Biologicals 40 (2012) 200–204

Contents lists available at SciVerse ScienceDirect

Biologicals

journal homepage: www.elsevier.com/locate/biologicals

Best practices in regulation of blood and blood products

Jay S. Epstein*

Office of Blood Research and Review, Center for Biologics Evaluation and Research, US Food and Drug Administration, HFM-300, 1401 Rockville Pike, Rockville, MD 20852, USA

ARTICLE INFO

Article history:
Received 24 October 2011
Accepted 6 November 2011

Keywords:
Blood regulation
Blood regulators network
Assessment criteria
Precautionary principle

ABSTRACT

The need for blood regulation arises from the inherent risks of blood transfusion, which are minimized through implementation of standards. Regulatory oversight is advocated by the World Health Organization (WHO) as an essential element of any blood system to ensure such standards are met. The WHO Blood Regulators Network has developed "Assessment Criteria for National Blood Regulatory Systems" that describe the legal authority and functions of a fully competent blood regulator. The core functions include licensing and/or registration of blood establishments, marketing approval of blood products, oversight of all associated substances and devices, control of clinical trials, access to an independent laboratory for product assessments, lot release, and hemovigilance systems.

Regulatory policy-making for blood safety is needed to address emerging threats, to consider the risks and benefits of new products and technologies, and to respond to adverse events. Structured policy-making processes are essential to ensure that decisions are science-based, with appropriate consideration of relevant economic and social factors. Decision making is especially challenging in situations of scientific uncertainty, where prudent precautionary measures may be appropriate based on assessments of risk and feasibility of meaningful interventions. There is international interest in finding a common framework for addressing blood safety decisions.

Published by Elsevier Ltd on behalf of International Alliance for Biological Standardization.

1. Introduction

Blood transfusion is an essential therapy that saves lives in acute emergencies, improves quality of life in numerous medical conditions and enables many complex medical and surgical procedures. Plasma products such as albumin, immune globulins and clotting factors likewise contribute in major ways to life and health. However, the inherent risks of blood and the complexity of providing adequate, timely and equitable access to safe blood products require an organized national or regional blood system. Within that system, a competent blood regulatory authority assures that appropriate standards are met for production of blood products and monitoring of blood safety. Strengthening of national and regional blood regulatory authorities has therefore been recognized as a fundamental need to assure global availability of safe blood products. A recent advancement in this area is the development of "Assessment Criteria for National Blood Regulatory Systems" by the WHO Blood Regulators Network.

Within a national blood regulatory system, policy issues arise how best to manage blood safety and availability in the larger context of public health resources and societal expectations. In the wake of the AIDS tragedy, with its related actual or perceived institutional failures, the risks of blood therapies have become a major public concern. Increasingly recognized threats from hepatitis viruses and from newly emerging diseases including vCJD have intensified these concerns. In response, blood policy makers worldwide have tended to adopt safety measures that minimize risk more aggressively. However, a goal of zero risk is not compatible with available resources (since the costs of incremental safety necessarily increase), and efforts to attain zero risk also may have unintended adverse consequences [1]. For example, the adoption of an additional donor screening test to lessen a relatively small risk could result in a substantial loss of repeat donors who would need to be replaced by relatively less safe first time donors. Furthermore, the implementation of costly additive blood safety measures might result in reductions of other medical services, negatively affecting patient outcomes and potentially outweighing the benefits. Additionally, decisions made in the face of uncertainty can be both costly and inconsistent. These considerations have led policy makers to examine the question of best practices for decision making, including in the face of uncertainty, along with recognition that interventions adopted in any one jurisdiction may not be appropriate in all jurisdictions due to different circumstances.

* Tel.: +1 301 827 3518; fax: +1 301 827 3533.
E-mail address: Jay.Epstein@fda.hhs.gov.

1045-1056/$36.00 Published by Elsevier Ltd on behalf of International Alliance for Biological Standardization.
doi:10.1016/j.biologicals.2011.11.002

Table 1
Excerpted Section A 1.0 from the BRN Assessment Criteria for National Blood Regulatory Systems.

1.0 Essential function: National regulatory system				
Applicable to blood, blood components, plasma derived products and associated substances and medical devices including in vitro diagnostics				
Main criteria related to the function	Rating		Indicators related to the main criteria	Comments
	Main criteria	indicator		
1.1. A comprehensive legal (statutory) basis for establishment of a regulatory system applicable to blood, blood components, plasma derived products and associated substances and medical devices including in vitro diagnostics, exists.	R	R	1.1.1. Provisions for the main regulatory functions can be identified and are up to date.	
		R	1.1.2. The regulations or its adaptations take into consideration the developing state of the art.	
		R	1.1.3. Regulations have been established and are available, and they are intelligible to those that need to comply with/enforce them and the ways of communication used are adequate.	
		R	1.1.4. Legislation exists that defines therapeutic products for human use to be regulated, and establishes standards of quality, safety, and efficacy for: a. Blood, blood components and plasma derived products. b. Associated substances and medical devices including in vitro diagnostics.	
		R	1.1.5. Legislation exists that provides a legal basis for the responsible NRA to perform the essential functions.	
		R	1.1.6. Legislation enables the appropriate institutions to issue regulations.	
		S	1.1.7. The development of regulations includes opportunity for input by all interested parties.	
1.2. The legislation assigns the enforcement of regulations regarding the products covered in 1.1 to one or more responsible regulatory authorities	R	R	1.2.1. The competent authorities involved in the regulatory system for blood, blood components, plasma derived products and associated substances and medical devices including in vitro diagnostics are clearly identified and can be named for each of the regulatory functions.	
		R	1.2.2. The responsibilities, functions and the organization of each of these authorities are clearly defined, in particular as regards the scope of the regulation (regulatory functions) they have under their control.	
		S	1.2.3. The activities of the various authorities involved are coordinated by an administrative mechanism.	

2. Global advancement of blood regulation

Although well established in some countries, global progress in blood quality, safety and availability has evolved slowly over the last several decades despite longstanding recognition of the need by the WHO World Health Assembly. Global recognition of regulation as a critical element in this area is a more recent development that may further promote universal access to safe blood for transfusion. Some current initiatives may foster more widespread establishment of effective blood regulation.

2.1. Recognition of the need for blood regulation

In 1975, the WHO World Health Assembly (WHA), passed resolution WHA 28.72 which first established globally the principle of nationally supported, managed and coordinated blood systems. Many subsequent resolutions have been directed at strengthening blood systems. Most recently, in 2010, WHA resolution 63.12 [2] noted international concerns about "the unequal access globally to blood products, particularly plasma-derived medicinal products, leaving many patients in need of transfusion and with severe congenital and acquired disorders without treatment" and that "unsafe and/or poor-quality blood products can render patients vulnerable to avoidable risk if the blood programmes are not subject to the level of control now exercised by experienced national or regional regulatory authorities." Consequently, in this resolution, the WHA urged Member States to "take all necessary steps to update their national regulations on donor assessment and deferral, the collection, testing, processing, storage, transportation and use of blood products, and operation of regulatory authorities in order to ensure that regulatory control in the area of quality and safety of blood products across the entire transfusion chain meets internationally recognized standards." Thus, strengthening of national regulatory authorities to promote international standards for blood products is now an adopted global objective.

2.2. Establishment of the WHO Blood Regulators Network

In 2005, The WHO Expert Committee on Biological Standardization (ECBS), which is advisory to WHO, recognized the need for a global network of regulatory authorities in the blood field and recommended that WHO promote cooperation of experienced regulatory authorities in risk assessment and information sharing through the establishment of a "peer regulators group." Subsequently, in 2006, WHO formed the Blood Regulators Network (BRN). The BRN provides a forum for the exchange of information and opinion among members on blood-related issues. The Network focuses on scientific assessment of current and emerging threats to the safety and availability of blood and blood products, assessment of the impact of new blood-related technologies, and also explores opportunities for regulatory cooperation and collaboration, where possible. Member organizations have legal standing and well-established and demonstrated institutional capacity to regulate blood and blood products, and the necessary expertise to address emerging global public health challenges. The WHO acts as