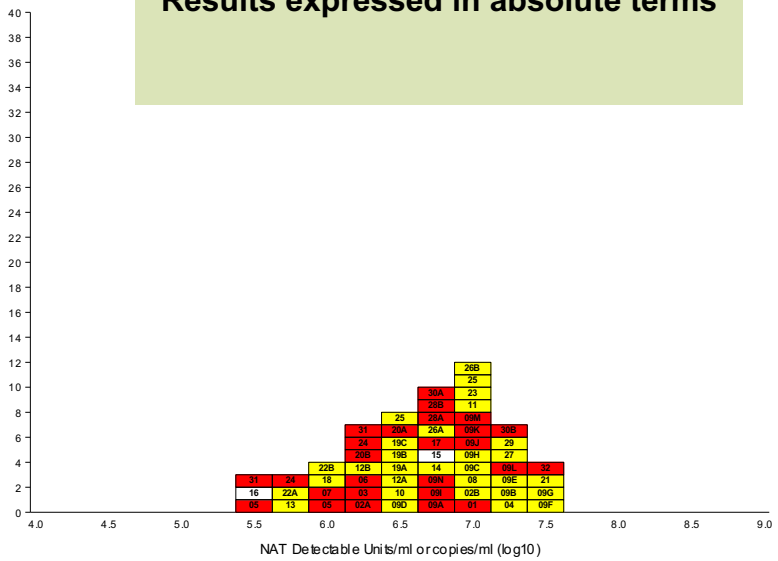
NIBSC Ebola reference reagents endorsed as global standards by WHO

The Ebola reference reagents produced by NIBSC and endorsed by the WHO Expert Committee on Biological Standardisation can now be used in laboratory tests by the scientific community.

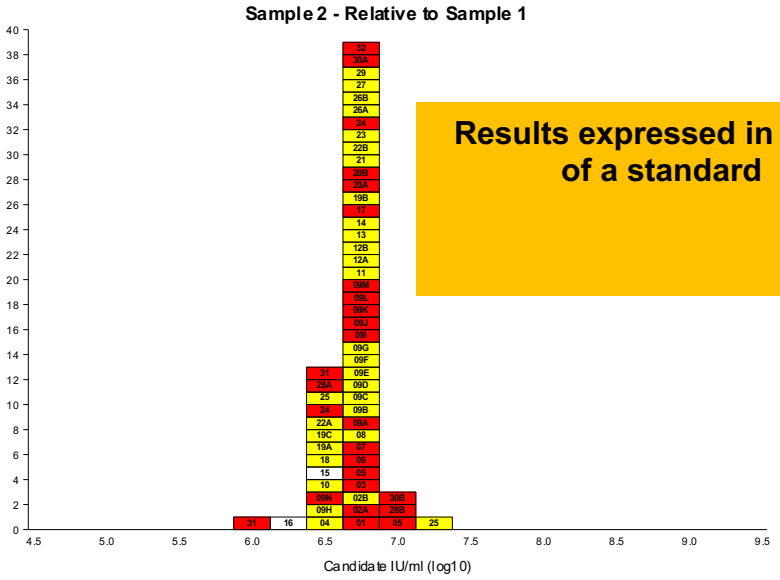
Published 5 November 2015
From: Medicines and Healthcare products Regulatory Agency

International standardisation in practice – the ability to compare…..

Results expressed in absolute terms



Results expressed in terms of a standard



Individual laboratories getting very *different* results for the ***same* preparation**

Individual laboratories getting very *comparable* results for the ***same* preparation**

Collaborative study to establish the 1st IS for HCMV for nucleic acid amplification techniques (Jacqueline Fryer et. al. 2010)

Summary

Standardisation helps support innovation, drives down costs, increases access to medicines and increases confidence in diagnosis of diseases

NIBSC plays a leading international role that helps provide assurance to public and patients in the UK and beyond