Perspectives of international organisations: World Health Organisation

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Simplerad

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Quality assurance for radiopharmaceuticals: The International Pharmacopoeia

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75 HEALTH FOR ALL

The world has made tremendous progress in improving global health compared to seventy-five years ago

Persistent global inequalities in access to health products and healthcare limits our collective ability of achieving good health and well-being for all

The UHC service coverage index (SDG indicator 3.8.1) increased from 45 in 2000 to 67 in 2019.[1]

Almost 2 billion people are facing catastrophic or impoverishing health spending (SDG indicator 3.8.2).[1]

Many health products in low-and middle-income settings are often of poor quality, unaffordable, poorly regulated, or unsafe, leading to **preventable morbidity and mortality**

Half of cancer patients in low and middle-income countries do not have access to radiotherapy[2]

"Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all" ***(SDG 3 target)***

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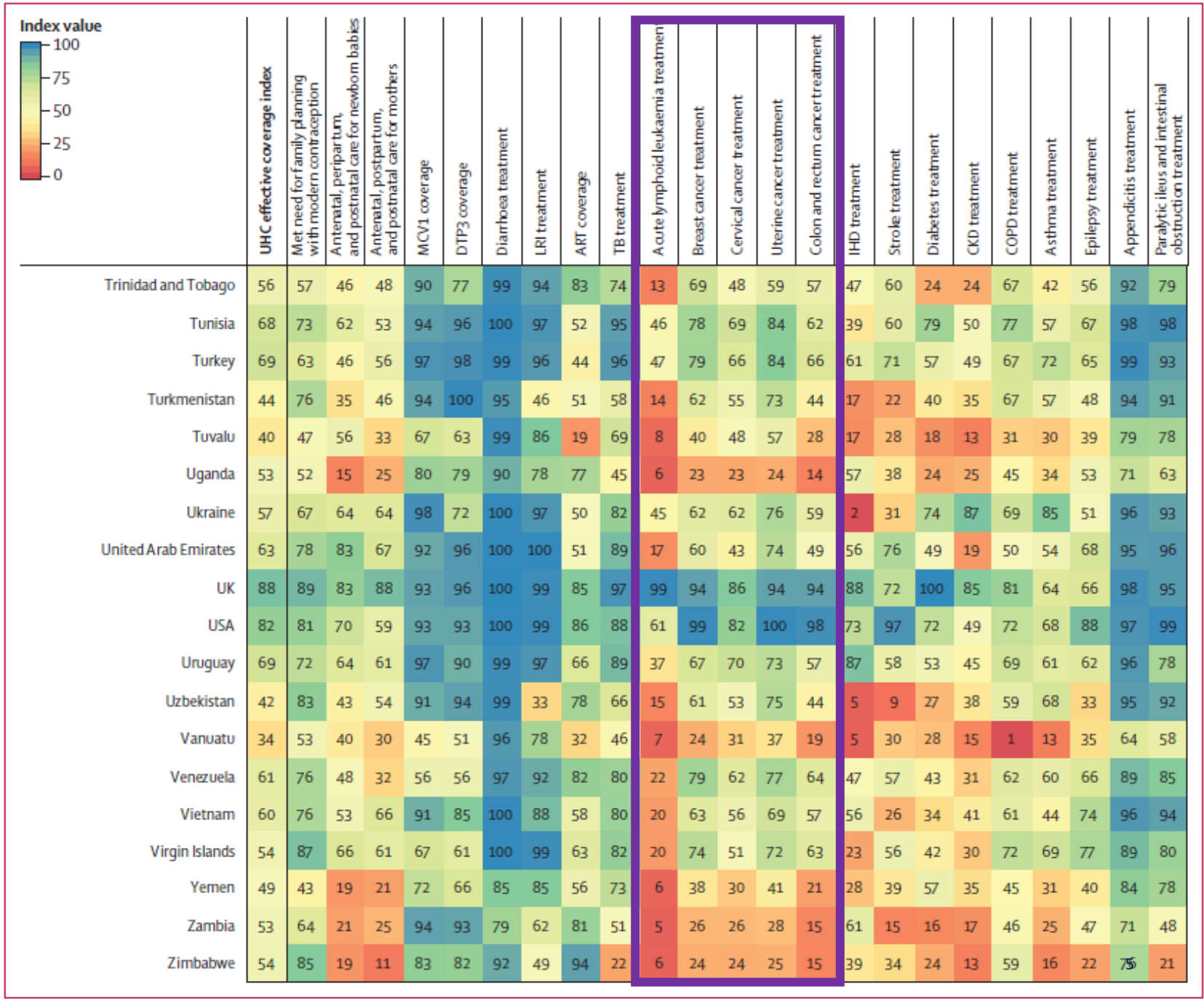
Persistent global inequalities in access to health products and healthcare disproportionately affect low-income settings



	UHC effective coverage index	Met need for family planning with modern contraception	Antenatal, peripartum, and postnatal care for newborn babies	Antenatal, postpartum, and postnatal care for mothers	MCV1 coverage	DTP3 coverage	Diarrhoea treatment	LRI treatment	ART coverage	TB treatment	Acute lymphoid leukaemia treatment	Breast cancer treatment	Cervical cancer treatment	Uterine cancer treatment	Colon and rectum cancer treatment	IHD treatment	Stroke treatment	Diabetes treatment	CKD treatment	COPD treatment	Asthma treatment	Epilepsy treatment	Appendicitis treatment	Paralytic ileus and intestinal obstruction treatment
Trinidad and Tobago	56	57	46	48	90	77	99	94	83	74	13	69	48	59	57	47	60	24	24	67	42	56	92	79
Tunisia	68	73	62	53	94	96	100	97	52	95	46	78	69	84	62	39	60	79	50	77	57	67	98	98
Turkey	69	63	46	56	97	98	99	96	44	96	47	79	66	84	66	61	71	57	49	67	72	65	99	93
Turkmenistan	44	76	35	46	94	100	95	46	51	58	14	62	55	73	44	17	22	40	35	67	57	48	94	91
Tuvalu	40	47	56	33	67	63	99	86	19	69	8	40	48	57	28	17	28	18	13	31	30	39	79	78
Uganda	53	52	15	25	80	79	90	78	77	45	6	23	23	24	14	57	38	24	25	45	34	53	71	63
Ukraine	57	67	64	64	98	72	100	97	50	82	45	62	62	76	59	2	31	74	87	69	85	51	96	93
United Arab Emirates	63	78	83	67	92	96	100	100	51	89	17	60	43	74	49	56	76	49	19	50	54	68	95	96
UK	88	89	83	88	93	96	100	99	85	97	99	94	86	94	94	88	72	100	85	81	64	66	98	95
USA	82	81	70	59	93	93	100	99	86	88	61	99	82	100	98	73	97	72	49	72	68	88	97	99
Uruguay	69	72	64	61	97	90	99	97	66	89	37	67	70	73	57	87	58	53	45	69	61	62	96	78
Uzbekistan	42	83	43	54	91	94	99	33	78	66	15	61	53	75	44	5	9	27	38	59	68	33	95	92
Vanuatu	34	53	40	30	45	51	96	78	32	46	7	24	31	37	19	5	30	28	15	1	13	35	64	58
Venezuela	61	76	48	32	56	56	97	92	82	80	22	79	62	77	64	47	57	43	31	62	60	66	89	85
Vietnam	60	76	53	66	91	85	100	88	58	80	20	63	56	69	57	56	26	34	41	61	44	74	96	94
Virgin Islands	54	87	66	61	67	61	100	99	63	82	20	74	51	72	63	23	56	42	30	72	69	77	89	80
Yemen	49	43	19	21	72	66	85	85	56	73	6	38	30	41	21	28	39	57	35	45	31	40	84	78
Zambia	53	64	21	25	94	93	79	62	81	51	5	26	26	28	15	61	15	16	17	46	25	47	71	48
Zimbabwe	54	85	19	11	83	82	92	49	94	22	6	24	24	25	15	39	34	24	13	59	16	22	75	21

Performance on the UHC effective coverage index and 23 effective coverage indicators, by location, in 2019. [3]

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Foreword in the Report to the First World Health Assembly in 1948
by A.STAMPAR, M.D, Chairman of the Interim Commission

WHO uses a differentiated approach to drive impact in every country and to achieve its mission

WHO's mission

Promote health – keep the world safe – serve the vulnerable

Strategic shifts

Stepping up leadership – diplomacy and advocacy; gender equality, health equity and human rights; multisectoral action; finance

Drive public health impact in every country – differentiated approach based on capacity and vulnerability

- **Policy dialogue** – to develop systems of the future
- **Strategic support** – to build high performing systems
- **Technical assistance** – to build national institutions
- **Service delivery** – to fill critical gaps in emergencies

Mature health system ⟷ Fragile health system

Focus global public goods on impact – normative guidance and agreements; data, research and innovation

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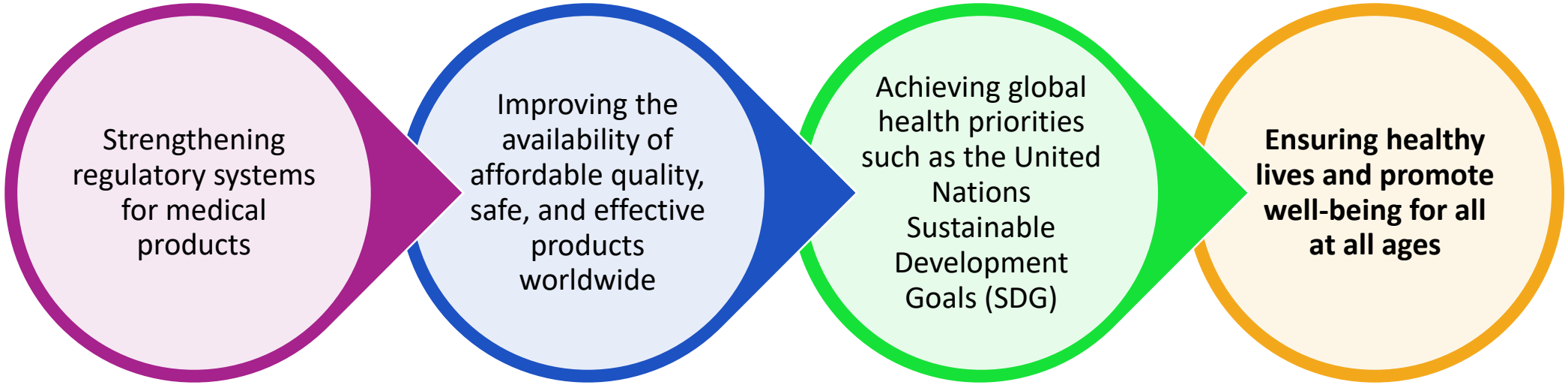
Robust regulatory systems facilitates equitable access to quality assured, safe and effective health products contributing to healthy lives and well-being for all everywhere



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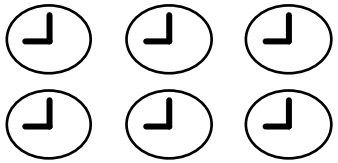
WHO Regulatory Activities focusing on access and outcomes that drives impact at country level

Technologies, Standards and Norms	Regulatory Systems Strengthening	Prequalification Programme	Safety & Vigilance
• Set global norms and standards (written & physical) and nomenclatures • Increase common understanding on regulatory requirements by authority and manufacturer • Standardize approach used by quality control labs	• Set effective and efficient regulatory systems in LMICs through collaborative & harmonized approaches with reliance principles • Increase confidence in medical products produced in LMICs	• Assure safety, quality, efficacy & appropriateness of medical products used in LMICs: vaccines, medical devices, cold chain equipment, vector control products & in vitro diagnostics • Increase competition to shape the market	• Increase knowledge of real life adverse events and coordinate actions taken against adverse events • Mitigate risks and protect against substandard / falsified products • Contain antimicrobial resistance

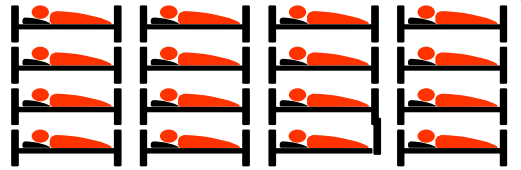
Decreased regulatory burden



Reduced time for regulation

Increased regulatory capacity in LMIC

Decreased cost of regulation



Reduced mortality and morbidity

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Adapted from Emer Cooke, 2019

(Article 2 (u) ..to develop, establish and promote international standards with respect to food, biological, pharmaceutical and similar products;

Key problems

- Different pharmacopoeia standards
- Quality and safety concerns
- < 60 countries covered by national or regional pharmacopoeia

Quality assurance activities

- Publish and maintain global quality standards
- Increased access to quality and safe medicines
- Facilitates international trade

Supports equitable access to quality assured medicines as part of universal health coverage and health for all

Constitutional mandate to establish norms and standards

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Results framework for norms and standards for health products linking the problems to the intended public health impact

Problem

1. **Lack of or poorly defined norms and standards for health products**, especially in LMICs contribute to (a) substandard or falsified products; (b) unsafe or ineffective products used in those settings, leading to ***preventable morbidity and mortality***.

2. Most LMICs **lack access to affordable quality** health products.

Inputs	Activities	Outputs	Outcomes	Impact
Available expertise and technical knowledge on health products and regulatory frameworks. 	Develop and update WHO (i) written standards, (ii) physical standards and technical specifications, and (iii)other relevant documents (implementation support materials, learning materials) through the Expert Committees.	**(a)** Updated WHO norms and standards	 1 **Introduction of, and increase in the number of quality products following WHO recommendations**	**Improved equitable access to safe, effective, quality and affordable health products for all populations, particularly those in low- and middle-income countries.** 
Funding and resources for developing, implementing, and monitoring norms and standards for health products. 	Disseminate and make the standards easily accessible to users	**(b)** Availability and accessibility of WHO norms and standards for health products	
Collaboration and partnerships with Member States, industry, civil society, and other stakeholders 	Advocate and communicate to increase awareness of WHO norms and standards for health products to key stakeholders.	**(c)** Advocacy and communication materials; **(d)** information sessions	 2 **Defined national standards that meet WHO recommendations**
Tools for efficient and effectively engaging, collaborating, and disseminating the standards for health products. 	Provide technical assistance and capacity building to Member States to implement WHO recommendations for health products.	**(e)** Trained competent personnel; **(f)** countries supported	

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Pharmacopoeias establish quality standards for pharmaceutical products, including radiopharmaceuticals ensuring their safe and effective use

Pharmacopoeias help to prevent **substandard or falsified medicines** from entering the market by setting **acceptable and appropriate quality standards** for pharmaceutical products.

Regulatory agencies use pharmacopoeias to **evaluate and approve** new medicines and **monitor the quality** of medicines already on the market.

Provide information on the **proper storage and handling** of medicines, which helps to ensure their effectiveness.

(1) not all countries or regions maintain or publish pharmacopoeias

(2) medicines that are a priority in other settings, such as neglected or tropical diseases, are not covered

(3) there is need to harmonize or unify the quality standards to streamline regulatory requirements

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The International Pharmacopoeia, published by WHO, provides a valuable resource, especially to countries that do not have public standards to control the quality of products in their market.

Aligns with Global health policies

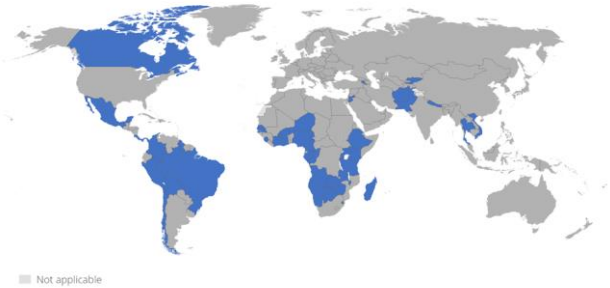
- WHO Model List of Essential Medicines
- WHO treatment guidelines
- Invitations to submit EOI for product evaluation to PQT-m

Use cases

- WHO Member States
- WHO Prequalification
- Response to COVID-19 and other emergencies

Outcomes

- Covers neglected diseases
- Specific dosage forms e.g., FDCs, child-friendly dosage forms
- Novel products, like COVID-19 therapeutics



More than 40 countries officially refer to the International Pharmacopoeia

WHO prequalification is used by UN agencies and all major global procurement agencies supplying to LMICs

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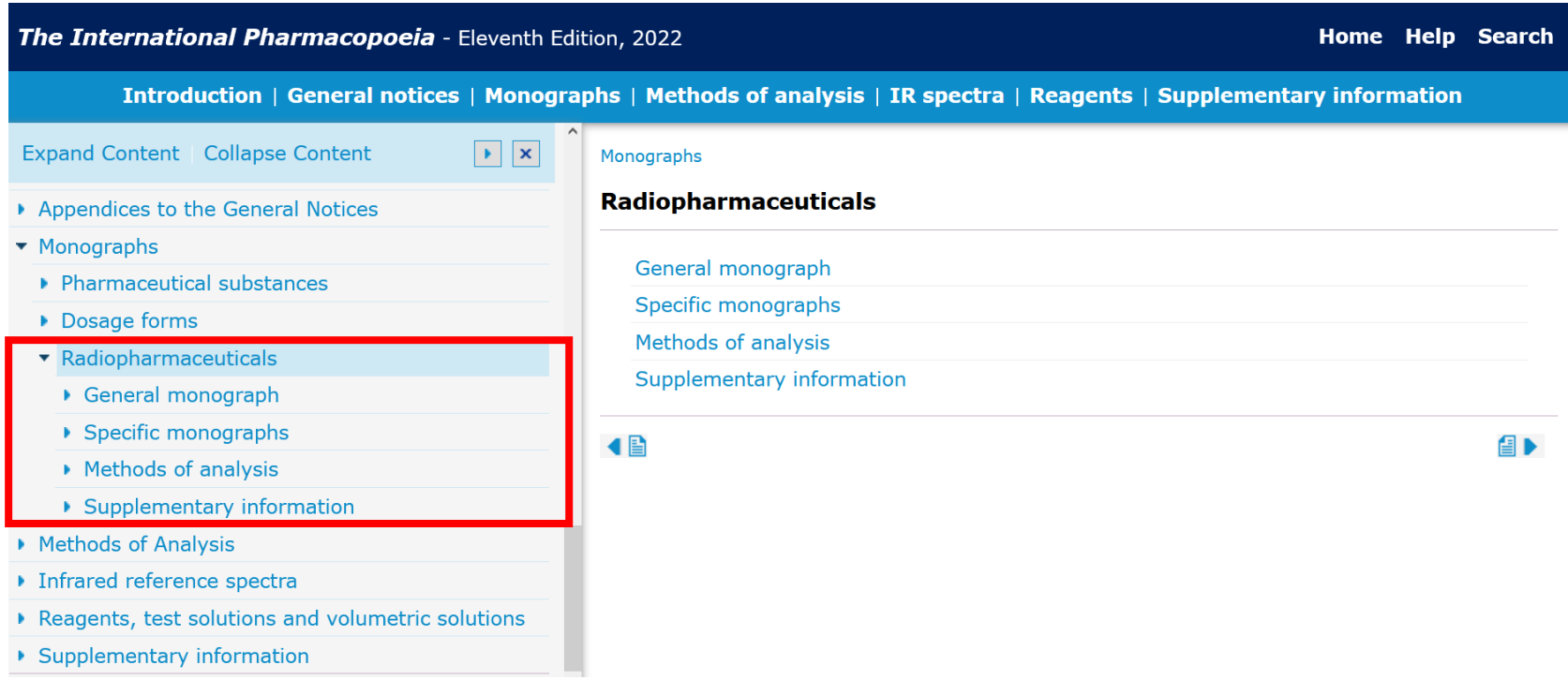
WHO and IAEA have been collaborating to develop public standards for radiopharmaceuticals.

- *Updating mechanism for the section on radiopharmaceuticals in The International Pharmacopoeia In WHO Expert Committee on Specifications for Pharmaceutical Preparations, Forty-ninth report. Annex 2. WHO Technical Report Series No. 992, 2015.*

- Maintaining International Pharmacopeia relies on **collaboration and expertise from all stakeholders** to ensure that information published is based on **available scientific evidence** focusing on key priority public health needs, especially to ensure equity in access to healthcare and related services, including radiopharmaceuticals.



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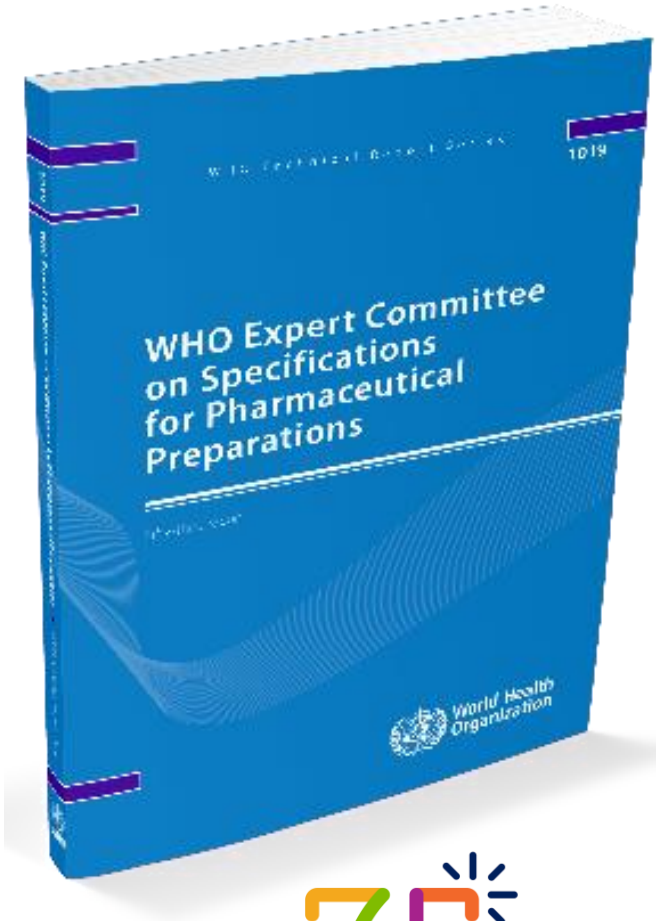
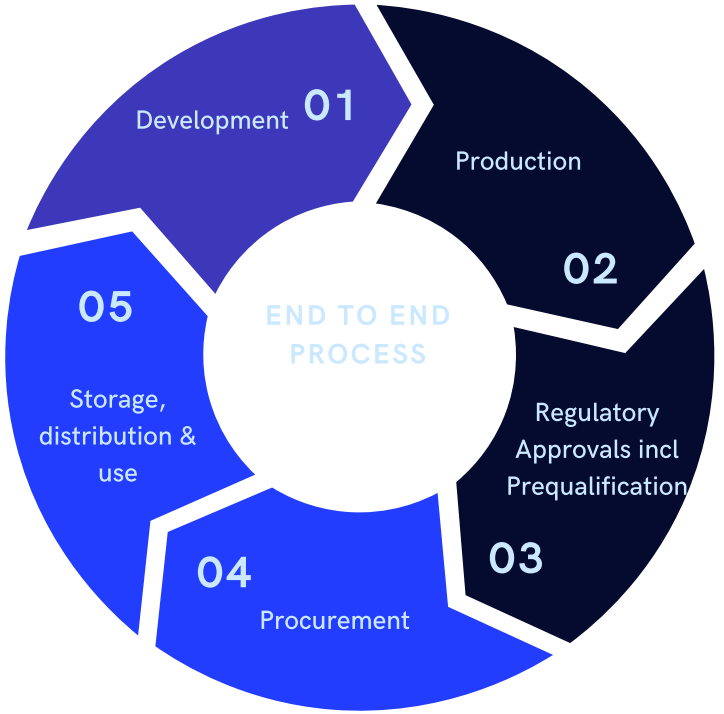
WHO also maintains a compendium of guidelines to facilitate the development, production, distribution, storage and use of pharmaceuticals.



Covers today* WHO's Norms and Standards for Pharmaceuticals*:

- Quality control
- Regulatory standards
- Inspection



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WHO and IAEA collaborate to publish specific quality assurance guidelines for radiopharmaceuticals

Annex 2

International Atomic Energy Agency and World Health Organization guideline on good manufacturing practices for radiopharmaceutical products

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The IAEA - WHO good manufacturing practices (GMP) for radiopharmaceutical products: Annex 2, WHO Technical Report Series 1025, 2020,	WHO good manufacturing practices for pharmaceutical products: Main principles Annex 2, WHO Technical Report Series 986, 2014
provides a general overview of the acceptable and appropriate requirements for manufacturing and control of radiopharmaceutical products.	describe the main GMP principles in detail.

The recommendations in this guideline are applicable to:

- the production, preparation or compounding of radiopharmaceuticals in hospital radiopharmacies, including diagnostic and therapeutic products;
- the production or compounding of radiopharmaceuticals in centralized radiopharmacies;
- the production or compounding of radiopharmaceuticals in nuclear centres and institutes;
- the production of radiopharmaceuticals by industrial manufacturers; and
- the production of cyclotron-based radiopharmaceuticals

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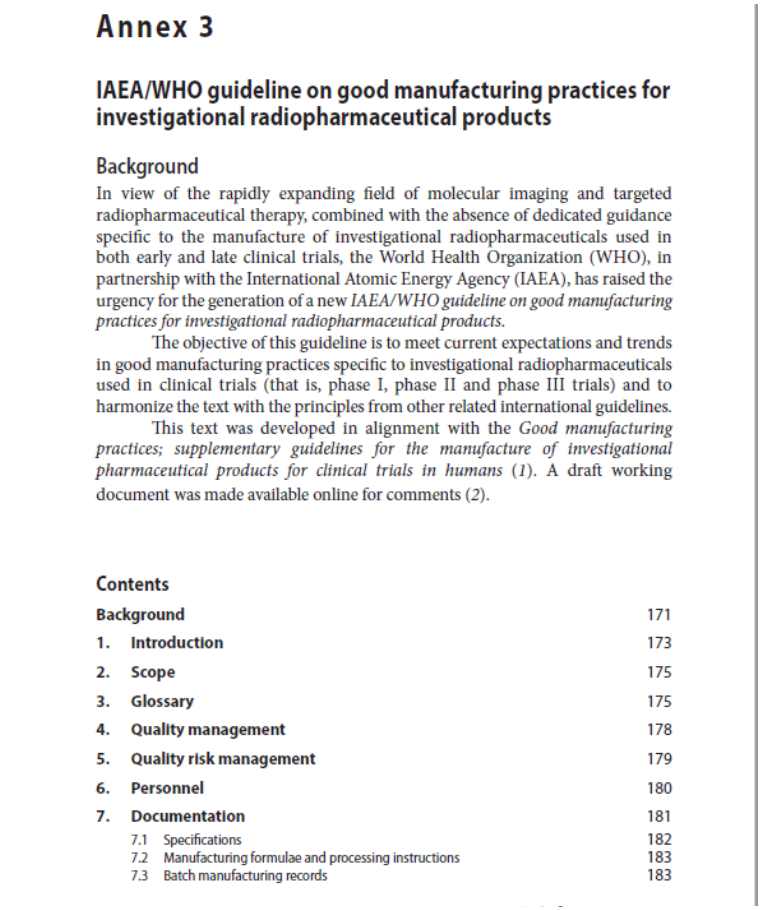
WHO and IAEA collaborate to publish specific quality assurance guidelines for radiopharmaceuticals



Annex 3

IAEA/WHO guideline on good manufacturing practices for investigational radiopharmaceutical products

Background

In view of the rapidly expanding field of molecular imaging and targeted radiopharmaceutical therapy, combined with the absence of dedicated guidance specific to the manufacture of investigational radiopharmaceuticals used in both early and late clinical trials, the World Health Organization (WHO), in partnership with the International Atomic Energy Agency (IAEA), has raised the urgency for the generation of a new *IAEA/WHO guideline on good manufacturing practices for investigational radiopharmaceutical products.*

The objective of this guideline is to meet current expectations and trends in good manufacturing practices specific to investigational radiopharmaceuticals used in clinical trials (that is, phase I, phase II and phase III trials) and to harmonize the text with the principles from other related international guidelines.

This text was developed in alignment with the *Good manufacturing practices; supplementary guidelines for the manufacture of investigational pharmaceutical products for clinical trials in humans* (*1*). A draft working document was made available online for comments (*2*).

Contents

IAEA/WHO guideline on good manufacturing practices for investigational. Annex 3, WHO Technical Report Series 1044, 2022	WHO good manufacturing practices for investigational products. Annex 7, WHO Technical Report Series 1044, 2022
provides specific requirements for manufacturing **investigational radiopharmaceuticals** used in early and late clinical trials	describe the general principles for investigational products used in early and late clinical trials.

This guidance provides recommendations on the acceptable and appropriate standards that should be in place when preparing novel radiopharmaceuticals for phases I–III clinical investigations that do not have a marketing authorization

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Health For All envisions that all people have good health for a fulfilling life in a peaceful, prosperous, and sustainable world.
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Thank you

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