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STANDARDS ALLIANCE INTERNATIONAL REGULATIONS AND STANDARDS FOR MEDICAL DEVICES IN LATIN AMERICAN COUNTRIES

STANDARDS ALLIANCE

INTERNATIONAL REGULATIONS AND STANDARDS FOR MEDICAL DEVICES IN LATIN AMERICA

2018

LATIN AMERICAN ALLIANCE FOR THE DEVELOPMENT OF IN VITRO DIAGNOSTICS – ALADDIV

ACKNOWLEDGEMENTS

As we present the results of the project Standards Alliance - International Regulations and Standards for Medical Devices in Latin America, the executive team of the project thanks all the leaders of public agencies, associations and private entities that welcomed our call to participation. In recent months, we have been present at various events gathering data and information. More than the answers to the questionnaires used to obtain data, we gained new friendships, rich experiences and several suggestions that have perfected the essence of the contents that we use to develop the activities that culminate in the presentation of this document.

In the actors that made this work possible, we saw the highest expression of the public spirit and the readiness to contribute - not only to the objectives in their purpose to foster exchanges and the idea of the recognition of international norms applied to medical devices in the Latin American countries, but in everything else that coincides with the search for the achievement, in all its multiple aspects, of access to health in the Region.

Despite the complexity of the issues involved in health regulation, in recent months we have witnessed an increase in the confidence and an irreversible process across Latin America toward overcoming old models that were narrowly focused on sanitary control by authorities in each country far from the reality of those who produce, import, distribute and market medical devices.

Thus, we highlight the importance of confluence between the action of national regulatory authorities with those of other agencies recognized in the world scenario and those of associations representing the regulated sectors. We stress the benefits of a process based on internationally established technical requirements and targeting the construction of regulatory policies aligned with the objectives and needs of the region's innovation and technological development policies, but above all materialized in the ethical commitment to improving the health conditions of the populations of Latin American countries.

In this perspective, in submitting this report, we gratefully acknowledge the contribution of the regulatory authorities, medical devices associations and standards bodies that assisted us in this project.

We extend our thanks to all those who contributed to the expansion and consolidation of regulatory frameworks that expand the interfaces between various actors in the medical device sector.

This project was developed and was supported with funding from the Standard Alliance, a public-private initiative of the United States Agency for International Development (USAID), working in conjunction with the American National Standards Institute (ANSI) and multiple private sector entities. We would like to thank all for the support of the project.

PREFACE

"One World - One Health", a concept developed by WHO - World Health Organization, already indicated that it is essential to promote a multidisciplinary, intersectoral and collaborative approach to prevent, detect and control diseases endemic and epidemic diseases in humans and animals.

Within this concept where human health is intrinsically connected to animal health and the environment (about 75% of emerging human diseases are of animal origin (zoonoses), growth (44 megacities by 2020) - many of them in areas coincident with regions of emerging pandemic threats, and finally, considering global flows (both migratory flows for a variety of reasons and global interconnectivity, with more than 2 million flights per week or more than 3 billion passengers per year), we urgently need to work towards a world with convergent regulation that allows the permanent exchange of data and experiences between the various countries, both in terms of pre-market surveillance and in post-market surveillance.

In this sense, ALADDIV, a non-profit organization, has been dedicated since 2012 to unite the efforts of all actors in Latin America (Academia, Associations, Health Professionals, Regulators, Industry, among others) in favor of a market that is aware of the importance of: aspects such as quality and efficacy of products for health, existence and application of quality systems, access of patients to innovative technologies and, of course, regulatory convergence that allows greater predictability and, especially, collaboration among Latin American countries.

This paper demonstrates, in a practical way, how to progress more quickly in the search for regulatory convergence, based on the clear understanding and identification of those activities and rules that are already part of a common legal framework accepted by several countries. Still in the pilot phase, with four countries studied, it already helps confirm that internationally accepted standards can be effective tools to harmonize or help to converge processes that ensure the safety, quality and performance of medical devices.

In launching the challenge of identifying the current situation of health regulatory systems in other Latin American countries in phase II, more specifically in relation to international standards applied to medical devices, ALADDIV will seek to pave a possible way to accelerate regulatory convergence among the Latin American nations. It thus hopes to play its part in contributing to the improvement of regulatory systems, especially in relation to the recognition of international standards for regulatory purposes.

Carlos Eduardo Gouvêa

President, ALADDIV

ABSTRACT

The present study aimed to carry out a situational evaluation of the recognition of international standards applied to medical devices in the countries of Latin America, especially Colombia, Costa Rica, Mexico and Peru. The data collection was done with the aid of electronic questionnaires that included a total of 40 open and closed questions. These questionnaires were sent by electronic mail to representatives of regulatory authorities and the regulated sector. At the same time, public documents available on the web were considered. All four countries have pre-and post-market controls implemented. It was also observed that 40% prioritize international standards for the elaboration of their regulations. The use of internationally recognized technical standards to assess the compliance of medical devices with the essential principles of safety and performance has been verified in all four countries. Finally, the study made it possible to analyze the state of the regulatory systems of the countries surveyed, to reflect on the impact of regulation on access to new health technologies, and to visualize some of the difficulties encountered in this field, especially regarding the incorporation of standards.

ACRONYMS

ADVAMED – Advanced Medical Technology Association [U.S.]

AAMI – Association for the Advancement of Medical Instrumentation

AMID – Asociación Mexicana de Industrias Innovadora de Dispositivos Médicos [Mexico]

ANDI-CDMIS – Cámara De Dispositivos Médicos E Insumos Para La Salud [Colombia]

ANSI – American National Standards Institute [U.S.]

AHWP – Asian Harmonization Working Party

ALDIMED – Gremio Latinoamericano de Dispositivos Médicos

ALADDIV – Aliança Latinoamericana para o Desenvolvimento do Diagnóstico In Vitro

ASTM – ASTM International

CDRH – Center for Devices and Radiological Health [U.S. FDA]

CLSI – Clinical and Laboratory Standards Institute

CR BIOMED – Costa Rica Biotechnology and Medical Device Business Association

COFEPRIS – Comisión Federal para la Protección contra Riesgos Sanitarios [Mexico]

DGN - Dirección General de Normas [Mexico]

DIGEMID – Dirección General de Medicamentos Insumos y Drogas [Peru]

EN – European Norms

FDA – U.S. Food and Drug Administration [U.S.]

GHTF – Global Harmonization Task Force

GMP – Good Manufacturing Practices

ICONTEC – Instituto Colombiano de Normas Técnicas y Certificación [Colombia]

IDC – The International Diagnostics Center

IEC – International Electrotechnical Commission

IEEE – Institute of Electrical and Electronics Engineers

IMDRF – International Medical Device Regulators Forum

INACAL – Instituto Nacional de Calidad [Peru]

INVIMA – Instituto Nacional de Vigilancia de Medicamentos y Alimentos
Dirección De Dispositivos Médicos Y Otras Tecnologías [Colombia]

INTECO – Instituto de Normas Técnicas de Costa Rica [Costa Rica]

ISO – International Organization for Standardization

LSHTM – London School of Hygiene and Tropical Medicine

OCDE – Organization for Economic Co-operation and Development

PAHO – Pan American Health Organization

PRAIS – Regional Platform on Access and Innovation for Health Technologies

TBT – Technical Barriers to Trade Agreement (WTO/TBT)

USAID – United States Agency for International Development [U.S.]

WHO – World Health Organization

WTO – World Trade Organization

FIGURES

SUMMARY

INTRODUCTION

General Context

Latin America is composed of twenty countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, El Salvador, Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, the Dominican Republic, Uruguay and Venezuela.

Together, these countries occupy an area of approximately 20 million square kilometers and have a population of approximately 618 million people. Health expenditures per capita range from $ 76.42 (Haiti) to $ 1,479.02 (Uruguay). The average life expectancy at birth in the region is 74.6 years. Figure 1 below illustrates these data.

Figure 1 - General information about the Latin American Countries.

Country	Area	Population	GDP Per Capita US$	Health Expenditure (%GDP)	Per capita expenditure (US$)	Life expectancy at birth (years)
Argentina	2,791,810	43,416,755	12,645	7.3	923	76.3
Bolivia	1,098,580	10,724,705	3,124	6.1	190	68.3
Brazil	8,515,767	204,450,649	11,387	9.7	1,104	74.5
Chile	756,096	17,948,141	14,528	7.7	1,118	81.7
Colombia	1,141,750	48,228,704	7,904	6.8	537	74.0
Costa Rica	51,100	4,807,850	10,415	6.3	656	79.4
Cuba	109,890	11,389,562	7,274	8.8	640	79.4
El Salvador	21,040	6,126,583	4,120	6.9	284	73.0
Ecuador	256,370	16,144,363	6,346	6.4	406	75.9
Guatemala	108,890	16,341,897	3,673	6.5	238	71.8
Haiti	27,750	10,711,067	813	9.4	76	62.8
Honduras	112,490	8,075,060	2,449	8.6	210	73.1
Mexico	1,964,380	127,017,224	10,326	6.2	640	76.8
Nicaragua	130,370	6,082,032	1,963	8.3	162	74.9
Panama	75,420	3,929,141	12,712	7.2	915	77.6
Paraguay	406,750	6,639,123	4,729	9.0	425	72,9
Peru	1,285,220	31,376,670	6,516	5.3	345	74.6
Dominican Republic	48,670	10,528,391	6,147	5.4	331	73.5
Uruguay	176,220	3,431,555	16,807	8.8	1,479	77.2
Venezuela	912,050	31,108,083	16,615	3.4	564	74.2
Total/Average	19,990,613	618,477,555	8,024	7.0	562	74.6

Source: http://paises.ibge.gov.br/#/pt (12/14/2016)

In low and middle-income countries, the lack of access to medical devices, as well as the lack of regulatory control and established quality standards for the evaluation of these products, is a concern.

Medical devices are defined by the Global Harmonization Task Force-GHTF[1] as being:

> **Medical Device**: any instrument, apparatus, implement, machine, appliance, implant, reagent for in vitro use, software, material or other similar or related article, intended by the manufacturer to be used, alone or in combination, for human beings, for one or more of the specific medical purpose(s) of:
>
> - diagnosis, prevention, monitoring, treatment or alleviation of disease,
> - diagnosis, monitoring, treatment, alleviation of or compensation for an injury,
> - investigation, replacement, modification, or support of the anatomy or of a physiological process,
> - supporting or sustaining life,
> - control of conception,
> - disinfection of medical devices,
> - providing information by means of in vitro examination of specimens derived from the human body;
>
> and does not achieve its primary intended action by pharmacological, immunological or metabolic means, but which may be assisted in its intended function by such means.
>
> **In vitro diagnostic medical device (IVD):** a medical device, whether used alone or in combination, intended by the manufacturer for the in-vitro examination of

[1] GHTF/SG1/N071:2002 - Definition of the Terms 'Medical Device' and 'In Vitro Diagnostic (IVD) Medical Device'.

specimens derived from the human body solely or principally to provide information for diagnostic, monitoring or compatibility purposes.

Medical devices assist in the prevention, diagnosis and treatment of various health conditions and contribute to the improvement of the quality of life of individuals and vary in their complexity, including an ankle bandage, a hepatitis C diagnosis kit, an implant to an instrument for magnetic resonance imaging. Medical device users range from qualified healthcare professionals to lay people. Device use occurs in the most diverse environments, from domestic to complex medical facilities.

About two million different types of medical devices circulate on the world market, categorized into more than 22,000 groups of generic devices.[2] The regulation of medical devices contributes to the reduction of potential risks arising from their use and allows the population access to safe, effective and high quality medical devices, contributing to better public health outcomes.[3]

While regulation is an important tool that helps governments to achieve their policy goals, it can impede innovation or create unnecessary barriers to trade, investment, and economic efficiency. To avoid this, a globally harmonized approach capable of eliminating redundant requirements that do not contribute to safety and reducing the cost to market the product is required.[4]

The implementation of good regulatory practices and the observance of international agreements, such as WTO Technical Barriers to trade Agreement (TBT), can minimize the creation of unnecessary barriers to trade through regulation and standards. According the TBT agreements:

> "*technical regulations shall not be more trade-restrictive than necessary"*

[2] WHO global model regulatory framework for medical devices including in vitro diagnostic medical devices. Geneva: World Health Organization; 2017.

[3] Global atlas of medical devices. Geneva: World Health Organization; 2017.

[4] Harmonized Medical Device Regulation: Need, Challenges, and Risks of not Harmonizing the Regulation in Asia- A Kaushik, KS Saini,1 B Anil, and S Rambabu.

"Where technical regulations are required and relevant international standards exist or their completion is imminent, Members shall use them, or the relevant parts of them, as a basis for their technical regulations…"

Regulatory Structure

Good Regulatory Practices

The effective regulation of medical devices contributes to the strengthening of health systems. In order for a regulation to achieve its objectives, principles of good regulatory practices, whether legality, impartiality, consistency, proportionality, flexibility, effectiveness, efficiency, clarity or transparency, must be observed in its development.

Good Regulatory Practices (GRPs) are implemented by countries as a mechanism to improve the quality of the regulatory process for all sectors including health, with benefits such as: improved public administration, improved stakeholder consultation, improved regulatory efficacy, and improved public health. Countries that are members of the Organisation for Economic Co-operation and Development (OECD) such as Mexico, and countries seeking to join the OECD such as Colombia, Costa Rica and Peru, are required to demonstrate implementation of GRP to be members. The OECD regulatory guidelines[5] serve as an additional resource and benchmark for medical device regulators.

Global

The World Health Organization (WHO) has published the document "WHO Global Model Regulatory Framework for Medical Devices including In Vitro Diagnostic Medical Devices".[6] The proposed model recommends guidelines that are intended to provide guidance and support for the development and deployment / improvement of medical device regulatory controls. The model suggests a progressive approach, establishing two levels of control to be adopted: basic

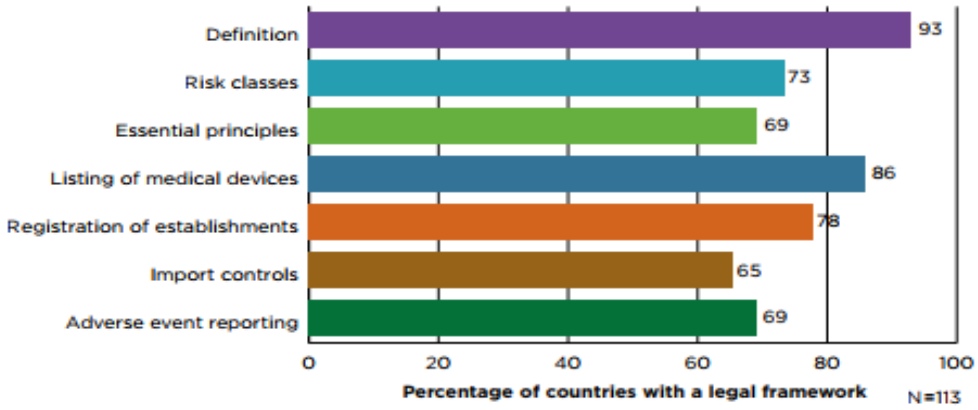
[5] https://www.oecd-ilibrary.org/governance/the-governance-of-regulators_9789264209015-en

[6] WHO global model regulatory framework for medical devices including in vitro diagnostic medical devices. Geneva: World Health Organization; 2017.

and expanded. The use of these levels of control will depend on the maturity of the existing regulatory system in the country. It also suggests that countries use reliance mechanisms (a process in which a regulatory authority considers evaluation made by another authority in its decision-making process).

A survey of 194 Member States of the WHO in the period 2015-2016 has shown that 113 countries have regulatory frameworks for medical devices. The research involved topics related to the existence of medical device definition, risk classification, essential principles of safety and performance, establishment registration, medical device listing, import controls and adverse event reporting. Figure 2 shows the results obtained for each requirement when evaluating the countries that have a regulatory structure.[7]

Figure 2: Percentage of countries with regulatory structure per requirement.



Source: Global atlas of medical devices. Geneva: World Health Organization; 2017.

The strengthening of regulatory structures through international cooperation was discussed by the World Health Assembly in 2014 and culminated in the publication of Resolution 67:20 which reaffirms the importance of medical device regulation as a tool to safe products, effective and quality, improving the public health outcomes.[8]

[7] Global atlas of medical devices. Geneva: World Health Organization; 2017.

[8] WHO global model regulatory framework for medical devices including in vitro diagnostic medical devices. Geneva: World Health Organization; 2017

Regional

In the Americas region, the Pan American Health Organization (PAHO) has been active in discussing regulation of medical devices through the Regional Working Group on Medical Devices, with the participation of Latin American countries. This group presented, through an article published in 2016, the situation of the regulation of medical devices in the region of the Americas and concluded:

- That there is considerable heterogeneity in the regulatory requirements applied to medical devices;
- That countries that are at an early stage in the development of their regulatory systems benefit from the experiences of those in more advanced stages;
- Countries that are in the most advanced stages of their regulatory systems should seek constant updating to face the challenges arising from technological advances, dynamic markets and increasing population demand.[9]

A new regional study is being carried out, expanding the number of indicators and topics addressed. The announcement will be made through the platform "Regional Platform on Access and Innovation for Health Technologies (PRAIS)".[10]

Standards

International consensus standards are a building block for harmonized regulatory processes to assure the safety, quality and performance of medical devices. Standards represent the opinion of experts from all interested parties, including industry, regulators, users and others[11]. Recognizing the important contribution that standards and conformity assessment systems can have, the memberships of the World Trade Organization signed the Technical Barriers to Trade Agreement (WTO/TBT). According this agreement, standards are defined as a document approved by a recognized body, that provides, for common and repeated use, rules,

[9] Enriquez N, Álvarez Y, Martinez DM, Pérez A, Lemgruber A. Situación de la regulación de los dispositivos médicos em la Región de las Américas. Rev. Panam. Salud Publica. 2016; 39 (5):238-44.

[10] http://www.imdrf.org/docs/imdrf/final/meetings/imdrf-meet-180321-china-presentation-stakeholder-paho.pdf (4/18/2018).

[11] GHTF SG1(PD)/N044 – 2006 - Proposed document – Role of Standards in the Assessment of Medical Devices (revised) – 2006.

guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory. A standard can become mandatory if a regulation is based on it.

According to the WHO, compliance with voluntary, preferably international, technical standards is how a manufacturer can demonstrate that its medical device meets one or more of the essential safety and performance requirements. The use of voluntary technical standards for regulatory purposes can help minimize trade barriers.[12] Other benefits identified include providing a high level of patient safety at a reduced cost, reducing the burden of regulatory compliance, building trust and international understanding among regulatory authorities and distributors of medical devices, and leveraging global expertise and experience.[13]

In 2014, a list of international standards recognized for regulatory purposes by regulatory authorities that make up the International Medical Device Regulators Forum (IMDRF) was published through document IMDRF / Standards / N15 FINAL: 2014 – Final Report: List of International Standards Recognized by IMDRF management Committee Members. After this work, the topic was once again discussed by the forum, this time with the purpose of identifying opportunities for improvement in the process of developing international standards by international standards committees. The strategic plan of the IMDRF 2015-2020 includes, among its priorities, the effective involvement of the authorities at each stage of the development of technical standards, aiming at better adaptation to their use for regulatory purposes.[14]

In 2018 public consultations were made available by IMDRF for suggestions. Of note, "Essential Principles of Safety and Performance of Medical Devices and IVD Medical Devices," lists essential principles with internationally recognized technical standards that can be used to demonstrate compliance of medical devices with safety and performance requirements.[15]

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[12] WHO Global Model Regulatory Framework for Medical Devices including in vitro diagnostic medical Devices. Geneva: World Health Organization; 2017.

[13] Playbook for implementation of a medical device regulatory framework. Asian Harmonization Working Party Technical Committee; 2014.

[14] http://www.imdrf.org/docs/imdrf/final/work-items/imdrf-wi-standards.pdf (3/5/2018)

[15] http://www.imdrf.org/consultations/cons-epsp-n47.asp (3/5/2018)

Another public consultation titled "Optimizing Standards for Regulatory Use" suggests improvements in the process of drafting standards and recommends best practices for effective participation of regulatory authorities in the development of standards for regulatory purposes.[16]

In addition, standards related to the safety and performance of medical devices were recently published by ISO:

- ISO 16142-1: 2016 Medical devices - Recognized essential principles of safety and performance of medical devices - Part 1: General essential principles and additional essential principles for all non-IVD medical devices and guidance in the selection of standards;
- ISO 16142-2:2017 Medical devices -- Recognized essential principles of safety and performance of medical devices -- Part 2: General essential principles and additional specific essential principles for all IVD medical devices and guidance on the selection of standards.

Together, the above standards apply to all medical devices and identify significant standards that can be used by manufacturers to demonstrate that their products meet the principles of safety and performance.

[16] http://www.imdrf.org/consultations/cons-swg-optimising-standards-n51-180524.asp (4/2/2018)

OBJECTIVE

The objective of this research was to carry out a situational study on the use and recognition of international regulations and standards applied to medical devices in select Latin American countries, focusing on Colombia, Costa Rica, Mexico and Peru.

METHODOLOGY

For the execution of the situational study, the study was based on works previously developed by the WHO, PAHO and other experts that work in the medical device sector. Data collection procedures were performed, focused on the responses of the actors involved with the follow-up segment of medical devices from the following countries: Colombia, Costa Rica and Mexico. Documentary analysis procedures were used to obtain the information not provided in response to the questionnaires applied during the data collection.

Previously, an awareness-raising lecture was held on the importance of the themes addressed in this study, during the open workshop of the VII Meeting of Regulatory Authorities to Strengthen the Regulatory Capacity of Medical Devices in the Region of the Americas. The event was attended by representatives of regulatory authorities from the Americas and other regions, associations and non-governmental organizations that work in the segment of medical devices.

Data Collection Procedures

Data collection was performed with the aid of electronic questionnaires sent by electronic mail to representatives of regulatory authorities and the regulated sector that deal with medical devices. The questionnaires included a total of 40 open and closed questions. In their completion, respondents should opt for the relevant response that best fits the regulatory reality of their country. For cases of conflicting information obtained from divergent responses in the same country, those submitted by the regulatory authority were considered. The information collection period was from October 2017 to January 2018.

The questionnaires[17] used included the following topics:

I. Regulatory authority;

II. Legislation;

[17] Model available in Annex I.

III. Regulatory capacity;
IV. Medical device establishments (manufacturers / importers / representatives / authorized distributors);
V. Control of products and;
VI. International standards.

Representatives of health authorities and institutions representing the sector of Colombia, Costa Rica, Mexico and Peru were invited to participate. Those that responded to the research included:

Colombia

- Direction of Medical Devices and Other Technologies – INVIMA
- Chamber of Medical Devices and Supplies for Health – ANDI

Costa Rica

- Ministry of Health
- Costa Rica Biotechnology and Medical Device Business Association - CR BioMed

Mexico

- Regulated sector

The collected data were compiled, analyzed and validated by experts in the subject, and then produced the results and considerations contemplated in this document.

Procedures of documentary analysis

Information on regulatory practices adopted for the control of medical devices in Peru was obtained through analysis of documents. Public documents available on the web were considered, including, among others, the website http://www.digemid.minsa.gob.pe/ of the General Directorate of Drugs Inputs and Drugs - DIGEMID - Peruvian Regulatory Authority.[18]

[18] Annex III – Information related to the Peruvian regulatory system.

RESULTS

Workshop

The awareness workshop[19] was held during the "VII Meeting of Regulatory Authorities to Strengthen the Regulatory Capacity of Medical Devices in the Region of the Americas", on September 21, 2017, in the city of Ottawa, Canada.

The lectures addressed relevant issues on regulatory convergence, population access to safe and effective technologies and use of international standards for regulatory purposes.

Survey of data by themes

I. Regulatory Authority

The WHO emphasizes the importance of the existence of a regulatory body responsible for the sanitary control of medical devices. This body, called the regulatory authority, may be part of the structure of the ministry of health or an independent administrative agency responsible to a ministry[20]. Among its functions, it is desirable to participate in national and international cooperation forums aiming at regulatory convergence. For this reason, the data collection sought to identify the forums of cooperation in which the regulatory authorities are involved. Figure 3 below illustrates the information obtained.

Figure 3: Participation in cooperation forums.

Regulatory Authority	Participation in cooperation forums (national and international)
INVIMA - Colombia	Regional Working Group of the Americas for Strengthening the Regulatory Capacity of Medical Devices - Pan American Health Organization (PAHO); IMDRF Meeting ; ICONTEC; Institute ECRI.
MINISTRY OF HEALTH - Costa Rica	Ministries of Health of other countries. EULAC-Health Network.
COFEPRIS – Mexico	Regional Working Group of the Americas for Strengthening the Regulatory Capacity of Medical Devices - Pan American Health Organization (PAHO). IMDRF – The country has submitted a request for inclusion as a Member State of the forum.

Source: ALADDIV

[19] The report containing information on the agenda of the event and the lectures given is found in Annex II.

[20] WHO global model regulatory framework for medical devices including in vitro diagnostic medical devices. Geneva: World Health Organization; 2017.

II. Legislation

According to WHO, the regulation of medical devices must have a solid, law-based foundation. The standards should define transparent requirements as to their scope of action within their reach, in order to ensure the population's access to safe and effective products.

In this context, WHO proposes a model regulatory framework that considers two different levels of controls. At the first level, called the basic level, it is recommended to describe, among others, the conditions for placing a medical device on the market, the controls to be performed in establishments, post-marketing activities and import controls. At the second level, called the expanded level, additional controls are planned to be implemented, among them, the recognition of voluntary standards for conformity assessment of products and systems.

The questions related to this topic sought to identify pre- and post-market controls implemented by the countries, regarding: the operating authorization of the company, prior authorization for the commercialization of the product, import controls, post-market surveillance and finally; the use of international standards for regulatory purposes. Figure 4 below illustrates the information obtained.

Figure 4: Controls implemented by the countries.

	Colombia	Costa Rica	Mexico
Operating authorization of the company	Yes	Yes	Yes
Authorization for the commercialization of the product	Yes	Yes	Yes
Import Controls	Yes	Yes	Yes
Post-market surveillance	Yes	Yes	Yes
Use of international standards for regulatory purposes	Yes	Yes	Yes

Source: ALADDIV

III. Regulatory capacity

In addition to the controls identified above, observance of good regulatory practices in the elaboration of regulations contributes to the strengthening of regulatory capacity and to quality, transparency and international regulatory convergence. Adhering to good regulatory practices allows a better understanding and greater confidence that regulatory decisions are taken objectively, impartially and consistently, without conflict of interest, prejudice or improper influence.

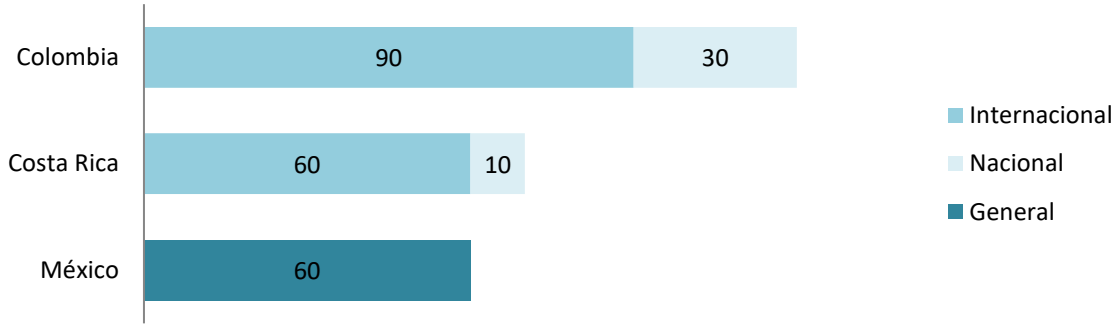
Among the tools of good regulatory practice proposed by the OECD is the Regulatory Impact Analysis, a systemic approach to critically assess the positive and negative effects of proposed regulations and non-regulatory alternatives.

Thus, the questions related to this topic sought to know the mechanism of non-government stakeholder participation and the use of the analysis of the regulatory impact in the regulatory process.

According to all the answers obtained, non-government stakeholders are invited to participate in the drafting of regulations (consultation or public hearing).

As for the time established for the duration of the public consultation, the answers obtained revealed that there was a fixed period of up to 60 days for national demonstrations. Considering information provided by the regulatory authorities, in Colombia the established deadline is at least 30 days, reaching 90 days for international demonstrations. Costa Rica adopts the term of 10 days for national events and 60 days for international events. Figure 5 illustrates the data obtained.

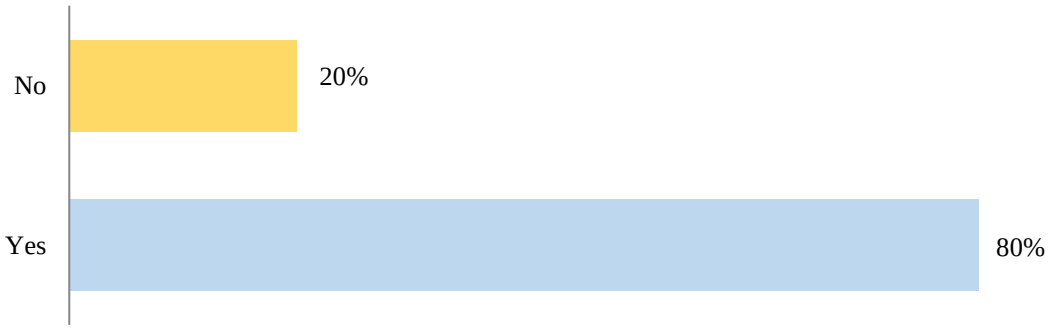
Figure 5: Public consultation period (days).



Source: ALADDIV

The positive responses on the actual publicity of the results of the public consultations and on the use of tools of regulatory impact totaled 80%. In both cases, the percentage of 20% of negative responses came from responses from the Costa Rican regulated sector. Figure 6 shows the results of the data obtained for the two queries.

Figure 6: Disclosure of responses to the suggestions sent in the standard in public consultation and use of tools of regulatory impact.



Source: ALADDIV

Figure 7 illustrates the legal instruments indicated in the responses on the regulations applicable to the regulatory impact analysis by each country.

Figure 7: Legal instruments related to regulatory impact analysis.

Country	Normative
Colombia	Decree nº 1595/ 2015
Costa Rica	Law nº 8220 /2002
Mexico	Established by COFEMER (Ley Federal de Procedimento Administrativo (LFPA)/1994)

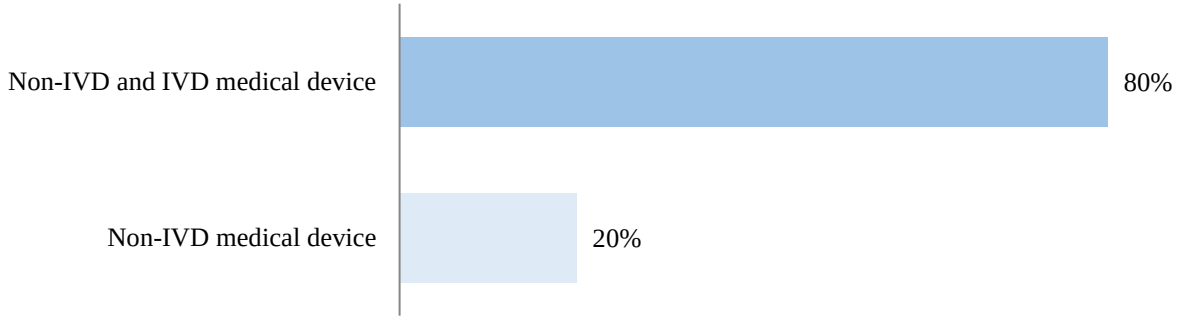
Source: ALADDIV

IV. Medical device establishments (manufacturers / importers / representatives / authorized dealers)

Medical device establishments must implement and maintain quality management systems that, consistent with their respective business lines, guarantee products are manufactured and marketed in compliance with safety and performance requirements. Thus, the questions associated with this topic sought to reveal, in addition to the existence of local production, the segments of performance of the establishments in the surveyed countries (medical device IVD and not IVD) and the need to implement quality management systems.

According to the answers obtained, there is local production of IVD and non-IVD medical devices in all countries. The information provided by the Colombian regulated sector on the production of only non-IVD medical devices in that country stands out. The results are shown in figure 8.

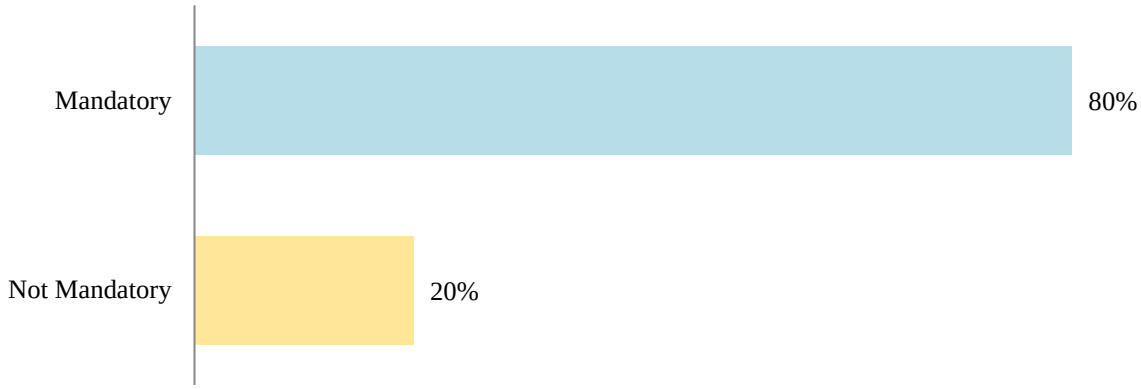
Figure 8: Segment of production of local manufacturers of medical devices.



Source: ALADDIV

According to 80% of the answers, establishments must have a quality management system in place. In this regard, there was a divergence between the information provided by the regulatory authority and the regulated sector of Costa Rica. The regulatory authority has indicated that it is not mandatory to implement quality management systems. The data are shown in Figure 9 below.

Figure 9: Mandatory quality management system in companies.

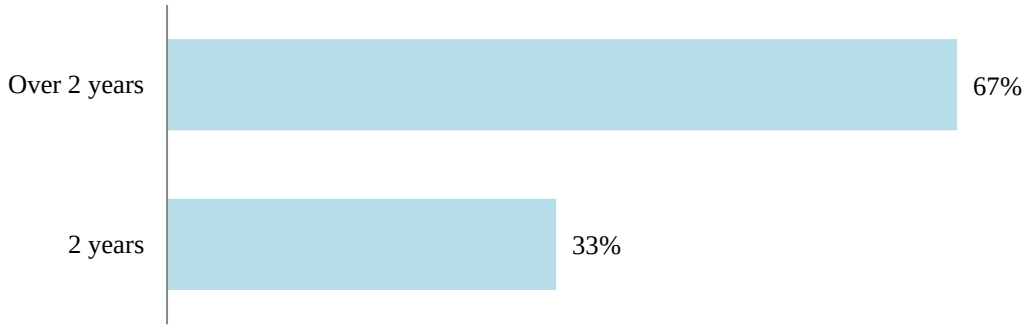


Source: ALADDIV

All those who answered affirmatively about the mandatory implementation and maintenance of a quality management system said that there are periodic inspections / audits of establishments.

According to 33% of the answers obtained, the inspections / audits happen every 2 years. However, most of the responses (67%) indicated frequency of more than 2 years. Figure 10 illustrates this set of responses.

Figure 10: Frequency of inspections / audits in the quality management system of establishments.



Source: ALADDIV

When the question referred to the standard applicable to the quality management system, again there was a discrepancy in the answers. Figure 11 shows the responses obtained.

Figure 11: Normative - Quality Management System.

Country	Normative
Colombia	ISO 13485*
Costa Rica	GMP**
Mexico	NOM 241 Buenas Prácticas de Manufactura

* Information provided by the regulated sector signaled the use of the standard in a non-mandatory manner

** Information provided by the regulated sector signaled the use of GMP, however, the regulatory authority said there is no obligation to implement a quality management system.

Source: ALADDIV

V. Product Control

Pre-market control is established to ensure that marketed medical devices to comply with established safety and performance requirements. These controls should be commensurate with the risk that their use offers to users and public health.

Figures 12 and 13 illustrate the legal instruments indicated in the replies on the rules applicable to the prior authorization for the marketing of medical devices, as well as their risk classification and the existence of requirements to prove the safety and efficacy of these products.

Figure 12: Premarket authorization for the commercialization of non-IVD Medical Devices

Product Control				
Country	Premarket authorization	Normative	Classification of the product according to the risk	Requirements to prove the safety and efficacy
Colombia	Yes	Decree nº 4.725/2005	Risk Classes: I, IIa and III	Yes
Costa Rica	Yes	Decree nº 34482-S	Risk Classes: 1,2,3 and 4	Yes
Mexico	Yes	General Health Law, Regulations, Equivalence Agreements, NOM 241, NOM 137, Mexican Pharmacopoeia, ISO 13485 Certified.	Risk Classes: I, II and III	Yes

Source: ALADDIV

Figure 13: Pre-market authorization for the commercialization of IVD Medical Devices IVD.

Product Control			
Country	Premarket authorization	Normative	Classification of the product according to the risk
Colombia	Yes	Decree nº 3770/2004	Category I (low risk) Category II (Medium risk) Category III (High risk) For agents transmissible for applications other than the detection of communicable diseases.
Costa Rica	Yes	Decree n° 34482-S	Risk classes: 1,2,3 e 4
Mexico	Yes	General Health Law, Regulations, Equivalence Agreements, NOM 241, NOM 137, Mexican Pharmacopoeia, ISO 13485 Certified.	Classes Ia, I, II and III and list of Non-Medical Devices

Source: ALADDIV

VI. International Standards

The use of international standards for regulatory purposes favors convergence and contributes to reducing the regulatory burden, increasing the population's access to new health technologies.

The question about whether there was a legal provision for the use of existing international standards to prioritize the use of regulations returned only 40% of affirmative responses. Figure 14 illustrates the legal instruments indicated in the universe of these responses.[21]

Figure 14: Applicable legislation providing for the priority use of international standards in the elaboration of regulations.

Country	Legislation
Colombia	Decree nº 1595/2015
Costa Rica	Nonexistent
Mexico	Nonexistent

Source: ALADDIV

The existence of a legal forecast for the periodic publication of a list containing the local and international standards used for regulatory purposes was another target item of the research. Among the answers, only the regulatory authority of Costa Rica reported such a forecast, without indicating, however, the applicable regulations.

Another aspect analyzed in this study was standardization, which deals with the formulation and application of rules for the solution or prevention of problems. To this end, it was asked whether there was a designated authority for the management of the application of standards and their participation in international standardization activities. Most of the responses (80%) pointed to the existence of a formally designated authority to deal with the application of standards. The Costa Rican regulatory authority responded that there is no formally designated authority.

[21] According to the methodological choice of this work, where there is a conflict between responses from the same country, those provided by the regulatory authority .

Due to the importance of standardization as a tool to support the regulatory process, the participation of authorities in national and international standardization fora should be encouraged during all stages of elaboration of regulation. The participation of experts in national and international standardization forums was signaled in 80% of responses.

Another aspect evaluated was the use of recognized international standards to evaluate the compliance of medical devices with essential safety and performance principles. The compliance with technical standards is one of the means by which the manufacturer can demonstrate that its medical device meets one or more of these principles consistently throughout its life cycle[22]. According to 80% of the responses obtained, internationally recognized technical standards are used to assess the compliance of medical devices with the essential principles of safety and performance.

When evaluating compulsory or voluntary use of standards for safety and performance testing, most responses (80%) indicated their voluntary use.

When questioned about the knowledge of ISO 16142-1 and ISO 16142-2, Recognized Essential Principles of Safety and Performance of Non-IVD Medical Devices and IVD Medical Devices, respectively, 60% of the respondents answered affirmatively.

The ISO 16142 Part 1 and Part 2 standards lay out essential principles of safety and performance, linking relevant standards and guides that can be used to assess the conformity of medical devices. Among the various standards covered by ISO 16142 Part 1 and Part 2, group standards have been selected that apply to a wide range of medical devices and process standards applicable to all stages of the life cycle of a medical device. The responses indicated are shown in figure 15.

Figure 15: International technical standards recognized by the local regulatory system

International technical standard	Country	
	Colombia	Mexico
ISO 13485 Medical devices — Quality management systems — Requirements for regulatory purposes	X	X

[22]WHO global model regulatory framework for medical devices including in vitro diagnostic medical devices. Geneva: World Health Organization; 2017

ISO 14971 Medical devices — Application of risk management to medical devices	X	X
IEC 80001-1 Application of risk management for IT-networks incorporating medical devices - Part 1: Roles, responsibilities and activities	X	
ISO 14155 Clinical investigation of medical devices for human subjects — Good clinical practice	X	
IEC 62366-1 Medical devices -- Part 1: Application of usability engineering to medical devices	X	X
IEC 60601-1-2 Medical electrical equipment Part 1-2: General requirements for basic safety and essential performance — Collateral standard: Electromagnetic compatibility — Requirements and tests	X	
IEC 60601-1 Medical electrical equipment — Part 1: General requirements for basic safety and essential performance	X	
ISO 11607 (all parts), Packaging for terminally sterilized medical devices	X	X
ISO 18113 (all parts), In vitro diagnostic medical devices — Information supplied by the manufacturer (labelling)	X	X
ISO 23640 In vitro diagnostic medical devices — Evaluation of stability of in vitro diagnostic reagents	X	
ISO 15223-1 Medical devices — Symbols to be used with medical device labels, labelling and information to be supplied — Part 1: General requirements	X	
IEC 60417 Graphical symbols for use on equipment	X	
IEC 60878 Graphical symbols for electrical equipment in medical practice	X	
ISO 7010 Graphical symbols — Safety colours and safety signs — Registered safety signs	X	
ISO 10993 (all parts) Biological evaluation of medical devices	X	X
ISO/IEC 15026 (all parts) Systems and software engineering — Systems and software assurance	X	
ISO 14644 all parts) Cleanrooms and associated controlled environments	X	X
ISO 11135 (all parts), Sterilization of health-care products — Ethylene oxide — Requirements for the development, validation and routine control of a sterilization process for medical devices	X	X
ISO 11137 (all parts), Sterilization of health care products — Radiation	X	X
ISO 14160 Sterilization of health care products — Liquid chemical sterilizing agents for single-use medical devices utilizing animal tissues and their derivatives — Requirements for characterization, development, validation and routine control of a sterilization process for medical devices	X	
ISO 14937 Sterilization of health care products — General requirements for characterization of a sterilizing agent and the development, validation and routine control of a sterilization process for medical devices	X	
ISO 17664 Sterilization of medical devices — Information to be provided by the manufacturer for the processing of resterilizable medical devices	X	
ISO 25424 Sterilization of medical devices — Low temperature steam and formaldehyde — Requirements for development, validation and routine control of a sterilization process for medical devices	X	
ISO 17665 (all parts), Sterilization of health care products — Moist heat	X	

ISO 20857 Sterilization of health care products — Dry heat — Requirements for the development, validation and routine control of a sterilization process for medical devices	X

Source: ALADDIV

Other international references were cited in the responses indicated by the representative of the Mexican regulated sector and described in Figure 16.

Figure 16: Other international technical references considered in Mexico, according to information from the regulated sector.

Reference Document
ISO 14969:2004 Medical devices Quality Management systems Guidance on the application of 13485:2003
ISO 9000:2005 Quality management systems Fundamentals and vocabulary
ISO 9001:2008 Quality management systems Requirements
ISO 19011:2002. Guidelines for quality and /or environmental management systems auditing
ANSI/ASQC 011988. Generic guidelines for auditing of quality systems
Code of Federal Regulations Title 21; Part 820, Medical Device Good Manufacturing Practices Manual.Washington, Food and Drug Administration, 2001
Guidance for Industry: Sterile Drug Products Produced by Aseptic Processing Current Good Manufacturing Practice. Washington, DC, Food and Drug Administration, September 2004
Final Version of Annex 15 to the EU Guide to Good Manufacturing Practice; European Commission, Brussels, 2001
European Commission, Guide to Good Manufacturing Practice Annex I, 1 & 15
Manufacture of Sterile Medicinal Products, January 1997
Points to Consider for Aseptic Processing, PDA Journal of Pharmaceutical Science and Technology, 2003, Volume 57, Number 2, Supplement
Evaluación y validación de sistemas críticos en áreas asépticas, Asociación Farmacéutica Politécnica, A.C. 1992
ISO 14698-1:2003, Cleanrooms and associated controlled environments--Biocontamination control--Part 1 & 2: General principles and methods Ed. 1, (September 2003)
GHTF/SG1/N055:2009, Definition of the Terms Manufacturer, Authorised Representative, Distributor and Importer
GHTF/SG5/N4:2009, Post-Market Clinical Follow-Up Studies
GHTF/SG1/N70:2011, Label and Instructions for Use for Medical Device
GHTF/SG1/N071:2012, Definition of the Terms "Medical Device" and "In Vitro Diagnostic (IVD) Medical Device"
International basic safety standards for protection against ionizing radiation and for the safety of radiation sources. FAO, IAEA, ILO, AEN, PAHO, WHO, Vienna, 1996
Radiation Protection in Pediatric Radiology. NCRP Report 68
Protection of the patient in Diagnostic Radiology. Annals of the ICRP 9 (2/3), ICRP Publication 34, 1982
Optimization and Decision-Making in Radiological Protection. Annals of the ICRP 20 (4), ICRP Publication 55
Radiological Protection of the Worker in Medicine and Dentistry. Annals of the ICRP 20 (3), ICRP Publication 57
Summary of the Current ICRP Principles for the Protection of the Patient in Diagnostic Radiology. Note in the Annals of the ICRP 20 (3).
Summary of the Current ICRP Principles for the Protection of the Patient in Diagnostic Radiology. Note in the Annals of the ICRP 20 (3).
Medical X-Ray, Electron Beam and Gamma-Ray Protection for Energies up to 50 MeV (Equipment Design, Performance and Use), NCRP Report 102.
Aspectos Técnicos de Seguridad y Protección Radiológica de Instalaciones Médicas de Rayos X para Diagnóstico. Guía de Seguridad No. 5.11 del Consejo de Seguridad Nuclear de España.

Recommendations of the International Commission on Radiological Protection. (ICRP) Publication 60; The International Commission on Radiological Protection. Pergamon Press.
Handbook of Selected Tissue Doses for the Upper Gastrointestinal Fluoroscopic Examination. U.S. Department of Health and Human Services, Public Health Service, Food and Drug Administration, 1992.
Food and Drug Administration, US Department of Health and Human Services, “Regulations for the Administration and Enforcement of the Radiation Control for Health and Safety Act of 1968”.
Minister of National Health and Welfare, Canada, “Diagnostic X-Ray Equipment Compliance and Facility Survey”, 1994
National Council on Radiation Protection and Measurements, “Quality Assurance for Diagnostic Imaging Equipment”, NCRP Report 99, NCRP Bethesda, 1988.
Protocolo Español de Control de Calidad en Radiodiagnóstico, Sociedad Española de Protección Radiológica. Sociedad Española de Física Médica. 1996
Standard practice for use the SI International System of Units, ASTM 380-93.
Protection against ionizing radiation from external sources used in medicine. Publication 33. International Commission on Radiological Protection (ICRP). 1982
Structural shielding design and evaluation for medical use of X rays and gamma rays for energies up to 10 MeV. Publication 49. National Council on Radiation Protection (NCRP). 1976
EN 980:2007 Graphical symbols for use in the labelling of medical devices
Guidance for industry and FDA staff. Use of symbols on labels and in labeling of in vitro diagnostic devices intended for professional use. Washington, DC, Food and Drug Administration, November 2004.
Code of Federal Register Part 91-4179 Medical Device Good Manufacturing Practices Manual - Washington, Food and Drug Administration, April 2004.
Global Harmonization Task Force. GHTF/SG1/N43:2005 Rotulación de equipos y dispositivos médicos. 2005.
Latex labeling required for medical devices. Talk Paper Food and Drug Administration US Department of Health and Human Services. September 1997.

Source: ALADDIV

CONCLUSIONS

The information obtained through the application of questionnaires to experts in the sector of medical devices and consultation of public documents allowed a reasonable approximation of the regulatory situation of the countries studied. We reiterate the following aspects:

In the first topic addressed, regulatory authority, the participation of authorities in cooperation forums, such as the Regional Working Group of the Americas for Strengthening the Regulatory Capacity of Medical Devices of the Pan American Health Organization (PAHO) and in meetings such as the of the International Medical Device Regulators Forum (IMDRF).

In the second theme, legislation, it was intended to indicate the existence of pre- and post-market controls used by the countries, without attempting to outline the level of implementation of these controls. In addition to the existence of basic controls such as business authorization, prior authorization for the marketing of products, import controls and post-market surveillance, the research identified the use of international technical standards for regulatory purposes.

In the third theme, regulatory capacity, we sought to identify the use of regulatory tools that contribute to the quality of the regulatory process and, consequently, strengthen the regulatory capacity of the countries. Two items were questioned, the participation of non-governmental stakeholders in regulatory processes, through public consultation and evaluation of regulatory impact of proposed regulations.

As for the public consultations, it was observed that the deadlines for the suggestions in the countries analyzed were different for the national and international public scenarios. In some cases, as in other non-target countries, the deadlines differ from those recommended by the WTO.

Although regulatory impact assessment (RIA) is a policy tool implemented to different degrees in the countries analyzed, the regulated sector in Costa Rica was unaware of its usage for medical device approvals in that country.

In the fourth proposed theme, medical device establishments locally produce of medical devices in all countries and the majority of responses agreed that establishments must have a quality management system implemented, although there was a discrepancy in the answers regarding the applicable requirement for the quality management system.

In the fifth subject analyzed, product control, in all the countries studied, the countries adopted of norms applicable to prior authorization, based on classification of risk, for the commercialization of medical devices.

In the sixth and final theme, international standards, it was revealed that, although actors and participants seem sensitive to the idea of prioritization of international standards to be implemented by legal means and value standardization as a tool to support the regulatory process, the use of international standards for regulatory purposes is in a nascent stage.

FINAL CONSIDERATIONS

Although all countries studied have mechanisms to control medical devices, there is a heterogeneity between the regulatory systems of the countries surveyed. Factors such as infrastructure, human and financial resources, political priority, among others, contribute to these discrepancies.

The present study made it possible to analyze the stage of the regulatory systems of the countries surveyed, to reflect on the impact of regulation on access to new health technologies and to visualize some of the difficulties encountered in this field, especially regarding the incorporation of technical standards recognized internationally.

Expanding the debate on this topic is to meet one of the most important agendas in the medical device sector, namely to seek the establishment of partnerships that help in the challenge of making regulatory spaces more permeable to the participation of society and the exchange of international experiences.

The perception of the need to improve some of the normative instruments of some countries (evidenced also in this study) is consistent with the idea that - even in those where good regulatory practices are already advanced - there will always be room for innovation. Therefore, it is a two-way street in which opportunities for regulatory convergence can benefit everyone, regardless of the stage of development of their regulatory experiences.

In addition, the concept of reliance may need to be explored further, such as a recent decision taken at the PAHO / WHO Meeting of National Regulatory Authorities (ARRR) level IV, where it was agreed that the medical device manufacturing best practice inspection is based on advances in the single audit program methodology - Medical Device Single Audit (MDSAP)[23].

Finally, it was clear that there is a need to expand the countries studied. From the moment that concrete situations are planned - an expected result of exploratory work, such as

[23] https://www.gob.mx/cofepris/prensa/suscriben-plan-de-trabajo-2018-2019-autoridades-sanitarias-reunidas-en-chile?state=published (02/05/2018)

what we do - it is possible to overcome limitations related to the size of the sample. The expansion to additional countries will certainly create new possibilities for elucidating the reality of the medical devices frameworks, and this is a promising route towards regulatory convergence.

Annexes

Annex I Questionnaires

Annex II Awareness-raising lecture held during "VII Meeting of Regulatory Authorities to Strengthen the Regulatory Capacity of Medical Devices in the Region of the Americas" - Canada – Report

Annex III Information related to the Peruvian regulatory system

Annex IV International Standards Organizations and Committee for Medical Technology Standardization

- ISO & IEC
- ASTM International
- AAMI
- CLSI
- Participation of countries in international standardization organizations

Annex V Helpful Resources

Annex I

QUESTIONNAIRES

Google Forms

ALIANZA LATINOAMERICANA PARA EL DESARROLLO DEL DIAGNÓSTICO IN VITRO - ALADDIV

Project: RECOGNITION OF INTERNATIONAL STANDARDS APPLIED TO MEDICAL DEVICES IN LATIN AMERICAN COUNTRIES

Name of institution interviewed

Filling instructions:

The questionnaire contains questions that enable an understanding of the regulatory model used in the country for the control of medical devices.

In addition to closed fields, the questionnaire contains open fields for the respondent to complete. When using recognized International Standards to verify safety and performance requirements, we

ask that you complete the attached Excel spreadsheet.

The excel sheet contains technical standards that are embodied in the ISO 16142-1 and ISO 16142-2 standards as significant for the evaluation of the compliance of medical devices, in particular in safety and performance aspects. To fill in, indicate:

1. If the standard is partially applied; fully applicable; or not applicable;

2. Edition and the effective date thereof

Regulatory Authority

Does the regulatory authority participate in any network of international collaboration directed towards an area of medical devices?

- ( ) Yes
- ( ) No

Which?

Legislation

- **Does it establish the need for authorization for the operation of establishments manufacturers / importers / authorized representatives / distributors for the commercialization of products?** ( ) Yes
- ( ) No

Does it establish the need for prior authorization for the marketing of the products?

- ( ) Yes
- ( ) No

Does it establish the need for post-market surveillance of marketed products?

- ( ) Yes

- ( ) No

Does it establish controls for the importation of products?

- ( ) Yes
- ( ) No

Does it establish the use of international standards for regulatory purposes?

- ( ) Yes
- ( ) No

Regulatory Capacity

Is the civil society invited to participate in the elaboration of regulations (consultation or public hearing)?

- ( ) Yes
- ( ) No

Are stakeholders consulted before, during and after the publication of a regulation?

- ( ) Before
- ( ) During
- ( ) After
- ( ) All previous

Is there a consultation time established for public consultation in all regulatory instances?

- ( ) Yes
- ( ) No

How many days?

Are the responses to stakeholders of the regulation consulted published?

- ( ) Yes

- ( ) No

Are used tools to evaluate the impact of regulation? In elaboration of new regulations?

- ( ) Yes
- ( ) No

Which regulation is applicable?

Medical device establishments (manufacturers / importers / representatives / authorized distributors)

GENERAL

Is there local production of medical devices in the country?

- ( ) Yes
- ( ) No
- **If yes, in which segment do they act?**
- ( ) IVD Medical Device
- ( ) Non IVD Medical Device
- ( ) IVD Medical Device and Non IVD Medical Device

QUALITY MANAGEMENT

Establishments must have a quality system?

( ) Yes

- ( ) No

What is the applicable legislation?

- **If so, are they inspected / audited?**
- ( ) Yes
- ( ) No

How often?

- ( ) 1 year
- ( ) 2 years
- ( ) More than 2 years

Product Controls

NON IVD MEDICAL DEVICE

- **Is a prior authorization required to commercialize products?**
- ( ) Yes
- ( ) No

What is the applicable legislation?

- **Does the legislation establish rules for classification according to the risk?**
- ( ) Yes
- ( ) No

If yes, which ones?

- **Does the legislation establishes requirements to prove the safety and performance of medical devices ?**
- ( ) Yes
- ( ) No

IVD MEDICAL DEVICE

- **Is a prior authorization required to commercialize products?**
- ( )Yes
- ( ) No

What is the applicable legislation?

- **Does the legislation establish rules for classification according to the risk?**
- ( ) yes
- ( ) No

If yes, which ones?

International Standards

- **Is there a legal provision so that, in the elaboration of national regulations, they are used primarily, as a basis, international standards?**
- ( ) Yes
- ( ) No

If Yes, which?

- **Is there a legal provision for the periodic publication of a list of international and local standards used?**
- ( ) Yes
- ( ) No

If yes, which?

- **Is there a designated authority for handling the application of standards and participation in international standardization activities?**
- ( ) Yes
- ( ) No
- **Do the technical experts participate in national and international standardization forums?**
- ( ) Yes
- ( ) No
- **Are recognized International Standards used to assess the compliance of medical devices with the essential principles of safety and performance?**
- ( ) Yes
- ( ) No
    - ( ) If yes, indicate which standards are used among the options in the attached Excel

spreadsheet. See above, the instructions to fill out the form.

- **Is the use of international standards voluntary or mandatory?**
- ( ) Voluntary
- ( ) Mandatory
- **Are you aware of the standard ISO 16142-1 Recognized essential principles of safety and performance of medical devices?**
- ( ) Yes
- ( ) No
- **Are you aware of the standard ISO 16142-2 Recognized essential safety and performance principles of medical devices (In Vitro Diagnostic Medical Device)?**
- ( ) Yes
- ( ) No

Google Forms

LATIN AMERICAN ALLIANCE FOR THE DEVELOPMENT OF IN VITRO DIAGNOSTICS

ALADDIV

Project: RECOGNITION OF INTERNATIONAL STANDARDS APPLIED TO MEDICAL DEVICES IN LATIN AMERICAN COUNTRIES

Name of the institution:

Introduction

The international standards ISO 16142-1 and ISO 16142-2 (Recognized Essential Principles of Safety and Performance of Medical Devices) refer to different standards that can be used in the assessment of conformity of a medical device. This questionnaire identifies significant standards that were selected in accordance with their importance. Please, choose between the options below which are used and recognized by your country for regulatory purposes. If different standards are used to show the conformity with the essential principles of safety and performance of medical devices, we request that you mark the "Others" field.

International Standards

- **As a regulatory requirement, are the international technical standards described below used as a benchmark in the safety and performance of medical devices?**
- [ ] ISO 13485, Medical devices — Quality management systems — Requirements for regulatory purposes
- [ ] ISO 14971, Medical devices — Application of risk management to medical devices
- [ ] IEC 80001-1, Application of risk management for IT-networks incorporating medical devices — Part 1: Roles, responsibilities and activities
- [ ] ISO 14155, Clinical investigation of medical devices for human subjects — Good clinical practice
- [ ] IEC 62366-1, Medical devices — Part 1: Application of usability engineering to medical devices
- [ ] IEC 60601-1-2, Medical electrical equipment — Part 1-2: General requirements for basic safety and essential performance — Collateral standard: Electromagnetic compatibility — Requirements and tests
- [ ] IEC 60601-1, Medical electrical equipment — Part 1: General requirements for basic safety and essential performance
- [ ] ISO 11607 (all parts), Packaging for terminally sterilized medical devices
- [ ] ISO 18113 (all parts), In vitro diagnostic medical devices — Information supplied by the manufacturer (labelling)
- [ ] ISO 23640, In vitro diagnostic medical devices — Evaluation of stability of in vitro diagnostic reagents
- [ ] ISO 15223-1, Medical devices — Symbols to be used with medical device labels, labelling and information to be supplied — Part 1: General requirements
- [ ] IEC 60417, Graphical symbols for use on equipment
- [ ] IEC 60878, Graphical symbols for electrical equipment in medical practice
- [ ] ISO 7010, Graphical symbols — Safety colours and safety signs — Registered safety signs
- [ ] ISO 10993 (all parts), Biological evaluation of medical devices
- [ ] ISO/IEC 15026 (all parts), Systems and software engineering — Systems and software assurance
- [ ] ISO 14644 (all parts), Cleanrooms and associated controlled environments
- [ ] ISO 11135 (all parts), Sterilization of health-care products — Ethylene oxide — Requirements for the development, validation and routine control of a sterilization process for medical devices
- [ ] ISO 11137 (all parts), Sterilization of health care products — Radiation
- [ ] ISO 14160, Sterilization of health care products — Liquid chemical sterilizing agents for single-

use medical devices utilizing animal tissues and their derivatives — Requirements for characterization, development, validation and routine control of a sterilization process for medical devices

- [ ] ISO 14937, Sterilization of health care products — General requirements for characterization of a sterilizing agent and the development, validation and routine control of a sterilization process for medical devices
- [ ] ISO 17664, Sterilization of medical devices — Information to be provided by the manufacturer for the processing of resterilizable medical devices
- [ ] ISO 25424, Sterilization of medical devices — Low temperature steam and formaldehyde — Requirements for development, validation and routine control of a sterilization process for medical devices
- [ ] ISO 17665 (all parts), Sterilization of health care products — Moist heat
- [ ] ISO 20857, Sterilization of health care products — Dry heat — Requirements for the development, validation and routine control of a sterilization process for medical devices
- [ ] Other

Annex II

AWARENESS-RAISING SESSION HELD DURING "VII MEETING OF REGULATORY AUTHORITIES TO STRENGTHEN THE REGULATORY CAPACITY OF MEDICAL DEVICES IN THE REGION OF THE AMERICAS" / CANADA – REPORT

VII Meeting of Regulatory Authorities to Strengthen the Regulatory Capacity of Medical Devices in the Region of the Americas

Open Meeting - Ottawa - Canada
September 2017

PROGRAM

21 de septiembre/ *september 21/21 de setembro*	Temas de la agenda *Topics* Temas
8:30 - 9:00	Inscripción en el Taller *Workshop Registration* Inscrição no Workshop
9:00 - 9:15	Bienvenida, Introducción y revisión de la Agenda *Welcome, Introductions and Review of Workshop Schedule* Boas Vindas, Introduções e revisão da Agenda *Alexandre Lemgruber –PAHO*
9:15 - 9:45	El uso de Dispositivos Médicos en Programas de Salud Pública *The Use of Medical Devices in Public Health Programs* O Uso de Dispositivos Médicos em Programas de Saúde Pública Rosanna Peeling, IDC / LSHTM
9:45 - 10:00	Q&A
10:00 - 10:30	Modelo Global de Marco Regulatorio de la OMS para Dispositivos Médicos. *WHO Global Model Regulatory Framework for Medical Devices* Modelo Regulatório Global da OMS para Dispositivos Médicos Mike Ward – WHO
10:30 - 10:45	Discusión Discussion Discussão
10:45 - 11:00	Intervalo / Break
11:00 - 11:30	*Asian Harmonization Working Party Playbook* Jeong Rim Lee – AHWP / ASEAN
11:30 - 11:45	Q&A
11:45 - 12:30	Regulación sobre Dispositivos Médicos en las Américas. La Perspectiva de los Reguladores. La experiencia de COFEPRIS, México y de la DNM, El Salvador *Medical Devices Regulations in the Americas - The Regulators' Perspective The experience of COFEPRIS, Mexico and DNM, El Salvador* Regulação de Dispositivos Médicos na Américas. A Perspectiva dos Reguladores. A experiência da COFEPRIS, México e da DNM, El Salvador COFEPRIS – Norma Morales DNM – Jose Coto
12:30 - 12:45	Q&A
12:45 - 13:45	Almuerzo – Lunch - Almoço
13:45 - 4:15	Regulación sobre Dispositivos Médicos en las Américas. La Perspectiva de los fabricantes. *Medical Devices Regulations in Americas - The Manufacturers' Perspective* Regulação de Dispositivos Médicos nas Américas. A Perspectiva dos Fabricantes Nicole Taylor Smith – Johnson & Johnson
14:15 - 14:30	Q&A
14:30 - 15:15	Uso de normas para fines reglamentarios. La experiencia de EEUU (TBD) / La experiencia de Cuba *Use of Standards for Regulatory Purposes. The experience of USA. The experience of Cuba* Uso de normas para fins regulatórios. A experiência dos Estados Unidos. A experiência de Cuba Sheron Lapalaning – CDRH – FDA Dulce Maria Martinez – CECMED -CUBA
15:15 - 15:30	*Q&A*

15:30 - 15:45	Intervalo / Break
15:45 - 16:15	Encuesta Standards Alliance *Standards Alliance Survey* Pesquisa Standards Alliance Carlos Gouvêa – ALADDIV
16:15 - 16:30	*Q&A*
16:30 - 17:00	Revisión de la Sesión y Próximos Pasos. *Session Review and Next Step* Revisão da Sessão e Próximos Passos Alexandre Lemgruber – PAHO
17:00 - 18:00	Networking Reception

EXECUTIVE SUMMARY

The VII Meeting of Regulatory Authorities to Strengthen the Regulatory Capacity of Medical Devices in the Region of the Americas took place in Ottawa, Canada, on September 21 and 22, 2017. The event succeeded the 12th Meeting of the Management Committee of the International Medical Device Regulators Forum (IMDRF), a forum that brings together regulatory authorities from various countries, including Australia, Canada, China, Japan and Brazil.

The event, organized by PAHO, was supported by the Government of Colombia, through its regulatory authority - INVIMA, of the United States Government, through the US Agency for International Development - USAID in the Standards Alliance project, in addition to ADVAMED, ALDIMED and ALADDIV. It was attended by representatives of authorities from 18 countries of the Americas, including Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Cuba, Ecuador, El Salvador, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Trinidad and Tobago and Uruguay. The lectures addressed topics related to the regulation of medical devices and allowed the exchange of information among participants.

During the event, the project "Recognition of International Standards Applicable to Medical Devices in Latin American Countries" was presented by ALADDIV. The results of this project will be added to other actions that are being conducted at the regional level to expand the population's access to new technologies of health care.

INTRODUCTION

Between September 21 and 22, representatives of 18 countries met at the 7th Meeting of Regulatory Authorities to Strengthen the Regulatory Capacity of Medical Devices in the Region of the Americas. The following countries from the Americas region participated: Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Cuba, Ecuador, El Salvador, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Trinidad and Tobago and Uruguay.

In addition to regulatory authorities (Americas and other regions), representatives of associations and non-governmental organizations working in the field of medical devices participated in the first day of discussions.

The event was supported by the Standards Alliance project.

OPENING

The event was opened by Mr. Alexandre Lemgruber, representative of the Pan American Health Organization (PAHO). After welcoming the guests and participants, he thanked the various supports received, among them, the Government of Colombia, through its regulatory authority; to the U.S. Government through its USAID international cooperation agency; Health Canada; ADVAMED, and representatives of the private sector, including ALADDIV and ALDIMED.

Mr. Steven Bipes, AdvaMed representative, then gave a brief explanation of the material made available to participants, including:

1. Draft of the document "Good regulatory practices: guidelines for national regulatory authorities for medical products" - WHO;

2. WHO Global Model Regulatory Framework for Medical Devices including in vitro diagnostic medical devices;

3. ISO 16142-1 - "Medical Device - Recognized essential principles of safety and performance of medical devices" Part 1 - General essential principles and additional essential principles for all non IVD medical device and guidance on the selection of standards;

4. ISO 16142-2 - "Medical Device - Recognized essential principles of safety and performance of medical devices" Part 2 General principles and additional specific essential principles for all IVD medical device and guidance on the selection of standards;

5. Playbook for Implementation of Medical Device Regulatory Framework - AHWP.

SPEECHES

WHO GLOBAL REGULATORY MODEL FRAMEWORK FOR MEDICAL DEVICES INCLUDING IVDS MEDICAL DEVICES

Speakers: Mike Ward, WHO and Agnez S. Kijo, Pan-Africa Organization Working Group and Authority of Tanzania for Medical Devices.

Mr. Mike Ward gave a brief explanation of the objectives of the "WHO Global Framework for Regulatory Framework for Medical Devices", which applies to countries that need to implement or strengthen their regulatory framework.

Mrs. Agnez S. Kijo contextualized the decision on the development of a regulatory framework for medical devices, discussed during a WHO meeting in 2007, culminating in the publication of the WHO Global Model Regulatory Framework for Medical Devices, including in vitro diagnostic medical devices. The document is intended to support member states that wish to implement regulatory controls or improve controls already implemented.

Ms. Agnez highlighted the WHO study conducted in 2016 which shows, in a sample of 194 countries, that 58% of countries have control of marketed medical devices.

The lecture presented the gradual approach proposed by WHO for the global model, based on two distinct levels: a basic and an advanced level. The controls for each of the levels were presented.

THE USE OF MEDICAL DEVICES IN PUBLIC HEALTH PROGRAMMES

Speaker: Rosanna Peeling, IDC/LSHTM.

Mrs. Peeling gave a presentation that addressed the global public health crisis, the importance of regulation, and the importance of developing new technologies capable of meeting new health demands.

It also addressed the Microbial Resistance "epidemic", the priority actions established by WHO for the theme, and the need for joint work involving not only regulators.

He stressed that the innovation process should be encouraged, existing standards should be worked on seeking convergence and harmonization in order to obtain safe and effective products without any regulatory barriers.

ASIAN HARMONIZATION WORKING PARTY PLAYBOOK

Speaker: Jeong Rim Lee, AHWP – Korea MFDS.

Mrs. Jeong Lee spoke on the "Asian Harmonization Working Party", a group that aims to accelerate the process of harmonizing the regulation of medical devices in the region. She introduced the "Asian Harmonization Working Party Playbook - For Implementation of Medical Device Regulatory Frameworks", published by AHWP in 2015. The document presents regulatory requirements applicable to medical devices throughout their life cycle. This document can be used as a reference for the design of regulatory structures and capacity building, in addition to presenting a phased implementation plan.

The Korean experience in training and regulatory harmonization was presented. Topics related to risk classification and ISO 13485 were also discussed.

REGULATION ON MEDICAL DEVICES IN LATIN AMERICA the perspective of REGULATORS. THE EXPERIENCE OF COFEPRIS (MEXICO) AND DNM (EL SALVADOR)

Speakers: Norma Morales, COFEPRIS – México and Jose Vicente Coto, DNM – El Salvador.

Ms. Morales spoke on Techno vigilance of medical devices in Mexico, presenting its history since 1991, its legal framework and the different actors involved in the activities of Techno vigilance. She presented the system of notification used by the institution and the supplement of medical devices of the Mexican Pharmacopoeia that establishes sanitary specifications and methods of analysis that allow the proof of the quality of products.

She mentioned that this document is constantly updated and that, legally, it is equivalent to a standard. Updates of the pharmacopoeia (medical device supplement) are performed by a permanent committee composed of academia, industry and regulators.

Mr. Jose Coto presented the regulatory control performed in the country, citing the controls carried out by the Quality Control Laboratory and the procedures for registering products. He stressed the difficulty of implementing controls in a country that has products in circulation. He reported that they hold monthly events to disclose regulatory requirements.

The quality control laboratory conducts tests on some product categories, such as syringes, needles, catheters, and surgical gloves.

REGULATION OF MEDICAL DEVICES - THE MANUFACTURERS' PERSPECTIVE

Speaker: Nicole Taylor Smith, Johnson & Johnson.

Ms. Taylor Smith addressed, among other topics, the benefits and importance of mutual and continuous collaboration with regulators and the paradigm of how to regulate properly, protecting patients and allowing their access to new technologies.

She emphasized the importance of good regulatory practices, citing the WHO document in a public consultation "Good Regulatory Practices: Guidelines for National Regulatory Authorities," she also pointed out that inefficient regulatory systems may represent a barrier to patients' access to safe, effective and quality medical devices.

A harmonized approach that can be applied to different jurisdictions reduces the time to market products. She emphasized the importance of information sharing on adverse events across multiple jurisdictions and the benefits of harmonization for industry, reducing financial expenditures resulting from the need to meet regulatory requirements for marketing product in different countries.

USE OF STANDARDS FOR REGULATORY PURPOSES

Speaker: Steven Bipes, AdvaMed

Mr. Bipes presented documents ISO 16142-1 - "Medical Device - Recognized essential principles of safety and performance of medical devices" Part 1 - General essential principles and additional specific essential principles for all non IVD medical device and guidance on the selection of standards and ISO 16142-2 - "Medical Device - Recognized essential principles of

safety and performance of medical devices" Part 2 General principles and additional specific essential principles for all IVD medical devices and guidance on the selection of standards.

He mentioned that the research being conducted by ALADDIV is a way of understanding the relationship between regulators and standardization organizations in each country and how these standards are or can be used to regulate medical devices in the region.

He stressed the importance of the participation of regulators in standardization committees and the importance of using international standards as the basis for national regulations.

He informed attendees about the "Standards Alliance" project that aims to promote good regulatory practices, regulatory convergence and the use of international standards for regulatory purposes.

USE OF STANDARDS FOR REGULATORY PURPOSES - THE UNITED STATES EXPERIENCE

Speaker: Sharon Lappalainen , CDRH – FDA.

Ms. Lappalainen presented the process of recognition of technical standards for regulatory purposes by the American government. She highlighted the advantages of using voluntary consensus standards, enabling efficient and transparent regulation of medical devices.

USE OF STANDARDS FOR REGULATORY PURPOSES - THE CUBA EXPERIENCE

Speakers: Dulce Maria Martinez and Yadira Alvarez Rodríguez, CECMED – Cuba.

Ms. Martinez presented the experience of Cuba with the use and technical standards for regulatory purposes. Ms. Rodríguez mentioned that in Cuba standards are used for the evaluation of medical devices and presented the list of technical standards recognized by Cuba.

Ms. Martinez emphasized that the Cuban regulatory authority participates in the elaboration of norms. The medical device standardization committee has been in existence for 20 years.

Ms. Martinez said that the standardization program has prioritized the internationalization of horizontal standards.

ANVISA EXPERIENCE IN THE IMPLEMENTATION OF IMPLANTS NOMENCLATURE AND HARMONIZATION

Speaker: Mônica Cristina Figueiredo Duarte, ANVISA – Brazil.

Ms. Duarte presented actions implemented by ANVISA since 2015 due to problems with orthoses and prostheses and special materials, among them, the revision of the regulatory framework and the creation of the "National Registry of Implants", which used as a reference the GMDN nomenclature. She also mentioned that there is a proposal to expand the model to other products.

STANDARDS ALLIANCE SURVEY

Speaker: Carlos Gouvêa, ALADDIV – Brazil.

Mr. Carlos presented to the attendees about ALADDIV and its objectives, among them, the support of regulatory convergence to promote predictability and cooperation among the countries of the Americas. He presented the project "RECOGNITION OF INTERNATIONAL STANDARDS APPLIED TO MEDICAL DEVICES IN COUNTRIES OF LATIN AMERICA", which seeks to identify technical standards used in the countries. In a first step, the study will be focused on four countries, Mexico, Peru, Colombia and Costa Rica. Subsequently, the study will be expanded.

NEXT STEPS

Mr. Alexandre Lemgruber - PAHO commented that the event was attended by 50 participants (30 regulators and 13 from the private sector). He stressed the high level of presentations and discussions, contributing to the exchange and strengthening of the regulatory capacities of the participating countries.

LIST OF PARTICIPANTS / INSTITUTION

Name	Institution
A. Michele Morgan-Evans	MOH, Jamaica
Sonia Marisol Delgado	DIGEMID - Peru
Julia Griselda Sarmiento Sobrino	DIGEMID - Peru
Julio Américo Salas Carnero	DIGEMID - Peru
Joffre Moraes	ABIMO - Brazil
Carlos Goulart	ABIMED - Brazil
Veronica Hernández S.	Becton Dickson México
Juan Carlos Aguirre Galvez	Becton Dickson México
Marisol Sanchez G.	ANDI- Colombia
Agnez S. Kijo	PAHWP/TFDA
Patience Dabula	PAHWP
Nicole Taylor Smith	Johnson & Johnson
Sandra Moreira Dalberto	Johnson & Johnson
Phil Steinbor	MEDTRONIC
Baynsn Medrano	MINSA- Nicarágua
Janelle Ettienne Cummings	Ministry of Health - Chemistry Food and Drugs Division
Sookyeong Shin	Korea MFDS
Jeong-Rim Lee	Korea MFDS
Chumjleenn Lee	Korea MFDS
Mariela Becerra Ayala	Bolivia
Yadira Alvarez Rodríguez	CECMED - Cuba
Dulce María Martínez Pereira	CECMED - Cuba
María Fernanda Mora F.	ARCSA - Ecuador
Ana Kuster	Ministério Salud Uruguay
Humberto Olarte Cupus	Ministério de Salud Panamá
Mônica C. A. Figueiredo	ANVISA -Brasil
Annabel González Carmona	COFEPRIS
Christian J. Garnica Vergara	COFEPRIS
Jose Coto	DNM - El Salvador
Maria Auxiliadora Vargas	Dirección Nacional de Vigilancia Sanitaria - Paraguay

Annex III

INFORMATION RELATED TO THE PERUVIAN REGULATORY SYSTEM

INFORMATION RELATED TO THE PERUVIAN REGULATORY SYSTEM

I. REGULATORY AUTHORITY

DIGEMED - General Directorate of Drugs, Supplies and Drugs.

II. LEGISLATION

	Peru	Normative
Operating authorization of the company	YES	Law nº 29459-2009
Premarket authorization	YES	Law nº 29459-2009 Supreme Decree nº 016-2011-SA
Import Controls	YES	Supreme Decree nº 016-2011-SA and Supreme Decree nº 001-2012-SA
Post-market surveillance	YES (Peruvian Pharmacovigilance and Techno vigilance System)	Law nº 29459-2009
Use of international standards for regulatory purposes	Among the requirements for the registration of medical devices is the need to follow the quality parameters according to the current ISO and safety standards established by the FDA, European Community or other international recognition document.	Supreme Decree 16-2011-SA

Source: ALLADIV

III. REGULATORY CAPACITY

The Supreme Decree No. 149-2005-EF, Provisions governing the Agreement on Technical Barriers to Trade in the area of goods and the General Agreement on Trade in Services in the WTO, provides that projects of technical regulations and measures adopted affecting trade of goods and services must be published in the Official Gazette "El Peruano" or on the web page of the sector that prepares them, and that the project Technical Regulation must remain on the electronic link for at least 90 (ninety) calendar days, counted from the publication of the Ministerial Resolution of the corresponding sector in the Official Gazette "El Peruano".

No information was found regarding the dissemination of responses to the suggestions sent to the standard in public consultation. The release of public comments is a recommendation of the OECD study on regulatory reform "Regulatory Policy in Peru - UNITING THE FRAMEWORK FOR REGULATORY QUALITY[24]". Another recommendation of the study concerns the need to establish a system of regulatory impact assessment as part of its administrative process. No legislation has been identified that addresses the issue.

IV. MEDICAL DEVICES ESTABLISHMENTS (MANUFACTURERS / IMPORTERS / AUTHORIZED REPRESENTATIVES / DISTRIBUTORS)

No data were found regarding the existence of local production of medical devices.

Supreme Decree No. 16-2011-AS provides for the presentation of the certificate of good practices of domestic or foreign manufacture issued by the National Authority for Pharmaceutical Products, Medical Devices and Sanitary Products or a document that accredits compliance with quality standards specific to medical devices such as ISO 13485, FDA or other standards according to the level of risk issued by the competent authority or entity in the country of origin. Among the regulations available for consultation on DIGEMID's website (http://www.digemid.minsa.gob.pe/main.asp?Seccion=933), no specific regulation on good manufacturing practices was identified.

V. PRODUCT CONTROL

Medical devices are defined as:

Any *in vitro* instrument, apparatus, implement, machine, reagent or calibrator, computer application, material or other similar related article provided by the manufacturer for use in humans, alone or in combination, for one or more of the following specific purposes:

- Diagnosis, prevention, monitoring, treatment or relief of a disease.
- Diagnosis, monitoring, treatment, relief or compensation of an injury.

[24] https://www.oecd.org/gov/regulatory-policy/Poli%CC%81tica-Regulatoria-en-el-Peru%CC%81-aspectos-clave.pdf

- Research, replacement, modification or support of anatomy or a physiological process.
- Support or maintenance of life.
- Design control
- Disinfection of medical devices[25].

***In vitro* diagnostic reagents are defined as:**

Products intended by the manufacturer for the examination of samples derived from the human body, used alone or in combination for the *in vitro* examination of samples, mainly to:

- Provide information about a physiological or pathological condition or congenital anomaly.
- Monitor or determine security and compatibility with a potential receiver.
- Supervise therapeutic measures applied[26].

The legislation applicable to pre-market authorization for the commercialization of non-IVD Medical Devices is provided in Supreme Decree No. 016-2011-SA. Products are classified according to their risk in:

- CLASS I: LOW RISK - Subject to general controls.
- CLASS II: MODERATE RISK - Special controls at the manufacturing stage.
- CLASS III: HIGH RISK - special controls on design and manufacturing.
- CLASS IV: RISK CRITICAL - special controls in design and throughout the manufacturing process to demonstrate their safety and efficacy.

In April 2017, Ministerial Resolution No. 234-2017 / MINSA published the draft regulation establishing the classification rules and essential principles of safety and performance of medical devices. The final version of the regulation, after the finalization of the public consultation, has not yet been published.

[25] Law nº 29459-2009 - Law on pharmaceuticals, medical devices and sanitary products.
[26] http://www.digemid.minsa.gob.pe/main.asp?Seccion=933

The legal basis for the pre-market authorization for the commercialization of IVD Medical Devices is provided in Supreme Decree No. 010-97-SA and in Supreme Decree No. 020-2001-SA. Ministerial Resolution No. 283-98-SA / DM classifies the reagents for clinical diagnosis in:

- Used in hematology - pathology
- Used in immunology
- Used in nuclear medicine
- Used for chemical and biochemical dosages
- Used for serological dosages
- Used for toxicological dosages

VI. INTERNATIONAL STANDARDS

No legal provision was identified for the elaboration of regulations to use, as a matter of priority, existing international standards.

Annex IV

INTERNATIONAL STANDARDS ORGANIZATIONS AND COMMITTEES FOR MEDICAL TECHNOLOGY STANDARDIZATION

INTERNATIONAL STANDARDS ORGANIZATIONS AND COMMITTEE FOR MEDICAL TECHNOLOGY STANDARDIZATION

There are many international organizations that develop standards for use by both the private and public sector including regulators. These organizations vary by sector, structure, and granularity of membership and voting.

One type of international standards body is that with membership and voting at the national level – one per country. A non-exhaustive list of examples of this type of standards body are:

- The International Organization for Standardization (ISO)
- The International Electrotechnical Commission (IEC)

Another type of international standards organization is one with a finer granularity of membership and voting, for example at the organization or professional technical expert level. A non-exhaustive list of examples of this type of standards body are:

- AAMI – Association for the Advancement of Medical Instrumentation
- ASTM International
- CLSI – Clinical Laboratory and Standards Institute

The World Trade Organization Committee on Technical Barriers to Trade adopted a set of principles to which an organization engaged in the development of international standards must comply. These principles are codified in document "G/TBT/ 1/REV. 8. Section IX," titled Decisions and Recommendations Adopted by the Committee Since January 1, 1995".[27]

[27] https://docs.wto.org/dol2fe/Pages/FE_Search/ExportFile.aspx?id=63749&filename=Q/G/TBT/1R8.pdf

The participation in technical committees in ISO and IEC is by country. The ISO website[28] and ISO members page[29] include the criteria for participating in ISO technical committees. The IEC website[30] and ISO members page[31] includes the criteria for participating in IEC technical committees.

A country's ISO or IEC member body may be either a private sector entity, a government entity, or a hybrid public-private entity. However, per the WTO/TBT criteria, international standards organizations, including ISO National Standards Bodies (NSBs) and IEC National Committees (NCs), must allow open participation by all materially affected stakeholders, including, but not limited to, government ministries and regulatory agencies as well as representatives of industry, consumer groups and academia.

ISO and IEC member bodies maintain national 'mirror' committees that correspond to the 'parent' ISO/IEC committees. These mirror committees develop the national positions regarding the work of the corresponding parent committee (and standards) and should be comprised of relevant stakeholders for that particular standardization subject. Lack of participation of relevant stakeholders in a national standards committee, including a mirror committee, can lead to the divergence of a country's standards with international standards.

[28] https://www.iso.org
[29] https://www.iso.org/members.html
[30] http://www.iec.ch
[31] http://www.iec.ch/dyn/www/f?p=103:5:0##ref=menu

ISO & IEC

ISO 16142-1 (non-IVD) and ISO 16142-2 (IVD) are international standards developed and recognized by the international community as a benchmark defining the list of standards that should be used for medical device regulatory purposes. These documents reference hundreds of standards from ISO and IEC as well as from other international standards organizations as follows:

AAMI	2
ASTM	3
CLSI	6
EN	6
IEC	239
IEEE	4
ISO	396
Total	656

The table below lists the primary ISO and IEC committees responsible for the development of standards that can be used by medical device manufacturers to demonstrate compliance of medical devices with the essential requirements of safety and performance, according to ISO 16142-1 and ISO 16142-2.

ISO Technical committees	
ISO/TC 150/SC 1	Implants for surgery
ISO/TC 170	Surgical instruments
ISO/TC 194/WG 2	Biological and clinical evaluation of medical devices
ISO/TC 209/WG 4	Cleanrooms and associated controlled environments
ISO/TC 69/SC 5	Applications of statistical methods
ISO/TC 84/SC 1/WG 1	Devices for administration of medicinal products and catheters
ISO/IEC/JTC 1/SC 7	Information technology
ISO/TC 106	Dentistry
ISO/TC 12	Quantities and units

ISO/TC 121	Anaesthetic and respiratory equipment
ISO/TC 121/SC 1	Breathing attachments and anaesthetic machines
ISO/TC 121/SC 2	Airways and related equipment
ISO/TC 121/SC 3	Respiratory devices and related equipment used for patient care
ISO/TC 121/SC 4	Vocabulary and semantics
ISO/TC 121/SC 6	Medical gas supply systems
ISO/TC 121/SC 8	Suction devices
ISO/TC 145/SC 2	Graphical symbols
ISO/TC 150	Implants for surgery
ISO/TC 168	Prosthetics and orthotics
ISO/TC 170	Surgical instruments
ISO/TC 194	Biological and clinical evaluation of medical devices
ISO/TC 198	Sterilization of health care products
ISO/TC 209	Cleanrooms and associated controlled environments
ISO/TC 210	Quality management and corresponding general aspects for medical devices
ISO/TC 212	Clinical laboratory testing and *in vitro* diagnostic test systems
ISO/TC 215	Health Informatics
ISO/TC 61/SC 5	Plastics
ISO/TC 69	Applications of statistical methods
ISO/TC 76	Transfusion, infusion and injection, and blood processing equipment for medical and pharmaceutical use
ISO/TC 84	Devices for administration of medicinal products and catheters
ISO/TC 94/SC 13	Personal safety -- Personal protective equipment

ISO/TC 94/SC 13	Environmental conditions, classification and methods of test
IEC Technical Committees and Subcommittees	
TC 91	Electronics assembly technology
SC 48B	Electrical connectors
TC 29	Electroacoustics
SC 62B	Diagnostic imaging equipment
SC 3C	Information structures and elements, identification and marking principles, documentation and graphical symbols
SC 62C	Equipment for radiotherapy, nuclear medicine and radiation dosimetry
SC 62A	Common aspects of electrical equipment used in medical practice
SC 62D	Electromedical equipment
TC 76	Optical radiation safety and laser equipment
TC 56	Dependability
TC 66	Safety of measuring, control and laboratory equipment
SC 65A	System aspects
TC 87	Ultrasonics
TC 25	Quantities and units
SC 62D	Electromedical equipment

AAMI

The Association for the Advancement of Medical Instrumentation (AAMI) is a nonprofit organization formed by approximately 7000 professionals. The AAMI standards program consists of over 100 technical committees and working groups that produce Standards, Recommended Practices, and Technical Information Reports for medical devices.

AAMI also manages international technical committees that develop international standards and administers U.S. technical advisory groups (TAGs) that participate in the development of international standards on behalf of the U.S. The international aspects of the AAMI standards program are governed by the policies and procedures of the International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC), and ANSI.

Through its national and international technical committees and advisory groups, AAMI plays a significant global role in the development of medical device standards[32].

More information:

Website: http://www.aami.org/index.aspx

Presentation by AAMI for the project:

https://na01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fshare.ansi.org%2FShared%2520Documents%2FStandards%2520Activities%2FInternational%2520Standardization%2FStandards%2520Alliance%2FAdvaMed%2520Regulatory%2520Coherence%2520and%2520Convergence%2520Project%2520for%2520the%2520Medical%2520Device%2520Sector%2FAAMI.pptx&data=02%7C01%7Csbipes%40advamed.org%7Ca6662144515c45adcb4b08d6549512ae%7C97eb9e6f7f7349c9a55d57aba9d88792%7C0%7C0%7C636789396582040689&sdata=G1TxjGvHfxg47U84adLrTLhsy8wROvXu49M5T%2FEk9F4%3D&reserved=0

[32] AAMI STANDARDS PROGRAM Policies and Procedures – 2018 (http://s3.amazonaws.com/rdcms-aami/files/production/public/FileDownloads/Standards/aamiproc.pdf)

ASTM International

The American Society for Testing and Materials (ASTM International) is a not-for-profit organization that provides a forum for the development and publication of international voluntary consensus standards for materials, products, systems and services. The volunteer members represent producers, users, consumers, government, and academia from more than 140 countries.

The ASTM Committee F04 on Medical and Surgical Devices was organized in 1962 and includes over 950 members from 31 countries This committee is composed of 24 subcommittees that address specific segments organized into 4 divisions:

Division I - Resourses

Division II – Orthopaedic Devices

Division III – Medical /Surgical Devices

Division IV – Tissue Engineered Medical Products

More information about the subcommittees can be found in
https://www.astm.org/COMMIT/SUBCOMMIT/F04.htm

The ASTM Committee F42 on Additive Manufacturing Technologies was organized in 2009 and includes over 600 members from 28 countries. This committee is composed of 6 subcommittees. There are 23 active standards and 15 draft proposed new standards that indirectly support the medical device community for additive manufacturing.

Memorandum of Understanding – ASTM

MOUs are designed to encourage the participation of technical experts from around the world in the ASTM standards development process and broaden the global acceptance and use of ASTM International standards.

As a benefit of the MOU program, technical experts from any country with an ASTM MOU can participate at no charge as full voting members in the ASTM standards development process. Access to ASTM standards is provided to the national standards body[33].

[33] https://www.astm.org/GLOBAL/mou.html

ASTM International has signed Memoranda of Understanding (MOU) with Latin American & Caribbean countries. The list of MOU signatories from these regions include:

Antigua and Barbuda	Haiti
Bahamas	Honduras
Barbados	Jamaica
Belize	Montserrat
Bolivia	Nicaragua
Chile	Panama
Colombia	Paraguay
Costa Rica	Peru
Dominica	Saint Kitts and Nevis
Dominican Republic	Saint Lucia
Ecuador	Saint Vincent and the Grenadines
El Salvador	Suriname
Grenada	Trinidad and Tobago
Guatemala	Uruguay
Guyana	

More information:

Website: https://www.astm.org/

Presentation by ASTM for the project:

https://na01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fshare.ansi.org%2FShared%2520Documents%2FStandards%2520Activities%2FInternational%2520Standardization%2FStandards%2520Alliance%2FAdvaMed%2520Regulatory%2520Coherence%2520and%2520Convergence%2520Project%2520for%2520the%2520Medical%2520Device%2520Sector%2FASTM.pptx&data=02%7C01%7Csbipes%40advamed.org%7Ca6662144515c45adcb4b08d6549512ae%7C97eb9e6f7f7349c9a55d57aba9d88792%7C0%7C0%7C636789396582050698&sdata=cvLYa0TV6mOoWG6QrowkUKkSOMnlKEYcdpcMitXH7Qo%3D&reserved=0

CLSI

The Clinical & Laboratory Standards Institute (CLSI) is a global standards development organization that promotes the development and voluntary use of consensus standards and guidelines. based on consensus. The institution has 1,400 organizations as institutional members and 400 individual members from more than 60 countries.

The CLSI documents focus on a variety of specialty areas, from laboratory basics to quality management systems, verification and validation, and information management.

The CLSI documents focus on a variety of areas of expertise, from lab basics to quality management, verification and validation, and information management systems.

The development of new standards is based on a consensus process that brings together industry, government and health professionals.

More information:

Website: https://clsi.org

Presentation by CLSI for the project:

https://na01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fshare.ansi.org%2FShared%2520Documents%2FStandards%2520Activities%2FInternational%2520Standardization%2FStandards%2520Alliance%2FAdvaMed%2520Regulatory%2520Coherence%2520and%2520Convergence%2520Project%2520for%2520the%2520Medical%2520Device%2520Sector%2FCLSI.pptx&data=02%7C01%7Csbipes%40advamed.org%7Ca6662144515c45adcb4b08d6549512ae%7C97eb9e6f7f7349c9a55d57aba9d88792%7C0%7C0%7C636789396582050698&sdata=v37n7BVVM5t493rbV3SGX3SoS9H9%2BHc5kvDV7mL%2FYmw%3D&reserved=0

PARTICIPATION OF COUNTRIES IN INTERNATIONAL STANDARDIZATION ORGANIZATIONS

COLOMBIA

ICONTEC – Instituto Colombiano de Normas Técnicas y Certificación

Organization delegated for the Colombian government for standardization process and technical-scientific advisory.

Website: http://www.icontec.org

Information about the development of standards:

https://portal.icontec.org/content/content-page/

Participation of ICONTEC in International Committees for Health

Committee	**Title**	**ICONTEC**	
		Participating Member	Observing Member
ISO/IEC JTC 1/SC7	Software and systems engineering		X
ISO/TC 198	Sterilization of health care products	X	
ISO/TC 229	Nanotechnologies	X	
ISO/TC 210	Quality management and corresponding general aspects for medical devices	X	
ISO/TC 212	Clinical laboratory testing and in vitro diagnostic test systems	X	
ISO/TC 276	Biotechnology	X	
ISO/TC 34/9	Microbiology	X	
ISO/TC 215	Health informatics		X
ISO/TC 84	Devices for administration of medicinal products and catheters		X

ICONTEC also has a Memorandum of Understanding with ASTM International.

COSTA RICA

INTECO – Instituto de Normas Técnicas de Costa Rica

Private association recognized by executive decree as the national standardization body.

Website: www.inteco.org

Information about the development of standards:

https://www.inteco.org/page/inteco.standards_development

Participation of INTECO in International Committees for Health

Committee	**Title**	**INTECO**	
		Participation Member	Observing Member
ISO/TC 150	Implants for surgery	X	

INTECO also has a Memorandum of Understanding with ASTM International.

MEXICO

DGN – Dirección General de Normas

DGN participates in the international organizations and other relevant fora to represent the interests of our national sectors and coordinates the development of National Regulations and Standards under its competence and registers National Standardization Bodies to issue standard[34].

Website: https://www.gob.mx/se/acciones-y-programas/standards

Information about the development of standards:

http://www.economia.gob.mx/files/comunidad_negocios/normalizacion/dgn/LFMNYREG-1.pdf

Participation of DGN in International Committees for Health

Committee	**Title**	**DGN**	
		Participation Member	Observing Member
ISO/IEC JTC 1/SC7	Software and systems engineering	x	
ISO/TC 210	Quality management and corresponding general aspects for medical devices	x	
ISO/TC 215	Health informatics	x	
ISO/TC 94/SC 13	Protective clothing	x	
TC 62/SC 62A	Common aspects of electrical equipment used in medical practice		x
TC 86	Fibre optics	x	
SC 65A	System aspects		x

[34] https://www.iso.org/member/1954.html (06/14/2018)

PERU

INACAL – Instituto Nacional de Calidad

Public entity, governing body and the highest technical authority of the National Quality System in Peru.

Website: https://www.inacal.gob.pe/

Information about the development of standards:

https://www.inacal.gob.pe/normalizacion/categoria/reglamentos-y-procedimientos-de-normalizacion

Participation of INACAL in International Committees for Health

Committee	Title	INACAL	
		Participation Member	Observing Member
ISO/IEC JTC 1/SC7	Software and systems engineering	X	
ISO/TC 198	Sterilization of health care products	X	
ISO/TC 212	Clinical laboratory testing and in vitro diagnostic test systems	X	
ISO/TC 215	Health informatics		X

INACAL also has a Memorandum of Understanding with ASTM International.

Annex V

HELPFUL RESOURCES

1. **The Bridge to Cooperation – Good Regulatory Design**
   Overview of Global Good Regulatory Practices, including:
   - *Global GRP Benchmark References*
   - *GRP Checklist*
   - *Regulatory Impact Assessment (RIA) Checklist*

   English
   https://www.uschamber.com/sites/default/files/good_regulatory_design_paper_-_4-24-2017_-_final.pdf

   Spanish
   https://share.ansi.org/Shared%20Documents/Standards%20Activities/International%20Standardization/Standards%20Alliance/Regulatory_Coherence_Convergence_Project_for_Medical_Device_Sector/Good_Regulatory_Design_Spanish.pdf

   Portuguese
   https://share.ansi.org/Shared%20Documents/Standards%20Activities/International%20Standardization/Standards%20Alliance/Regulatory_Coherence_Convergence_Project_for_Medical_Device_Sector/Good_Regulatory_Design_Portuguese.PDF

2. **World Health Organization – Global Model Regulatory Framework for Medical Devices including in vitro diagnostic medical devices**

   http://www.who.int/medical_devices/publications/global_model_regulatory_framework_meddev/en/

3. **Asia Harmonization Working Party (AHWP) – Playbook for Implementation of Medical Device Regulation Frameworks.**

   http://www.ahwp.info/index.php?q=node/497

4. **ISO 16142-1: 2016 – Medical devices -- Recognized essential principles of safety and performance of medical devices -- Part 1: General essential principles and additional specific essential principles for all non-IVD medical devices and guidance on the selection of standards.**

   https://www.iso.org/standard/63939.html

5. **ISO 16142-2: 2017 – Medical devices -- Recognized essential principles of safety and performance of medical devices -- Part 2: General essential principles and additional specific essential principles for all IVD medical devices and guidance on the selection of standards.**

https://www.iso.org/standard/63940.html

6. **IMDRF N47 – Essential Principles of Safety and Performance of Medical Devices and IVD Medical Devices.**

   http://www.imdrf.org/consultations/cons-epsp-n47.asp

7. **IMDRF N51 – Optimizing Standards for Regulatory Use**

   http://www.imdrf.org/consultations/cons-swg-optimising-standards-n51-180524.asp

Additional Information:

1. **IMDRF Recognized Standards**

   http://www.imdrf.org/workitems/wi-imdrfstandards.asp

2. **Standards – Medical Devices**

   https://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/Standards/default.htm