

Guiding for impact in a rapidly changing world

WHO Department of Quality Assurance,
Norms and Standards (QNS): 2020-2021 in review



WHO/SCI/QNS/2022.1

Guiding for impact in a rapidly changing world. WHO Department of Quality Assurance, Norms and Standards (QNS): 2020-2021 in review.

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Preface

The past two years have been remarkable in many ways, not least in terms of the knowledge translation challenges they have posed. The vital importance of rapid, effective, continuous evidence assessment and norms and standards development and dissemination has never been clearer.

Already committed to change in the context of the WHO Transformation, the Department of Quality Assurance, Norms and Standards (QNS) has met the various challenges posed by the pandemic head on, embracing living approaches and creating and introducing several new mechanisms to help fast-track rapid reviews of evidence and interim guidance and coordinate internally and externally as the evolving emergency dictated.

Going forward, there are significant opportunities to expand these functions to include non-COVID-19 products covering a range of issues, including crosscutting issues such as gender, climate change, migration and health promotion. Making the most of these opportunities will require significant investment in information management systems to manage content and workflow, as well as in the personnel needed to run them. With adequate financial support, there is much that QNS can achieve in the next two years.

Before the pandemic hit, the global public health community was making steady, if uneven progress towards many of the GPW13 and SDG goals. Much of that progress is now in question. Few doubt that we are at a cross roads, an inflexion point, 'build back better' being balanced against economic retrenchment.

The coming epidemics (and pandemics), political instability exemplified by recent tragic events, accelerated migration, often driven by such events, the consequences of climate change and antimicrobial resistance are only going to increase the challenges faced.

To meet those challenges, we need to harness the power of science, data, innovation, and digital technologies and to do that we need evidence-based guidance, optimized for impact. QNS is committed to supporting the development of such guidance. This report presents the progress made towards that end in the past two years.

John T. Grove, PhD, MA

Director, Quality Assurance, Norms and Standards
Science Division
World Health Organization

Acronyms

CCs	WHO Collaborating Centres	PEF	Process Efficiency unit of QNS
DDGO	WHO Deputy Director-General's office	PRC	Publications Review Committee
DNA	deoxyribonucleic acid	QA	quality assurance
ECC-19	Evidence Collaborative for COVID-19 Network	QNS	Department of Quality Assurance, Norms and Standards in WHO's Science Division
GMP	Global Malaria Programme	RRG	Rapid Review Group
GOR	Governance and Review Services unit of QNS	SDG	sustainable development goal
GPHGs	global public health goods	SMART	Standards-based, Machine-readable, Adaptive, Requirements-based and Testable
GPW13	WHO's Thirteenth General Programme of Work	TPs	technical products
HCD	human centred design	TULIP	Tracking, Understanding and Leveraging Information Products system
HGF	health systems governance and financing	WHE	WHO's Health Emergencies Programme
HINARI	WHO's Access to Research for Health programme	WPHGs	WHO public health goods
HPS	health product policy and standards	WHP	WHO Press
IRIS	WHO's Institutional Repository for Information Sharing		
LDI	WHO Library and Digital Information Networks		
LMICs	low- and middle-income countries		
MCA	maternal, newborn, child and adolescent health and ageing		
MEL	monitoring, evaluation and learning framework		
MST	Methods and Standards unit of QNS		
NCDs	noncommunicable diseases		
NSPs	normative and standard-setting products		
PDI	Product Design and Impact unit of QNS		

The QNS biennium in numbers

- **1600+** WHO-generated COVID-19-relevant technical documents reviewed by the COVID-19 Publications Review Committee with an average turnaround time of three working days.
- **160** reviews conducted by The Rapid Review Group to support the development of COVID-19 related interim guidance while also supporting the generation of rapid evidence briefs on key COVID-19 issues.
- **Five to seven** weeks to produce living guidance – from full data receipt to guidance production thanks to digital tools and optimized approaches to guidelines development; in the past turnaround time was typically between six to nine months.
- **475 000** Open Access citations to the WHO COVID-19 Research Database that now has close to 8000 active users and growing daily.
- **280** – the number of individual technical staff across WHO with whom Process Efficiency staff and consultants were in contact to track progress against product development milestones and provide relevant project management support.
- **1038** Global Public Health Goods reviewed by Process Efficiency Unit since its creation in March 2021, along with 3084 WHO Public Health Goods technical products.
- **70** – the number of guideline end users with whom QNS consulted in 2021 to get feedback on guideline uptake and use.
- **151** advisory groups now included in the Organization-wide registry of active advisory groups, including groups from WHO regions.
- **400** proposals for (re)designation of WHO Collaborating Centres reviewed by Governance and Review Services team.
- **3875** WHO-authored and WHO-funded articles published.
- **194** requests for joint publications with intergovernmental organizations and institutions reviewed by Copyright and Licensing team in 2021.
- **669** translation requests for WHO publications reviewed by Copyright and Licensing team.
- **25 000** journals on HINARI, a vital resource for health workers and researchers in low- and middle-income countries.
- **80 000 000** – the number of downloads from WHO's Institutional Repository for Information Sharing (IRIS) database in the first year of the pandemic
- **200 000** downloads daily from IRIS at the end of 2021.

Introduction

Embedded within the World Health Organization's Science Division, the QNS Department is tasked with supporting the Organization in the development of norms and standards and the normative and standard-setting products (NSPs) derived from them. The core mission of QNS is to ensure that, like other technical products (TPs), NSPs are produced to a consistently high standard in a timely fashion, are driven by Member States' needs, and are designed and delivered in a way that supports Member States in their efforts to achieve the Triple Billion Targets set out in the Thirteenth General Programme of Work (GPW13) and the health-related Sustainable Development Goals (SDGs).

This short document presents a snapshot of QNS at the end of its first biennium, setting out the main aims of the department, charting progress made towards achieving them and highlighting significant developments.

A two-year old with WHO's DNA

Science is in WHO's DNA. It was there when the Organization was formed in 1948, underpinning its various activities, notable among them the development of norms and standards (Box 1). How to improve the coordination and execution of those core activities has long been a matter of debate within the Organization, but discussions around the topic came to a head in 2017 when newly appointed WHO Director-General, Dr Tedros Adhanom Ghebreyesus initiated an extended consultation with WHO staff and all major offices to redefine what a data-driven and impact-focused WHO should look like and to suggest ways in which

Box 1. The 'N' and 'S' in 'QNS'

Norms generally apply to how things are done. Often technical in nature, they are communicated through products that inform or guide end-users working in public health, such as those defining evidence-based best practice, or practice based on legal or ethics frameworks or conventions, or combinations of these.

Standards generally apply to the constituents or characteristics of medical products, ranging from medicines to medical devices. Standard-setting products may (i) indicate categories or labels, (ii) set thresholds or standards along a continuous measure or (iii) provide an assessment based on a threshold or standard.

the Organization could optimize the impact it has, notably regarding the GPW13 Triple Billion Targets.

Out of that consultation, several imperatives emerged, including the urgent need to institutionalize the Organization's science-based activities through the creation of a dedicated science division. Established in March 2019, the Science Division's core mandate is to optimize the application of relevant science and innovation to support Member States in achieving the GPW13 and SDG goals.

The QNS Department was created to ensure optimal translation of that science into impactful public health practice and products. Key to fulfilling that mandate is ensuring that the normative and standard-setting products generated by WHO are relevant, timely, of the highest quality and developed without bias or undue influence. QNS also plays a vital role in monitoring uptake and use of NSPs and in collecting and linking to the literature on which its recommendations are based to ensure optimal transparency.

QNS is comprised of **six** units:

- Methods and Standards (MST) provides methodological support and quality assurance for normative and standard-setting products, as well as evidence and methodological support for the development of living guidelines and innovative approaches.
- Process Efficiency (PEF) supports optimal development and delivery of WHO products, including NSPs, by ensuring the utmost efficiency of the development process and by providing individual, tailored support to WHO departments.
- Product Design and Impact (PDI) supports NSP product design to ensure optimal country uptake and impact, while also supporting the tracking of NSP use in the field.
- Governance and Review Services (GOR) supports the coordination of the WHO collaborating centres (WHO CCs), WHO expert advisory panels and committees (EAP&Cs) and Advisory Groups (AGs).
- WHO Press (WHP) supports WHO’s publishing activities across the Organization and ensures the global marketing, promotion, sales and dissemination of WHO publications with a view to fostering knowledge sharing with Member States and partners.
- WHO Library and Digital Information Networks (LDI) ensures global and equitable access to public health and scientific evidence; provides access to WHO normative and standard-setting products; and provides support for evidence retrieval.

These units work together to achieve the department’s four main objectives (Box 2). The progress made and challenges faced in moving towards the achievement of those objectives over the past two years are set out below.

Box 2. QNS Mission and Objectives

Quality Assurance,
Norms & Standards
(QNS) Dept

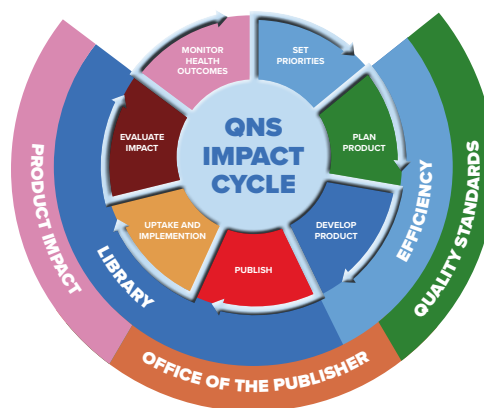
Science Division

QNS Mission:

To ensure that WHO’s normative and setting-standard products are produced to a consistently high standard, in a timely way, driven by Member State needs, and designed and delivered to have a real impact on people’s health.

QNS Functions:

- Ensure that all N&S products meet WHO highest quality standards by providing tailored, state of the art methodological support and guidance
- Support project teams developing N&S products by ensuring the utmost efficiency of the N&S process
- Secure maximum country impact by supporting development and monitoring N&S products
- Advance and ensure timely, peer-reviewed, and accessible scientific evidence and information, through the WHO Library and Digital Information Outreach, and the WHO Press



1 | Working to ensure that all WHO NSPs meet the highest quality standards

All WHO NSPs are expected to be reviewed through a fit-for-purpose quality-assurance mechanism overseen by the QNS Methods and Standards Team (MST). MST was established in 2019 and started out by identifying common quality criteria applicable to the three levels of the Organization (Box 3). It then introduced a quality appraisal mechanism for all NSPs and worked to extend a quality assurance system to all major WHO offices.

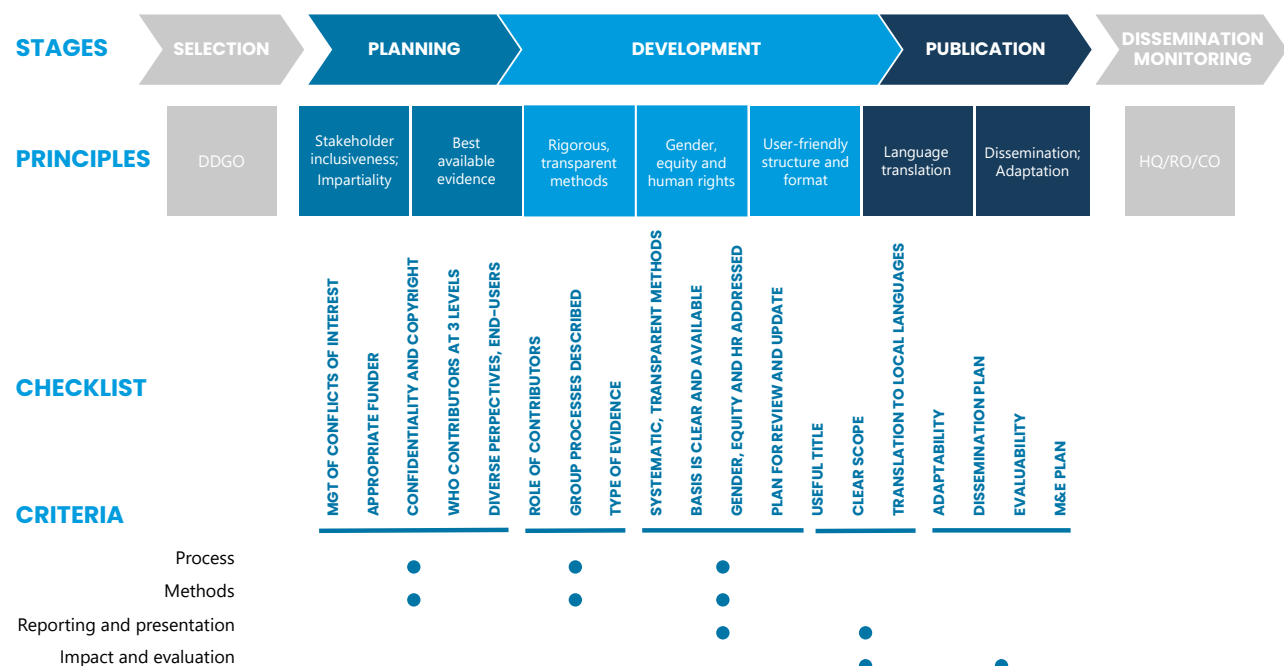
The development of quality-assured NSPs begins with the upstream assessment of emerging knowledge set against Organizational needs and/or priorities linked to country impact. Health-relevant science – ranging from cutting-edge genomics to new ways of delivering primary healthcare using community health workers equipped with smart phones – is constantly generating new evidence

for more effective and efficient ways of working, and new ways to finance that work. WHO needs to keep abreast of those developments, prioritizing knowledge most likely to support the achievement of the SDG and GPW13 targets.

The process for developing quality NSPs thus begins with the identification and prioritization of the most helpful (i.e. relevant, implementable and impactful) knowledge, whether that concerns new medical products (e.g. diagnostics, treatments and vaccines) or processes and practices implemented across the full spectrum of health service delivery (from prevention to palliative care).

Effective, transparent and accountable prioritization of effort is of vital importance in developing public-health-relevant knowledge and ensuring impact and uptake without fear of bias or vested interests.

Box 3. QA Standards minimum requirements





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Always challenging, especially given the ever-accelerating pace of biomedical and digital technology development, the assessment and prioritization of emerging knowledge becomes particularly difficult in moments of abrupt public health disruption, as experienced in the ongoing COVID-19 pandemic. Not only do key variables change – for example with the massive reallocation of resources and all that implies for public health outcomes – there can also be a spike in research output which makes it difficult to separate signal from noise.

Over the past two years, QNS has established highly responsive expert groups to meet these challenges. In collaboration with the WHO Health Emergencies Programme (WHE), QNS established a COVID-19 Publications Review Committee (PRC) in March 2020 which accepted the daunting task of reviewing all WHO-generated COVID-relevant technical documents. At the close of the biennium, the PRC had reviewed over 1600 submissions, with an average turnaround time of three working days. Of the documents reviewed, 13 were shared with the Guidelines Review

Committee (a committee with a broader review remit also located within the MST) which in the past two years has approved 10 final guidelines, including two emergency interim guidelines and four planning proposals for guidelines.

In February 2020, QNS also launched the Rapid Review Group (RRG) to provide rapid evidence retrieval and analysis in support of key questions necessary for the creation of WHO guidance during the COVID-19 pandemic. Over the past 22 months, the RRG completed over 160 rapid reviews related to various COVID-relevant topics, helping to support some of the underlying interim guidance, while also supporting the generation of rapid evidence briefs on key COVID-19 issues.

While emphasizing the need for speed, QNS is also committed to applying the precautionary principle which encourages policymakers and public health professionals to take account of the growing complexity and uncertainty of the issues with which they are confronted. The first consultation meeting on the systematic use of the precautionary principle took place in April and September 2021.

Living approach to guidance development

For QNS, which was already committed to and engaged in supporting change under the WHO Transformation, the pandemic has been an exciting opportunity to drive forward with innovative approaches to translating evidence into recommendations, notable among them the ‘living approach’ to the development and dissemination of guidance documents that now underpins much of the department’s work.

Expanding on the concept of ‘living guidelines’, the living approach covers the whole production-dissemination cycle, from the application of the kind of upstream analysis described above (a systematic and continuous process of prioritization applying an evidence-informed, consultative prioritization process, rapid updating of prioritized systematic reviews and electronic consultations with ‘living guidelines’ panels), regular updating online, continuous adaptation drawing on information generated at regional and country level and the application of clinical algorithms such as COVID-19 treatment pathways which allow for local adaptation (Box 4). Finally, the process is supported by digital publication, followed by print, if needed.

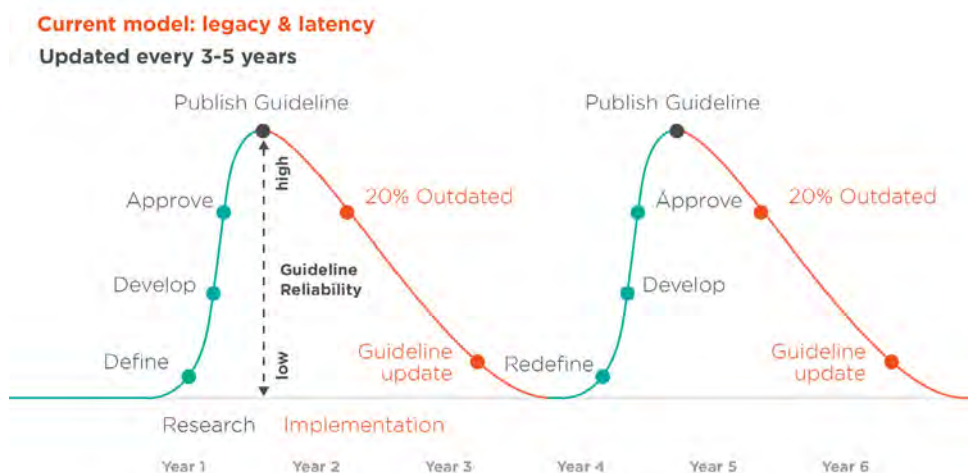
One of the many benefits of the living approach is to accelerate technical product development turnaround times, notably the time taken in guidance development. Guidelines have sometimes taken several years to develop, and once released are often only updated every 3–5 years. In some cases this risks content becoming outdated or, worse, inaccurate.

While, under standard guideline development processes, interim guidance provides a useful intermediate solution when new evidence requires an urgent change in practice pending further evidence reviews, living guidance approaches make such updates more dynamic, by continuously monitoring evidence for change and updating individual/single recommendations as and when new evidence becomes available. Such approaches are being used by many public health institutions, notable among them WHO.

QNS has embraced the living approach, setting up a Living Guidelines Working Group in 2019 tasked with supporting WHO technical staff in its application. In 2021, the group supported the Global Malaria Programme, the Global Tuberculosis Programme and the WHE Programme in their efforts to adopt such approaches or to enhance and implement existing approaches. QNS also incorporated a web-based living guidance platform which provides resources and supports coordinated dissemination in a timely manner and has supported the use of electronic publication platforms in the development of COVID-19-relevant NSPs. MST provides ongoing evidence and methodological support for living guidelines, enabling innovative approaches to evidence generation and dissemination.

Box 4. Living Approach: New realities of time, demand and design

Conventional guidelines are updated every 3-5 years



A 'Living' approach enables:

- Use of foresight to inform systemic reviews
- Regular updating online
- Adaptation at regional and country level
- Immediate digital delivery
 - Clinical algorithms
 - Digital first, print if needed



With permission from Julian Elliott, Cochrane Australia, School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia.

Box 5. Living guidance in the pandemic

The COVID-19 pandemic led to an unprecedented level of information generation and a critical need to share it. To manage the increased output, WHO introduced a living guideline approach for technical documents dealing with COVID-19 treatment, prevention and clinical management. The process included new approaches for a rapid review of the evidence, standards for user-friendly interfaces for health professionals and policymakers and immediate and widespread dissemination of updates.

For example, the WHO *Therapeutics and COVID-19: living guideline* contains the Organization's most up-to-date recommendations for the use of therapeutics in the treatment of COVID-19. As of early December 2021, the guideline contains nine recommendations, including two referring to the use of a combination of neutralizing monoclonal antibodies, casirivimab and imdevimab, a conditional recommendation in favour of their use in non-severely ill patients and a conditional recommendation in favour of their use in the severely and critically ill.

The guideline has been written, disseminated and updated and can be accessed through magicApp, a web-based collaborative tool that does not require any software installation and allows publication on all devices. The guideline is presented with a user-friendly format with an easy to navigate structure that accommodates dynamically updated evidence and recommendations, focusing on what are new while keeping existing recommendations within the guideline. Thus, as of mid-December, users could link to the five preceding versions. The guideline will incorporate new recommendations on other therapies for COVID-19 and updates on existing recommendations. Guidelines regarding the use of drugs to prevent (rather than treat) COVID-19 are included in a separate document, as are guidelines regarding the clinical management of COVID-19 patients.

Thanks to access to digital tools and optimized approaches to guidelines development, this accelerated process has cut the average time from full data receipt to production of guidance from the typical six to nine months to as little as five to seven weeks.

Shaping evidence review for the COVID-19 response

While being committed to monitoring and assessing the research produced, WHO also plays a key role in shaping the research space by engaging with the scientific community, bringing to its attention global public health priorities and helping harmonize workflows. Here, too, QNS has been active, notably in setting up the Evidence Collaborative for COVID-19 (ECC-19) Network, a group of over 100 experts and organizations engaged in evidence retrieval and analysis which seeks to align research questions, reducing duplication of research effort and helping to share WHO priorities with the research community.

Since its establishment in March 2020, the ECC-19 has been coming together monthly to discuss progress and initiatives around evidence generation and its use to combat the COVID-19 pandemic through support for evidence-based policies, interventions and initiatives.

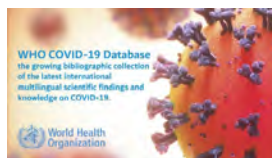
The ECC-19 has also contributed to the work of the WHO RRG and has formed new partnerships with the WHO Library and Digital Information Networks, which led to the development of the WHO COVID-19 Research Database that now has more than 475 000 Open Access citations with close to 8000 active users, and growing daily (Box 6).

Box 6. COVID-19 Response: ECC-19 & the WHO COVID-19 Database



- Open network of 100+ external partners engaged in evidence retrieval, reviews and synthesis
- Sharing and alignment of review questions
- Monthly coordination call
- Central website and resources
- WHO priority reviews and topics

<https://sites.google.com/view/ecc19>



- 475,000+ open access citations and growing since March 2019
- Extended scope with inclusion of preprints and clinical trials
- More powerful software for screening and generating backbone of content
- 8000+ active users/day
- User feedback on one-stop convenience

<https://search.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/>

2 | Working to ensure optimal process efficiency

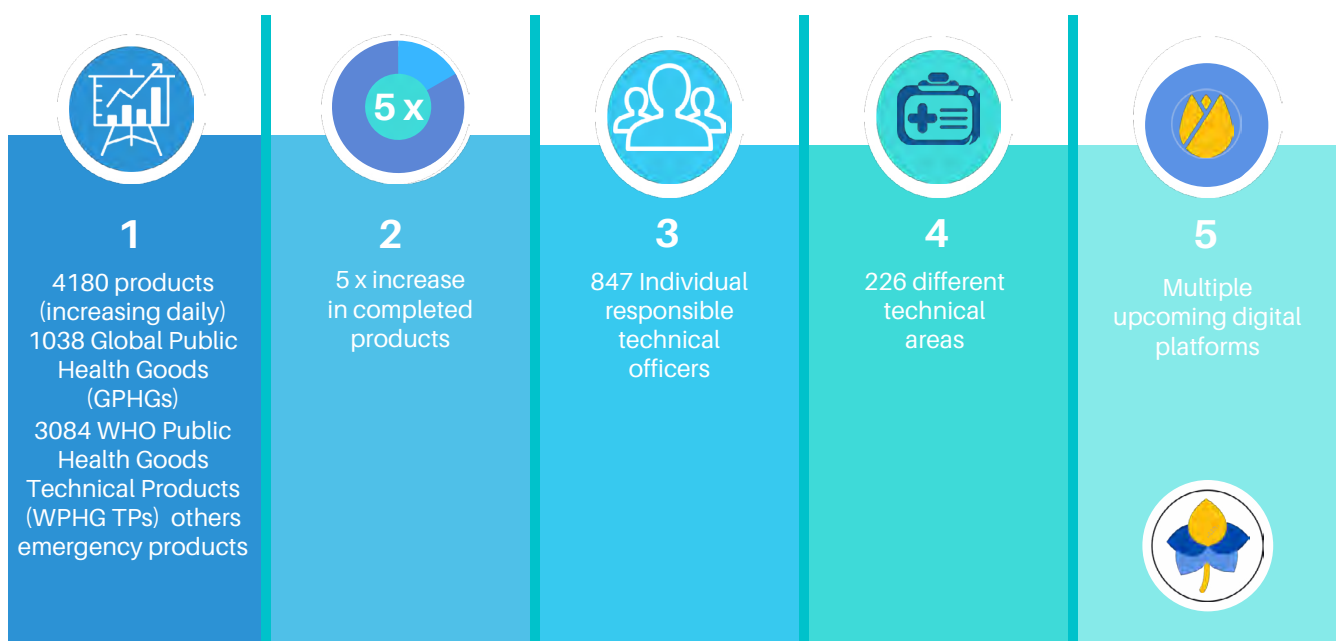
The QNS Process Efficiency unit (PEF) has principal responsibility for improving the development and delivery of WHO products, including NSPs, by ensuring the utmost efficiency of the development process and providing individual, tailored support to teams developing WHO technical products.

Specifically, PEF is tasked with assessing, prioritizing and managing the overall case load of NSPs in line with available human and financial resources and with coordinating access to key resources involved in the production of NSPs, including methodologists and product impact experts both inside and outside the Organization.

PEF is also tasked with following up on key performance indicators for efficiency, continuously monitoring the overall development status of each NSP, identifying potential bottlenecks, completing root causes analysis and providing actionable solutions to reduce them.

In 2021, PEF staff and consultants were in contact with over 280 individual technical staff across WHO to track progress against product development milestones, provide relevant project management support including support to navigate the current clearance and quality assurance processes, identify systemic inefficiencies and bottlenecks, and to provide more in-depth portfolio management support where needed.

Box 7. Process efficiency



Since its creation in March 2021, PEF has developed a complete list of the 1038 ongoing Sample GPHG summary report (see Box 8) and the 3084 in the figure ongoing WPHG technical products. Additional products continue to be added daily. Using this list as a baseline, PEF has transitioned from information gathering to active portfolio management and support for project teams, which includes linking teams to appropriate QNS support where necessary. Seamless continuity of quality support between units in QNS is key to ensuring that teams successfully navigate the development process, including the quality assurance review.

PEF has also provided more in-depth project support to WHO departments including Noncommunicable Diseases (NCD), Health Systems Governance and Financing (HGF), Health Product Policy and Standards (HPS) and Maternal, Newborn, Child and Adolescent Health and Ageing (MCA), among others.

A complete list of proposals for technical products has been compiled based on inputs from staff across all three levels of the Organization using a platform developed, deployed and managed by PEF under the authority of the Deputy Director-General's office (DDGO). A total of 829 technical product units comprising 3069 individual technical products are currently registered for the 2022–2023 biennium.

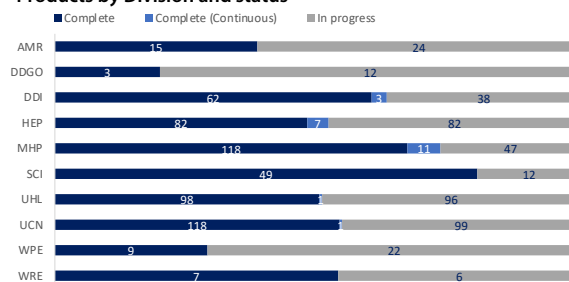
PEF colleagues (consultants and staff) were involved in supporting the data collection, cleaning, upload and transfer of these submissions to a QNS database of TP proposals that is hosted on the DDGO SharePoint website and is accessible to all WHO staff and consultants. This database, jointly managed with the DDGO, continues to be updated regularly by PEF as additional information becomes available.

Box 8. Sample GPHG summary report

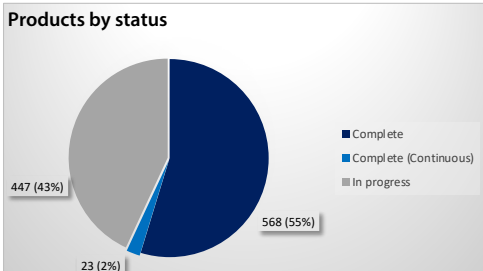
Number of products by Division

Division	Core products	Total products
AMR	10	39
DDGO	4	15
DDI	12	103
DGO	4	8
HCO	3	4
HEP	65	171
MHP	40	176
RGO	2	3
SCI	17	61
UCA	1	1
UCN	75	218
UHL	81	195
WPE	24	31
WRE	13	13
Total	351	1038

Products by Division and status



Products by status



Sample titles by product identification number

Product ID#	Title
0001.01	Guidelines on management of chronic primary low back pain in adults
0001.02	Implementation guide for management of chronic primary low back pain in adults
0002.01	ICOPE implementation pilot programme report
	WHO clinical consortium on healthy ageing 2019: report of consortium meeting held 21-22 November 2019, Geneva, Switzerland
0002.02	ICOPE digital dashboard
0002.03	ICOPE handbook web app
0002.04	Guidelines for ICOPE diagnostic test
0002.05	ICOPE training module in WHO academy
0002.06	UHC Service Package for Long-term care (UHC-LTC)
0004.01	National guidance for the development of age-friendly cities and communities
0006.01	WHO Healthy Ageing Data portal
0011.02	Country Profile on Ageing and Health

AMR: Antimicrobial Resistance; DDG: Deputy Director-General Office; DDI: Data, Analytics and Delivery for Impact; DDG: Deputy Director-General Office; HCO: Executive Director Office Health Emergencies Preparedness & Response; HEP: Universal Health Coverage/Healthier Populations; MHP: Access to Medicines and Health Products; RGO: Regional Office; UCA: Universal Health Coverage/Communicable and Noncommunicable Diseases; DDGO UCN: Universal Health Coverage/Communicable and Noncommunicable Diseases; UHL: Universal Health Coverage /Life Course; WPE: Emergency Preparedness; WRE: Emergency Response.

Box 9. WHO Global Public Health Goods

The know-do journey starts with the identification of global public health goods (GPHGs) as mentioned in GPW13. GPHGs/WPHGs WHO public health goods (WPHGs) are products and services uniquely delivered by WHO for the benefit of all countries and are essential for the achievement of the Triple Billion Targets.

Developed by WHO for the benefit of multiple countries across multiple WHO Regions, GPHGs/WPHGs include technical products on norms/standards, data and research developed through rigorous processes at global, regional and country levels to drive impact. They include:

- Norms and standards (as defined in Box 1);
- Data: Products developed by WHO that are for the benefit of all regions and countries, including products designed to: strengthen country data and information systems for health; monitor population health trends and inequalities; and to optimize data and data use to for maximum in-country impact;
- Research, innovation and horizon-scanning products: Products that advance scientific knowledge and the development of new technologies ranging from guidance on best practices for research implementation and use, to analysis to support the evidence-based local or global research and innovation agenda;
- WHO contributions to the GPHGs of other organizations.

In 2020 PEF developed a complete list of 2020-21 GPHGs which is now publicly available, as well as an interactive dashboard for easy visualization of the detail. PEF updates the GPHG database daily with new information from responsible technical staff and by cross-referencing with IRIS (WHO's Institutional Repository for Information Sharing dedicated to WHO published material) to find newly published GPHGs. Examples include dissemination of blood product specifications (GPHG no. 144), navigating the necessary approvals process for a normative product with survey and country health data (GPHG no. 165) and troubleshooting delays in development of a website for a toolkit (GPHG no. 870).

In 2021, after extensive consultation in-house, PEF finalized the business requirements specification for a new product development support and tracking system, known as TULIP (Tracking, Understanding and Leveraging Information Products).

In its first iteration (TULIP 1.0), TULIP will include several key modules, supporting product/publication clearance workflow, a new quality assurance mechanism, some pre- and post-

production publication tasks, tracking/reporting/dashboard functionalities, and some aspects of the project management/portfolio support work. TULIP 1.0 will also support the management of joint publications.

TULIP 1.0 will be launched in early 2022. There are plans to expand TULIP after inputs from the key stakeholders and feedback from users.

3 | QNS working to support the development of fit-for-purpose NSPs

QNS is committed to supporting the development of NSPs that are fit for purpose and designed for maximum impact. In 2021, a QNS-commissioned study to determine what is known about the uptake and use of WHO NSPs by end-users (e.g. policymakers, programme managers and health professionals) identified four key challenges in guideline implementation in low- and middle-income countries (LMICs), namely: poor governance, weak or unclear guidance, infrastructure challenges and capacity gaps. In addition, the study highlighted the inaccessibility of WHO guidelines due to poor design. The study by Saluja et al., (2021) *“Improving WHO’s Understanding of WHO Guideline Uptake and Use in Member States”* is currently under peer review for publication.

The new Product and Design Impact (PDI) unit was set up in June 2021 to address these challenges and will develop tools and services to support guideline and NSP design, as well as monitor and evaluate the uptake and impact of NSPs at country level. Working in close collaboration with WHO regions and countries, PDI is tasked with providing support to technical departments and regional offices to ensure all guidance, norms and standards are issued to a constantly improving and consistently high level of operational and digital design to enable superior outreach, uptake and impact.

Designing for impact

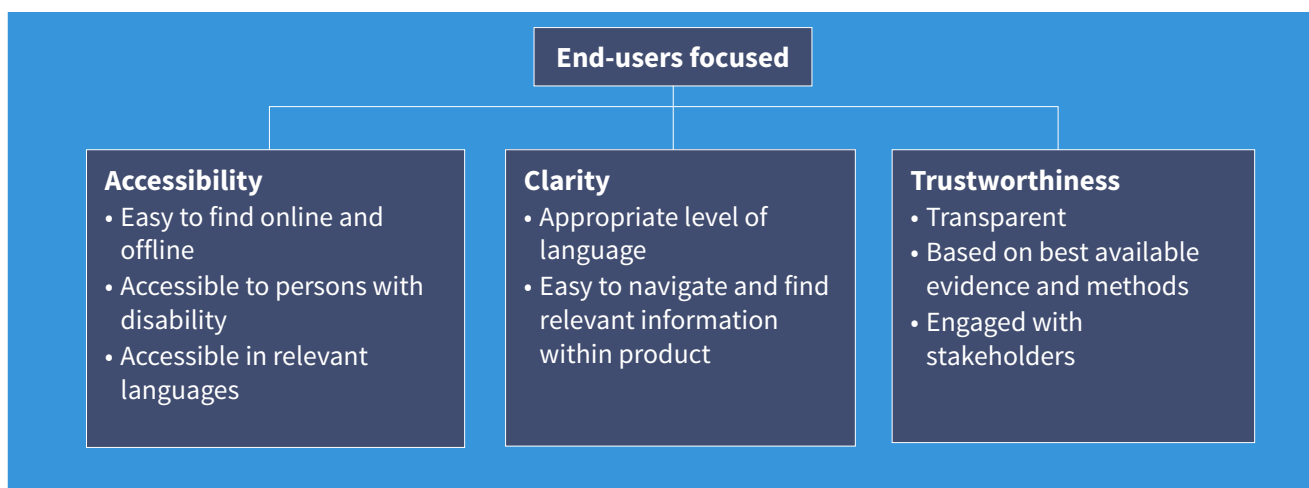
WHO’s guidelines and NSPs are used as the basis for policy and clinical decision-making across the world and in a wide range of settings. It is therefore vital that the design of NSPs reflects end-users’ needs and is optimized for uptake and use. To date, NSPs have been produced using a variety of systems and tools, most of which are not connected. They are also produced by different departments and platforms in a range of formats, including digital products. Typically, NSPs are published as large, unwieldy PDF files, containing multiple recommendations.

QNS consultations conducted in 2021 with over 70 end-users of WHO guidelines showed that, in general, users value and need WHO products but face challenges in effectively implementing recommendations at country level. Insights from these consultations were supplemented by a rapid review which suggests that design solutions applied at the product development stage can facilitate uptake and use.

These insights informed the development of NSP design principles and related quality assurance criteria. Both are incorporated into the new organization-wide quality assurance system.

Three core principles have been identified, namely: clarity, accessibility and trustworthiness (Box 10). These principles will be widely shared and promoted using workshops and other internal communication channels in the coming year.

Box 10. Impact by desing: 3 principles underpinning impactful norms and standard design



In December 2021, PDI conducted its first workshop, launching its Design Lab with an Innovation Workshop on Human Centred Design (HCD) jointly organized and facilitated by the WHO Innovation Hub through its Studio @ Eureka. Participants were introduced to the concept in an interactive way, shown how to apply the appropriate innovation tools and frameworks and given concrete examples. The examples demonstrated how HCD can be applied to maximize the uptake of evidence-based guidelines at country level by designing products to end-user demands and by leveraging technology.

Monitoring uptake and impact is key to supporting the delivery of NSPs at country level. Once NSPs are published, there is currently no formal process allowing for follow-up with Member States regarding uptake. PDI has been tasked with addressing that issue and is leading a monitoring and evaluation effort. PDI will also be establishing robust feedback loops, as strongly recommended by end-users during the extensive consultations that took place last year. These different tasks will be executed in close collaboration with the respective technical department and units and their corresponding counterparts at the three levels of the organization.

Supporting country programmes

Evidence suggests that there is a lack of investment in translation and contextualization of WHO publications for local use. There is also a lack of capacity (human and financial) to support the adaptation and implementation of NSP recommendations in LMICs. QNS is committed to improving the actionability of WHO NSPs, with specific focus on LMICs. In 2021, PDI worked closely with the WHO Regional Office for Africa to get a county-level perspective on guideline adaption and implementation.

A tool was developed based on the WHO GUIDES framework, focusing on five health system attributes (Guidance; User focus; Information dissemination channels; Decisions and decision-makers; Enabling environment; Stepwise implementation) was provided for consideration (Box 11).

A set of generic tools and frameworks that help to better understand and improve the uptake of WHO NSPs at the country level are being developed in close collaboration with the appropriate WHO Collaborating Centres and with other international experts. The development of the monitoring,

Box 11. WHO-GUIDES: Technical package for countries



evaluation and learning (MEL) framework and the tool for assessment of NSPs use at country level is ongoing. Interviews with regional and country office colleagues from the WHO African Region, the Region of the Americas and the European Region and a first round of field testing of the tool were completed in 5 LMIC settings in the African Region and in one country in South-East Asia Region.

PDI is also working on the development of guidance regarding the adaptation of products to reflect country-specific conditions as well as design for optimal adoption and implementation

of NSPs in countries. It is supporting the Global Malaria Programme's (GMP) efforts to establish outreach and dissemination strategies and the monitoring of uptake and impact targets of NSPs published by GMP under the leadership of HQ, the GMP Department and its regional and national counterparts. The tools and resources developed and piloted during these processes will be part of the WHO GUIDES technical package that will be published in 2023.



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Reaching out for consultation and feedback

WHO frequently seeks the advice of external experts for technical, scientific or strategic recommendations. To meet its requirements, WHO convenes meetings of expert committees and establishes advisory groups composed of experts participating in an individual capacity.

Within QNS, the GOR team coordinates WHO's work with these groups on matters ranging from the development of policies, minimum standards and templates for reporting to the Executive Board on the work of expert committees. GOR also organizes peer-to-peer opportunities for technical units managing advisory groups to learn from each other regarding how to best use this mechanism.

The first peer-to-peer event for advisory groups, focal points and colleagues on optimal approaches to establishing advisory groups was held on 28 June

2021. In the past two years, GOR reviewed the terms of reference of several WHO advisory groups at HQ and regional level and proposed changes to ensure compliance with WHO rules. Some 151 advisory groups are now included in the organization-wide registry of active advisory groups (including groups from WHO regions), which is updated on a regular basis. GOR also established and manages the website for advisory groups open calls.

GOR also plays an important role in coordinating and supporting the work of the organization with its 800+ WHO Collaborating Centres (CCs) which bring significant expertise, thereby expanding the WHO resource base. In the 2020/21 biennium, GOR reviewed over 400 proposals for (re)designation of WHO CCs and ensured their compliance with corporate policies; maintained the corporate WHO CC management system and databases; and provided opportunities for peer-to-peer learning.

4 | Working to promote and ensure timely, peer-reviewed and accessible scientific evidence and information

WHO's Science Division works to ensure the availability of scientific information in the six official WHO languages, as well as in accessible formats for those with visual impairments and other disabilities. To ensure that the knowledge products produced by WHO are available to all, WHO has an open access publication policy which QNS implements through WHO Press (WHP) and the WHO Library and Digital Information Networks (LDI).

WHP supports WHO's publishing activities across the organization and ensures the editorial and publishing quality of WHO's publications originating from headquarters. The unit manages vital digital distribution of WHO's open-access publications, including WHO NSPs, as well as the sales and dissemination of those publications in print to ensure that WHO's publications are available and easily accessible in Member States. WHO Press also oversees the development of publishing policies, including copyright and open access (through the interregional Publishing Policy Coordination Group), develops guidance and training to build capacity across WHO, and has implemented a title management system for WHO publications.

Digital publishing...

To ensure that WHO publications are available to all who need them, QNS is building a new publishing system that will allow for full digital distribution. The new title management system (Biblio) was launched in 2019. Biblio allows for the storage of all metadata and files related to WHO's official publications and links to IRIS. Biblio also links to a new publications website that will be launched

in 2022 and will allow for optimal access to WHO publications in all six official languages.

The new publishing system marks a shift in WHO's dissemination of its technical products from an emphasis on a supply-oriented (push approach) to a demand-led approach facilitated through digital distribution. Under the new system, people anywhere in the world will be able to search for and find WHO information products on internet search engines and download them for free from WHO's new publications website. They will also be able to view and navigate the website on all devices, including smart phones. As an added benefit, WHO publications will be increasingly available as print-on-demand versions which will help match print runs to actual requirements and reduce distribution costs.

In the coming biennium, WHO will be looking to assess the demand for digital and print formats to ensure that users have access to the formats they need. The volume of official WHO titles is considerable, as core publications are often complemented by ancillary products, such as implementation guides and translations.

WHP is also working on the integration of the Biblio, IRIS and web systems, with a large review of processes and procedures to better align publishing policies and systems. Over the past two years, IRIS staff participated in weekly discussions with Biblio super-users for clarification and contextualization of IRIS, as well as in the definition and adoption of new standard operating procedures for online posting of WHO publications into IRIS. The IRIS subscription to Amazon web services was launched in November of 2021 with in-depth migration tests and cybersecurity tests currently ongoing.



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WHP also produces the *Bulletin of the World Health Organization*, a fully open-access monthly journal of public health which focuses on LMICs. First published in 1948, the Bulletin is committed to making its contents as widely available as possible. One of the few open-access journals that charge no author-fees, its contents are available free of charge under the Creative Commons Attribution 3.0 IGO licence. All peer-reviewed articles and the journal archives are indexed, including in the Web of Science and MEDLINE.

In the area of copyright, licensing and external publications, the revised open-access policy was launched on 1 January 2021. WHO's open-access policy aligns with the principles of Plan S, which seeks to ensure unrestricted access to and re-use of publicly-funded research, and prioritizes publication of articles in open-access journals and platforms. The Copyright and Licensing team oversees WHO's licence agreements and arrangements with scientific publishers for articles, chapters, supplements and books published externally. A total of 1807 WHO-authored and

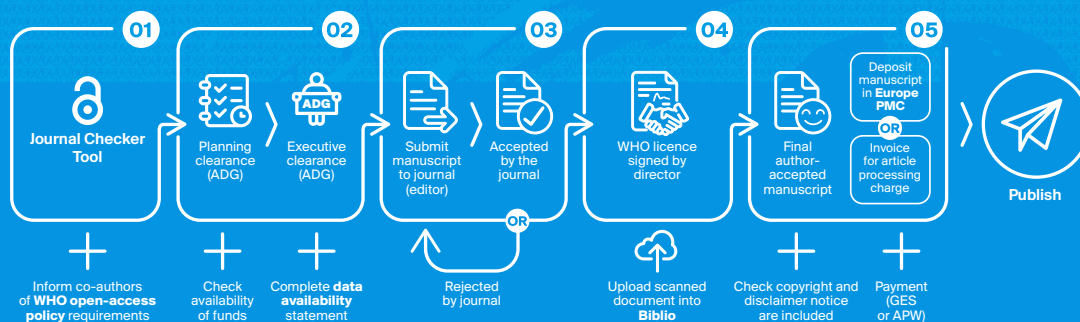
WHO-funded articles were published in 2020 and 2068 in 2021. Articles are deposited in Europe PubMed Central and are accessible through WHO's Funder Page. To support the implementation of the policy, briefings and training were conducted by the Copyright and Licensing team across WHO and a guide to publishing in external journals was developed for staff. New agreements and arrangements were set up with several key publishers. In 2021, around 1750 articles authored or funded by WHO were deposited in Europe PubMed Central, which is the platform used by WHO to support its open-access policy.

In 2021, 194 requests for joint publications with intergovernmental organizations and institutions were reviewed by the Copyright and Licensing team. One notable project was the *WHO/ILO joint estimates of the work-related burden of disease and injury: 2000-2016*, which included the joint publication of protocols and systematic reviews of the Working Groups, and the global monitoring and technical reports which were all published jointly with ILO.

Guide to publishing articles in external journals



World Health Organization



01 Check your journal is compliant

- Go to journalcheckertool.org. Under “**Journal**”, enter the journal title. Under “**My funder**”, enter “WHO”. Under “**My institution**”, check “**No affiliation**”.
- If the journal is “non-compliant”, you will need to find an alternative journal (see [copyright and WHO](#)).
- If you are a co-author on an external paper, inform your external co-authors that you are required to comply with the [WHO open-access policy](#).

02 Funds check

- In addition to [planning clearance](#), most open-access journals charge authors an article processing charge (APC), so you need to check that your department has the funds available to cover the costs.
- Authors may need to provide a data availability statement within their manuscript (see Information Note 01/2021). This should be included before the article is submitted for executive clearance.

03 Submit your manuscript

- When you submit the manuscript, identify yourself as a WHO staff member.
- Ensure that your article will be published under the Creative Commons Attribution 3.0 IGO licence ([CC BY 3.0 IGO](#)).
- Upload your data to an open repository, such as [Figshare](#).

04 Publisher licence agreement

- Use the appropriate [standing licence agreement](#) with the publisher.
- The licence should be signed by your director.
- Send the signed licence to the journal.
- Forward the licence to your publishing focal point, for uploading into Biblio.

05 Author acceptance stage

- Ensure the final manuscript contains: (i) the WHO copyright notice; and (ii) the appropriate disclaimer (see [WHO eManual VIII.6.5](#)).
- If you have selected a journal that allows authors to deposit their accepted manuscript immediately in a public repository under the terms of the [CC BY 3.0 IGO](#) licence, you will need to deposit your manuscript in [Europe PMC](#) (see [User guide](#)).
- If you have selected to pay an article processing charge, you will receive an invoice that will need to be paid before the article is made available in Europe PMC (see [FAQ on publishing articles in journals](#)).

Questions?

For any queries related to the above steps, please contact us via openaccess@who.int. Additional information about WHO’s publishing policies can be found at <https://emanual.who.int/p08/Pages/home.aspx>

A total of 669 translation requests for WHO publications were reviewed (385 requests from WHO regional and country offices, 284 requests from external entities). Of these 669 requests, 233 were into official languages and 435 into non-official languages. The highest number of requests from regional offices were from the WHO Regional Office for the Americas/Pan American Health Organization (57%), followed by the WHO Regional Office for Europe (33%). Over 3600 requests for permission to reuse WHO published materials were handled.

A new open licensing framework for the distribution platform for the eleventh revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-11) was finalized and launched. New licensing approaches were developed for certain tools and instruments, including the WHO Disability Assessment Schedule 2.0 (WHODAS 2.0). Several co-published book projects were concluded with CABI Press, Springer, Taylor & Francis and World Scientific. Digital content licensing agreements were finalized with the Copyright Clearance Center, JSTOR, the National Center for Biotechnology Information (NCBI) Bookshelf and the Wikimedia Foundation, among others. Dashboards were developed to present data on the use and uptake of WHO guidelines by department, using data provided by Altmetric, NCBI Bookshelf and Google Books.

...and digital libraries

The WHO Library and Digital Information Networks (LDI) has been working on expanding its management and support of the Research4Life public-private partnership which provides institutions in LMICs with online access to academic and professional peer-reviewed scientific content.

Research4Life hosts the HINARI programme that was set up by WHO Library together with major publishers to enable LMICs to gain free or low-cost access to one of the world's largest online collections of biomedical and health literature.

More than 25 000 journals, 100 000 e-books, 115 databases and other information resources are now available to health institutions in more than 125 countries, areas and territories benefiting many thousands of health workers and researchers, and in turn, contributing to improve world health.

In 2021, Research4Life launched its new content portal, ensuring seamless user access to scientific publications. In November of the same year Research4Life partners held a series of virtual and hybrid strategic planning events. One of the topics discussed was how to best support LMICs in a world shifting towards open science and open access.

LDI has also been working on the migration of IRIS to the cloud with a view to increasing access to WHO published material. Established in 2012, IRIS is designed as a one-stop resource for all WHO published material and aims to empower WHO stakeholders through increased access to WHO information products (publications, governing bodies' documents, guidelines, and scientific and technical reports).

IRIS migration to the cloud began in 2021, with infrastructure deployment, systems implementation and cybersecurity testing. The migration will be finalized in early 2022 and will help solve the challenge of the massive increase in user traffic seen during the first year of the COVID-19 pandemic (close to 80 million downloads).

IRIS also ensures digital and multilingual discoverability, accessibility and preservation of all WHO knowledge since 1948. WHO's global repository used by HQ and all Regional Offices and with the daily addition of all the latest information products, including technical guidance on COVID-19, IRIS was seeing more than 200 000 downloads every day from its servers at the end of 2021.

During the biennium and throughout the COVID-19 emergency response, the WHO Library Evidence and Retrieval team provided support to technical units, the Guidelines Review Committee (GRC) and the RRG to identify and retrieve evidence to support the development of NSPs.

The team participated in the regular meetings of the GRC and the RRG, created tailored searches and evidence strategies for technical units and managed the WHO COVID-19 Research Database, which was created in April 2020 to provide a one-stop international and multilingual evidence tool for the COVID-19 response teams and the world.

Since its creation, the database has expanded beyond the storage of clinical evidence to cover social and behavioural sciences. It also stores new types of content, including pre-prints and clinical trials. It now contains more than 400 000 citations and full text links.

The multilingual scientific findings that populate the WHO COVID-19 Research Database were immediately made public and are now accessed in more than 200 countries with close to 8000 active researchers accessing it every day.

The database was awarded the Choice Award by the American Library Association in December 2021 and was one of only eleven digital resources receiving Choice's annual Outstanding Academic Titles distinction for 2021.



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The database was also used to conduct a bibliometric analysis of COVID-19 research in Africa that was subsequently published in the *British Medical Journal*. Among other findings, the analysis showed how much researchers in Africa have contributed to research informing effective action on COVID-19 despite the various challenges faced in low-resource settings. This body of research is now accessible through the Global Index Medicus, another WHO Library portal offering unique access to health evidence and information produced by and for local and regional public health community stakeholders in LMICs.

In addition to this work, virtual and distance training on evidence retrieval and use was provided to thousands of WHO staff and country researchers worldwide. The WHO Library print collections were extensively reduced and moved to the M building along with the staff offices and visitors reference area.

Looking forward

The past two years have been remarkable in many ways, not least in terms of the knowledge translation challenges they have posed. The vital importance of rapid, effective, continuous evidence assessment and NSP development and dissemination has never been clearer.

Already committed to change in the context of the WHO Transformation, QNS met the various challenges posed by the pandemic head on, embracing living approaches and creating and introducing several new mechanisms to help fast-track rapid reviews of evidence and interim guidance and coordinate internally and externally as the evolving emergency dictated.

Going forward, there are significant opportunities to expand these functions to include non-COVID-19 products covering a range of issues, including cross-cutting issues such as gender, climate change, migration and health promotion. Making the most of these opportunities will require significant investment in information management systems to manage content and workflow, as well as in the personnel needed to run them. With adequate financial support, there is much that QNS can achieve in the next two years.

The priorities identified include building out additional functions to support and enable greater agility and responsiveness at all levels of WHO, drawing on the lessons learned in applying the NSP development process in the context of the COVID-19 response.

In 2022, the Method and Standards Unit will lead the operationalization of a WHO-wide quality assurance (QA) system which aims to ensure alignment with the overarching standards and quality criteria set by the Organization. Guidance to support the implementation of living guidelines across the

Organization and uptake of living guidelines in countries will be developed to ensure that the living guidelines approach is well understood and used optimally in countries.

The QNS Design Lab will prioritize the design and pilot testing of the WHO GUIDES technical package for countries. A series of eXtensible Markup Language (XML)-enabled, machine-readable NSP templates will be developed to facilitate their uptake in SMART guidelines¹ (specifically, preparing for digital uptake by making them compliant with Level 1 and Level 2 SMART guidelines requirements). In addition, tailored support to Members States and country offices will focus on strengthening national capacity for NSP adaptation and implementing a monitoring, evaluation and learning framework. A product reporting dashboard to monitor product reach and assess NSP uptake, use and impact will also be developed. A technical advisory group on NSP implementation, monitoring and evaluation will be set up to provide strategic guidance for this work.

In the coming 2022 – 2023 biennium and in addition to the regular enabling services provided by GOR, the Unit will focus on the review and adaptation of terms of reference of 150+ existing advisory groups (those established prior to the current standards being developed), as well as on the development of a new corporate electronic system to manage the designations and redesignation of the WHO collaborating centres.

¹ SMART Guidelines — Standards-based, Machine-readable, Adaptive, Requirements-based, and Testable -- are a comprehensive set of reusable digital health components that transform the guideline adaptation and implementation process to preserve fidelity and accelerate uptake. <https://www.who.int/teams/digital-health-and-innovation/smart-guidelines>

While developing WHO's overall vision for Open Science and public health, we will continue our work from the last biennia with key stakeholders (Publishers, Funders, cOAlition S) to implement WHO's open access policy. The Research4Life Country Connector will be rolled out in seven LMICs (Bhutan, Eswatini, Ghana, Kenya, Liberia, Sierra Leone and United Republic of Tanzania) to strengthen capacity of information use and management and build communities of evidence users within national and regional settings.

In 2022, the new product development support and tracking system and platform, TULIP, with the accompanying product development knowledgebase and help desk will be launched, while also expanding portfolio support mechanism to ensure comprehensive technical support for priority portfolios. The new Biblio publishing system will be integrated into the new publications page of the WHO Website, providing another mechanism for digital distribution of WHO's technical products to Member States.

A closing message

Before the pandemic hit, the global public health community was making steady, if uneven progress towards many of the GPW13 and SDG goals. Much of that progress is now in question. Few doubt that we are at a cross roads, an inflexion point, 'build back better' being balanced against economic retrenchment. The coming epidemics (and pandemics), political instability, migration, the consequences of climate change and antimicrobial resistance are only going to increase the challenges faced. To meet those challenges we need to harness the power of science, data, innovation, and digital technologies and to do that we need evidence-based guidance, optimized for impact. QNS is committed to making sure that optimized reliable timely living and SMART (Standards-based, Machine-readable, Adaptive, Requirements-based and Testable) guidance is developed and made available to all.

