Private Sector Dialogue on SDG 3.4 Noncommunicable diseases

Strengthening the commitment and contribution of the private sector (medicines and health technologies) to the NCD and hypertension response

Discussion paper

Contents

Disclaimer

The World Health Organization (WHO) welcomes views from all participants prior to, during, and after the Dialogue to be held on 21 and 22 June 2022. The discussion paper should be viewed as a work in progress developed to support the objectives of the meeting. It encourages inputs, commitments, and contributions from the pharmaceutical and health technology industries to support WHO's activities to strengthen and improve access to medicines and health technologies for hypertension.

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Dialogue Objectives for June 2022

The WHO Department of Noncommunicable Diseases, in collaboration with the Division of Access to Medicines and Health Products, is convening a series of biannual meetings called "private sector dialogues" with representatives from international business associations, pharmaceutical, and health technology industries to define meaningful and effective contributions to the implementation of national responses for the prevention, management and control of noncommunicable diseases (NCDs) and the attainment of related Sustainable Development Goal (SDG) targets. The dialogues will focus on mobilizing commitments and contributions by the private sector toward national NCD responses to achieve SDG targets 3.4, 3.8 and 3b by improving access to and affordability of safe, effective, and quality-assured medicines and health technologies.

Improving access to medicines and health technology products for the diagnosis, management and treatment of hypertension is multifaceted and part of a broader challenge of ensuring access to healthcare. It requires a robust health system which includes good leadership and governance, adequate financing, access to information and evidence, quality service delivery, a strong health workforce, and equitable access to essential medicines and health technology products of assured quality, safety, efficacy, and cost-effectiveness. Effective interventions will require enhanced multi-stakeholders collaboration and commitment for a greater impact at country-level. This is the third dialogue in the series, which is being held on 21 and 22 June 2022 and will focus on improving access to antihypertensive medicines and blood pressure measuring devices as guided by the WHO essential lists. Subsequent dialogues will focus on other NCDs, such as cancer, lung diseases, oral health, rehabilitation, sensory impairments, and disability.

The purpose of the dialogue is to:

- Provide an update on progress in the global prevention and management of NCDs.
- Provide an update on existing progress toward improving access to hypertension medicines and health technologies.
- Deepen understanding of major barriers, challenges, opportunities and solutions for low-and-middle-income countries, including humanitarian settings.
- Encourage collaboration between WHO, intergovernmental agencies, and non-State actors in accordance with WHO's rules and policies including the Framework of Engagement with Non-State Actors (FENSA) in a meaningful way towards the development of contributions and commitments by the relevant private sector entities (manufacturers of hypertension medicines and blood pressure measuring devices).
- Share views on the preliminary set of WHO asks for the pharmaceutical and associated technology product industries.
- Discuss potential solutions towards a collaborative approach to improving access to hypertension medicines and health technologies.

This background paper is supplemented by two annexes

- Annex A: Enumerates the role of the private sector as included in key documents
- Annex B: Provides a brief background, including:
    - B.1 – Roles and responsibilities
    - B.2 – Documenting and reviewing contributions of the private sector to NCD product access
    - B.3 – Summary of key private sector NCD access initiatives to date

Background

Problem Statement

Hypertension significantly increases the risk of heart, brain and kidney diseases and is the leading cause of death globally, claiming approximately 10.8 million lives in 2019, most of them prematurely [1, 2].Globally, the number of adults aged 30–79 years with hypertension increased from 650 million to 1.28 billion in the last thirty years, with most of them (two-thirds) living in LMICs. While the age-standardized incidence of hypertension has decreased in wealthier countries, it has increased in many low-and-middle income countries (LMICs) over the same period [3]

Even though hypertension can be easily detected through measuring blood pressure, at home or in a health center, and can generally be treated effectively with medications that are largely considered low cost and widely available, less than half of adults with hypertension are diagnosed and treated with even fewer (approximately 1 in 5 adults) having it under control worldwide.[4, 5]. This reveals several gaps in the treatment cascade for hypertension (awareness; diagnosis; treatment and control) and is further highlighted in figure 1 below.

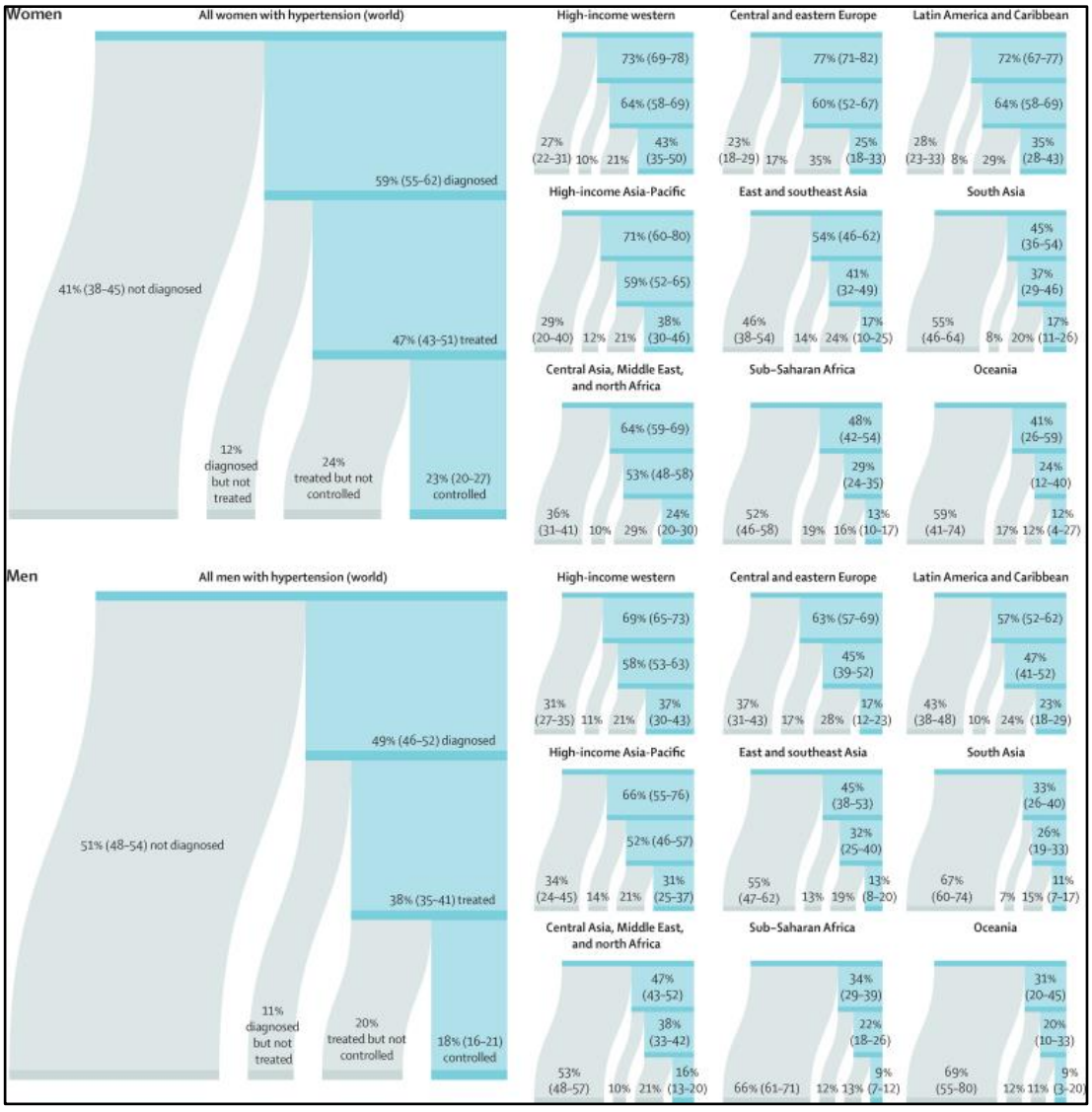

Figure 1: Hypertension treatment cascade in 2019, for women and men globally and by region. Data are estimate (95% credible interval). Source: NCD Risk Factor Collaboration (NCD-RisC). Lancet. 2021 Sep 11;398(10304):957-980.

I. Barriers to Access for Hypertension Management

For patients to be correctly diagnosed, access to good quality, accurate, affordable blood pressure measuring devices and adequately trained and skilled personnel are mandatory. Similarly, for treatment and follow up, access to safe, quality-assured, affordable, effective medication with uninterrupted supply provided by adequately skilled and trained personnel is required. In order to meet these requirements, a well-functioning health system needs to be in place. Thus, several barriers may be identified at different level of the hypertension treatment cascade.

a) Barriers to hypertension diagnosis and monitoring

The 2019 WHO NCD Country Capacity Survey found that blood pressure measuring devices (BPMD) were largely available among the essential NCD technologies in the target countries [6] (BPMD was reported as being generally available in 98% of countries; height and weight measurements by 92% of countries; and blood glucose measurement by 88% of countries). However, the survey is affected by several limitations, including the self-reporting methodology and missing information about the device status (functioning, validated, or maintained). Relevant barriers in accessing BPMD include, among others, the device usability and accessibility both from health workforces and patients, affordability of medications, supportive infrastructure (e.g. regulatory), and governance mechanisms to support quality and safety treatments.

Table 1: Barriers and potential solutions to BPMD

Barrier	Potential solution
Use of automated and semi-automated or aneroid sphygmomanometers (operator dependent)	Use digital devices (adhering to proper conditions such as patient position and correct cuff size) (operator independent) [7]
BPMDs cleared by regulatory authorities without rigorous validation testing to ensure clinical accuracy (usually price driven)	BPMD devices should be validated for accuracy according to ISO or alternative globally accepted standards (cost effective in the long term)
Inadequate and late maintenance	Proper routine maintenance by trained personnel
Access to electricity and batteries	Ensure timely identification of issues with batteries or electricity so it can be raised with relevant stakeholders

b) Barriers to Access for hypertension medication

For most antihypertensive medicines, there are many active pharmaceutical ingredients (API) or finished pharmaceutical products across the world, including those approved by stringent regulatory authorities (SRA). This represents a significant strength in terms of market offer and unlikely to lead to supply shortages for many of these products. However, with the absence of robust demand estimates, it is hard to accurately match demand and supply capacity. For some products, excessive fragmentation (too many manufacturers) could lead to poor economies of scale and the need to consider reduced individual product proliferation for demand side consolidation. Table 2 below from the William Davidson Institute provides a few examples of selected antihypertensive products and the number of identified manufacturers, SRA approvals and those based on interviews conducted [8].

Table 2: Selected hypertensive products identified

Medicine	Therapeutic Class	Total number of manufacturers identified	Manufactures with SRA approvals (based on country registration)	Manufactures with SRA approvals (based on interview conducted)
Enalapril	ACE inhibitor	92	35	12
Amlodipine	Calcium-channel blocker	229	67	24
Chlorthalidone	Thiazide Diuretic	60	44	6
Hydrochlorothiazide	Thiazide Diuretic	16	14	18

The supply of antihypertensive medicines is uneven between High Income Countries (HICs) and LMICs. WHO/Health Action International surveys [9] have demonstrated that the average availability of cardiovascular disease/hypertension medications was 54% in LMICs and 60% in HICs and upper-middle-income countries (UMICs). The uptake was higher for generic (61%) than brand medicines (41%). MedMon surveys [10] conducted in health facilities of 24 countries between 2016-2019 indicate variable availability based on type of hypertensive product (Annex C). Table 3 notes the number of surveyed countries reporting <50% availability by facility sector. Affordability [11] was lower in LMICs than high-and upper-middle-income countries for both brand and generic medications.

Table 3: MedMon selected hypertensive products

Type of hypertensive product	Sector	Number of surveyed countries reporting <50% average availability of hypertensive product/ Number of countries surveyed
ACE inhibitors	public	9/23
	private	2/25
Calcium channel blockers	public	11/24
	private	1/26
Loop diuretics	public	3/6
	private	0/7
Thiazide diuretics	public	4/23
	private	1/24

In HICs, the demand for antihypertensive medicines is high and long-standing public social security systems and/or private insurances usually cover most hypertension care. Though about 80% of hypertensive patients reside in LMICs [12], the demand in LMICs for antihypertensive medicines is undermined by significant under-diagnosis, weak quantification, and under-developed treatment and follow-up programs, along with at times weak procurement and supply chain systems. Furthermore, in most LMICs, social security systems, when they exist, tend not to cover all citizens and/or not to reimburse all essential NCD medicines and medical devices, including those for treating hypertension. As a result, most of the costs of treatment, including medications, end up being paid out-of-pocket by people living with hypertension, who additionally may not recognize the need for lifetime medication when the disease is still asymptomatic [13]. Lastly, the lack of standardized national protocols and treatment algorithms for hypertension naming preferred, evidence-based medicines incentivize a market fragmentation between a vast number of formulations prescribed and sold within the same therapeutic classes, especially in the private sector. This leads to poor visibility of market opportunities for manufacturers, potentially resulting in irregular or no supply.

Other potential factors include challenges to timely registration in all countries (particularly in the case of single pill combinations [SPCs]) or establishing reliable supply chain and distribution in-country.

Finally, in markets where there are multiple manufacturers of varying quality, manufacturers of high-quality products may find it challenging to offer competitive prices, particularly where patients are purchasing medicines out-of-pocket. Quality health products are imperative and such sustainable production comes at a cost [14]. At the same time, some quality products that are sold by the manufacturer at affordable prices may be subsequently rendered unaffordable by multiple markups in the supply chain [15]. In the absence of consolidated procurement, manufacturers sell to distributors, who sell to wholesalers, who sell to dispensing points, often with substantial markups along the way. For example, one study in Kenya found highly variable pricing throughout the public and private health sector, with markups exceeding 340% on amlodipine and 280% on hydrochlorothiazide [16].

Barriers to Access to Single Pill Combinations

SPCs, with two or more active ingredients, are the dosage form of antihypertensive medicines with greatest potential for high patient benefit in terms of efficacy and patient-centeredness. SPCs may also be more cost-effective from a programmatic point of view given improved patient adherence, and theoretically, simplification to fewer pills per patient facilitates a more streamlined list of essential medicines improving the efficiency of the supply chain. This holds true also considering that SPCs were found less expensive compared to the sum of their related single-pill agents (SAPs) in several countries [17].

However, results from a Resolve To Save Lives / Médecins Sans Frontières (RTSL/MSF) survey [18] run in 2021 in 5 selected LMICs indicate that the SPCs already listed on the WHO EML tend to be less frequently referenced in national EMLs and standard treatment protocols compared to SAPs. This is in line with a recent global study where 57% (n=16) of LMICs analyzed (n=28) did not have SPCs included on their national EMLs [19]. Furthermore, the RTSL/MSF survey found that SPCs are less frequently registered in LMICs compared to SAPs, and, in addition, that registration in stringent regulatory authority markets do not necessarily translate into registration in LMICs from the same company. Study findings also indicate that SAPs are generally more available in the private sector than public. For SPCs, this disparity was even more pronounced, as already documented in the literature [20].

In the private markets of surveyed LMICs, some SPCs were found to be less expensive than the combined price of their component SAPs sold separately. Effective national systems could in fact realize savings by implementing SPCs. These findings suggest that SPC pricing may not necessarily present a barrier for implementing the 2021 WHO recommendations in LMICs. Previous studies also showed that affordability of antihypertensive medicines tends to be lower in the private sector [21].

II. The WHO Global Response

a) WHO Guideline for the pharmacological treatment of hypertension in adults, 2021

WHO published in 2021 the updated WHO Guideline for the pharmacological treatment of hypertension in adults [22]. The guideline provides the basis for deciding whether to initiate treatment with monotherapy, dual therapy or single-pill combinations, as well as guidance for countries selecting medicines and algorithms for hypertension control for their national guidelines for hypertension management. The guideline also discusses who in the health-care system can initiate treatment. It also includes two examples of suggested drug and dose-specific protocols, namely algorithms 1 and 2, as shown in Figure 2.

Figure 2. Algorithms 1 and 2 in the WHO Guideline for the pharmacological treatment of hypertension in adults.

Algorithm 1: Initiation of treatment with a single-pill combination	Algorithm 2: Initiation of treatment not using a single-pill combination (i.e., with monotherapy or free combination therapy)
Telmisartan + Amlodipine 40 mg + 5 mg	Amlodipine 5 mg
Increase to: Telmisartan + Amlodipine 80 mg + 10 mg	Increase to: Amlodipine 10 mg
Telmisartan + Amlodipine 80 mg + 10 mg Add: Hydrochlorothiazide 25 mg	Amlodipine 10 mg Add: Telmisartan 40 mg
Telmisartan + Amlodipine 80 mg + 10 mg Increase to: Hydrochlorothiazide 50 mg	Increase to: Telmisartan 80 mg Amlodipine 10 mg
	Telmisartan 80 mg Amlodipine 10 mg Add: Hydrochlorothiazide 25 mg
	Telmisartan 80 mg Amlodipine 10 mg Increase to: Hydrochlorothiazide 50 mg

Simple, algorithmic, accessible, non-toxic and effective (SAANE) algorithms, such as the algorithms included in the 2021 WHO hypertension treatment guidelines, can provide a feasible way to improve medication access and maintain quality care for hypertension. These guidelines follow the inclusion of dual-drug single-pill combinations (SPCs) in the WHO Essential Medicine List (EML) in 2019 [23].
Moving to SPCs not only helps at the individual level, but also benefits health systems by reducing the number of patient visits and simplifying forecasting, procurement and supply chain management as well as introducing capacity for task-shifting early steps in the algorithm to non-physician healthcare workers.

b) Global Partnerships

To support governments in strengthening the prevention and control of cardiovascular disease, WHO and the United States Centers for Disease Control and Prevention (U.S. CDC) launched the Global Hearts Initiative in September 2016, which includes the HEARTS (Healthy-lifestyle counselling, Evidence-based treatment protocols, Access to essential medicines and technology, Risk-based management, Team-based care, and Systems for monitoring) technical package. HEARTS is composed of six modules providing a strategic approach to improve cardiovascular health in countries across the world.

In September 2017, WHO began a partnership with Resolve to Save Lives, an initiative of Vital Strategies, to support national governments to implement the Global HEARTS technical package. Since implementation of the programme in 22 low- and middle-income countries. So far, 3 million people have

been put on protocol-based hypertension treatment through person-centred models of care. These programmes demonstrate the feasibility and effectiveness of standardized hypertension control programmes [24].

c) Technical Specifications and Regulatory Pathways for automated BPMDs

In 2020, in response to concern about the lack of accurate, good-quality devices, especially in LMICs, WHO issued technical specifications for automated non-invasive blood pressure measuring devices with cuff [25]. Focusing on automated non-invasive BPMDs with cuff, it provides guidance on characteristics, regulatory requirements and standards, calibration as well as maintenance, procurement, decontamination and decommissioning. Additional elements on accurate measurement of BP and training for personnel are included.

Additionally, in 2021, PAHO published a 'Regulatory Pathway to the Exclusive Use of Validated Blood Pressure Measuring Devices' [26]. This publication seeks to contribute to meeting these recommendations by providing a practical tool for governments to improve their national regulatory frameworks to improve accuracy of blood pressure measuring devices, in turn contributing to the exclusive use of accuracy validated automated BPMDs in primary health care facilities by 2025. This publication can also guide the development of procurement mechanisms that will ensure exclusive availability of BPMDs in Primary Health Care facilities [27].

d) Global dialogues inviting private sector entities to strengthen their commitment and contribution to the implementation of national NCD responses

The private sector has a critical role in ensuring universal access to essential NCD medicines and the associated health technologies. Following the September 2011 United Nations (UN) High-Level Meeting on the Prevention and Control of NCDs, the first in a series of three high-level meetings, WHO has led a series of consultations with Member States, UN agencies, NGOs, and the private sector to fulfil commitments made in the UN Political Declaration on NCDs. The three UN High-Level Meetings on the Prevention and Control of NCDs in 2011, 2014, and 2018 include commitments from governments to:

- Engage with the private sector entities, taking into account national health priorities and objectives for its meaningful and effective contribution to the implementation of national responses to NCDs in order to reach SDG target 3.4 on NCDs, while giving due regard to managing conflicts of interest;

- Invite the private sector entities to strengthen their commitment and contribution to the implementation of national responses to prevent, control and treat NCDs to reach health and development objectives by contributing to further improving access to and the affordability of safe, effective, and quality medicines and associated health technology products in the prevention and control of NCDs.

At the same time, the United Nations General Assembly called upon WHO to develop an approach that can be used to register and publish contributions of the private sector, philanthropic entities, and civil society toward the achievement of the nine voluntary NCD targets by 2025 and SDG target 3.4 by 2030. The first dialogues held in February and September 2021 with the pharmaceutical and health technology industry discussed diabetes commitments and contributions to the implementation of national responses to prevent and manage NCDs by improving access to and the affordability of safe, effective, and quality medicines and technologies for diabetes [28]. The WHO dialogues planned for 2022 will concentrate on hypertension and aim to identify commitments and contributions from the private sector that can have a significant impact in improving access to quality-assured antihypertensive medications and blood pressure monitoring devices in LMICs.

Improving access to medicines for hypertension is not one dimensional and certainly not isolated to the role of industry only. All relevant stakeholders have a role to play to strengthen and improve access to antihypertensive medicines and medical technologies in LMICs. Actions are part of a holistic and multipronged approach with all stakeholders assuming responsibility to deliver on their responsibilities from the public and private sectors, along the health system. Table 4 outlines potential roles and responsibilities along the product life-cycle.

Table 4. Proposed roles and responsibilities for relevant stakeholders

Product Lifecycle: Components of access						
R&D Innovation IPR policy	**Manufacturing Licensing**	**Registration Quality assurance**	**Pricing Access initiatives**	**Procurement Supply**	**Prescribing Dispensing Use**	**Reporting**
Private Sector						
Develop improved products and formulations, aligned with clinical best practice and patient needs Focus device innovation on automated, validated products	Pursue licensing of SRA products Comply with WHO Good Manufacturing Practices (GMP) Ensure device evaluation based on international validation protocols	Proactively register products in LMICs in alignment with national guidelines Only validated products should enter the market Compliance of validation protocols Present proof of equivalence for marketing registration Strengthen and maintain a well-functioning supply chain by contributing to product transparency and data standards	Set affordable prices; offer price transparency Develop access programs aligned with WHO EML and guidelines	Provide consistent supply and technical support, as necessary	Engage in responsible sales and business practices Support safe and appropriate use of drugs by trained personnel	Report to and participate in the Global NCD Reporting mechanism Provide transparency and public disclosure of company's commitments and contributions in support of universal access to essential hypertension products, including transparency about net prices Rapid reporting stratified by country on shortages of antihypertensive medicines Timely reporting on incidence of substandard and falsified products to national regulatory authorities and WHO
WHO and Member States with support of national and international partners						
Support technical guidance on product needs	Support National Regulatory Agencies to implement product registration, GMP inspections, post surveillance market	Encourage effective and streamlined regulatory processes Monitor and address substandard and	Support inclusion of hypertension medications and medical devices in social security systems Support forecasting,	Support Forecasting and market transparency Explore demand aggregation mechanisms	Develop standard guidelines with simplified protocols Ensure inclusion of hypertension treatment of hypertension in	Publish and update the Global NCD Reporting mechanism Timely reporting on incidence of substandard and falsified products

	Support the inclusion of WHO Model EML / EDL into national EMLS / EDLs	falsified medications Support phase out of BPMDs that include mercury or are not in line with WHO technical specifications	quantification and demand planning Reduce individual product proliferation of medicines procured	Provide guidance on pricing policies and consider mark-up regulations across the pharmaceutical supply and distribution chain	essential benefit packages of UHC Ensure capacity building and adequate training of the healthcare workforce to ensure provision of hypertension management services	

III. WHO list of preliminary asks to private sector actors

The focus of the preliminary asks are:

1. Global commitments and governance structures by companies, with the aim of dramatically improving access to essential hypertension medicines and health technology products (with a focus on BPMD) in low-and middle-income countries (LMICs).
2. Specific company activities at country-level to implement such corporate access strategies for essential hypertension products for all people, including those living at the bottom of the economic pyramid, in collaboration with Member States and other actors in accordance with WHO guidance [29].

a) Blood Pressure Measuring Device Asks

1. Ensure full compliance of BPMDs with the WHO Technical Specifications for automated and semi-automated non-invasive blood pressure measuring devices with cuffs, including validation protocols, standards compliance, and post market surveillance
2. Develop, prepare and publicly share access strategies in LMICs toward improving the affordability of BPM devices, including accessories, maintenance options, spare parts, and upgrades, via manufacturer's local authorized distributors.
3. Offer training on the appropriate accurate use and maintenance of the device, through virtual courses and educational resources.

b) Hypertension Medicines Asks

1. If countries have protocol-based therapy aligned to the Model WHO EML, pursue development and registration of these products for the management of hypertension, including Single Pill Combinations.
2. To improve price affordability of protocol-based therapy, participate in demand aggregation mechanisms, such as UN and other international/regional/country procurement mechanisms that serve LMICs, including humanitarian settings, where feasible.
3. Develop, prepare and publicly share access strategies in LMICs for hypertension products, with specific components but not limited to: Licensing, ethical marketing, equitable access strategies, humanitarian emergencies, company incentives for access-to-medicines initiatives.

c) Reporting Asks for both medicines and BP devices

1. Report to and participate in the Global NCD Reporting mechanism to register and publish commitments and contributions by the pharmaceutical and health technology industry toward improving access to NCD medicines and health technologies and contributing to the achievement of the nine voluntary NCD targets for 2025 and SDG target 3.4 on NCDs for 2030.

2. Provide transparency and public disclosure of company's commitments and contributions in support of universal access to essential hypertension products, including transparency about net prices.

3. Rapid reporting stratified by country on shortages of antihypertensive medicines or blood pressure devices.

4. Timely reporting on incidence of substandard and falsified products (medicines or devices) to national regulatory authorities and WHO.

Annex A – Role of the private sector as included in key documents

SDGs: **Support the achievement of the voluntary targets for 2025 and SDG targets for 2030**

- SDG target 3.4: "by 2030 reduce by one-third pre-mature mortality from non-communicable diseases (NCDs) through prevention and treatment, and promote mental health and wellbeing"
- SDG target 3.8: "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 Target 3b: "Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health and, in particular, provide access to medicines for all"
- SDG 17.16: "Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries"
- SDG 17.17: "Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships"

WHO NCD Global Action Plan on the role of Multi-sectorial actors:

- "Exchange of information on best practices and dissemination of research findings in the areas of health promotion, legislation, regulation, monitoring and evaluation and health systems strengthening, building of institutional capacity, training of health personnel, and development of appropriate health care infrastructure."
- "Promote the development and dissemination of appropriate, affordable and sustainable transfer of technology on mutually agreed terms for the production of affordable, safe, effective and quality medicines and vaccines, diagnostics and medical technologies, the creation of information and electronic communication technologies (eHealth) and the use of mobile and wireless devices (mHealth).
- "Strengthen existing alliances and initiatives and forge new collaborative partnerships as appropriate, to strengthen capacity for adaptation, implementation, monitoring and evaluation of the action plan for prevention and control of non-communicable diseases at global, regional and national levels."
- Specific targets included:
    - Target 6: A 25% relative reduction in the prevalence of raised blood pressure or contain the prevalence of raised blood pressure, according to national circumstances
    - Target 8: At least 50% of eligible people receive drug therapy and counselling (including glycaemic control) to prevent heart attacks and strokes
    - Target 9: An 80% availability of the affordable basic technologies and essential medicines, including generics, required to treat major NCDs in both public and private facilities

WHO: Recommendations from the report of the WHO Independent High-Level Commission on Non-communicable Diseases [30]

- "It is critical to note that responsibility also lies with the private sector to take initiative on and be accountable for these issues. Dialogue should be encouraged to identify contributions the private sector can make to public health goals. Public-private partnerships can be an important tool to contribute to effective NCD responses. It is important that conflicts of interests are adequately addressed, with transparency and focus required to ensure that public policies and public-private partnerships are in the

public interest, provide public value, and do not undermine the sustainability of financing health systems."

- "Devise clear rules and rigorous approaches for the engagement with the private sector, preventing, identifying, and managing real or potential conflict of interest and ensuring that such engagements tie back to specific objectives in the national NCD response"
- "Increase in the number of dialogues with the private sector to secure more effective and meaningful contributions towards SDG target 3.4"
- "The promotion and independent assessments of voluntary commitments by the private sector in response to specific "asks" from WHO, considering WHO recommendations and guidance, to be recorded, made publicly accessible, monitored, evaluated, and followed up."
- "The creation of a repository of case studies, good practices, approaches, accountability mechanisms, and evidence on effective models of appropriate engagement with the private sector, including case studies on how the private sector has supported governments in the implementation of national responses to prevent and control NCDs and mental health conditions."

WHO GCM/NCD Working Group on how to realize governments' commitments to engage with the private sector for the prevention and control of NCDs (Working Group 3.1) [31]

- Included specifically with regards to medicines and technologies: "Contribute to efforts to improve access to and affordability of medicines and technologies in the prevention and control of non-communicable diseases"

Overarching principles when engaging the private sector to strengthen its commitment and contribution to the implementation of national hypertension responses. FENSA as applied to hypertension: [32]

Any engagement of national governments with the pharmaceutical industry must:

- Demonstrate a clear benefit to people living with hypertension
- Conform with national hypertension programmes
- Respect the primary role and responsibility of governments in policy making and responding to the challenge of hypertension
- Support and enhance, without compromising, the scientific and evidence-based approach that underpins WHO's work
- Protect governments and WHO from any undue influence, in particular on the processes in setting and applying policies, norms and standards
- Not compromise governments' and WHO's integrity, independence, credibility and reputation
- Effectively manage conflict of interest and other forms of risk to WHO
- Comply with the principles of transparency, openness, inclusiveness, accountability and amenability to independent verification
- Recognize the fundamental conflict of interest between some industries and public health
- Meets alignment criteria:
    - Aligned with relevant WHO treaties, frameworks, strategies, action plans and recommendations agreed by Member States
    - Takes into account lessons learnt from other similar NCD initiatives and frameworks engaging private sector entities, while recognizing the specificity of this efforts
- Meets impact criteria:
    - Pharmaceutical companies should focus primarily on contributions with the highest impact, in particular contributions related to activities that (a) directly minimize the potential negative impact of their core business on the global burden of non-communicable diseases, and (b) improve universal access to NCD prevention and treatment
- Meets participation criteria:
    - Geographical context and coverage, sector, and size should benefit the lowest-income countries first

Annex B - Background

B.1 – Roles and responsibilities

Governments have the primary role and responsibility to generate effective responses for the prevention and control of hypertension,[i] including, inter alia, by promoting increased access to affordable, safe, effective, and quality-assured hypertension medicines and associated health technology products,[ii] and progressively extend coverage to additional people with quality essential hypertension services and quality, safe, effective, affordable and essential medicines, vaccines, diagnostics and associated health technology products, with a view to covering all people by 2030.[iii]

Other stakeholders also share responsibility and can contribute in creating an environment conducive to preventing and controlling hypertension. The need to bring together civil society and the private sector to mobilize all their available resources for the implementation of national responses for the prevention and control of hypertension is widely recognized.[iv] Civil society's role is to advocate for governments to develop ambitious national hypertension responses and to contribute to their implementation, forge partnerships and alliances that mobilize and share knowledge, assess progress and hold governments and other actors accountable, provide services, and amplify the voices of and raise awareness about people living with and affected by hypertension.[v]

While giving due regard to managing conflicts of interest, the private sector, ranging from micro-enterprises to cooperatives to multinationals, can contribute to further improving access to and the affordability of safe, effective and quality-assured hypertension medicines and associated health technology products.

B.2 – Documenting and reviewing contributions of the private sector to NCD product access

Pharmaceutical and health technology companies lead a variety of initiatives that aim to improve access to medicines and associated health technology products. These initiatives can be categorized as: access initiatives; health systems strengthening and capacity building initiatives; and financing of Ministry of Health activities. Access initiatives generally focus on provision of medicines or medical devices through donation, reduced prices or special discounts. Health system strengthening and capacity building initiatives help provide resources required to strengthen institutions and workforce capacity, typically to improve access to pharmaceuticals and health technology products. Financing of activities which fall under the mandate of the government is another approach that is used. The United Nations General Assembly has called upon WHO to develop an approach that can be used to register and publish contributions of the private sector, philanthropic entities and civil society to the achievement of the nine voluntary NCD targets for 2025 and SDG target 3.4 for 2030 [33].

In order to address the increasing number of individual access initiatives by the pharmaceutical industry and a lack of a global framework or guideline to assist Member States, WHO has developed technical guidance highlighting both opportunities and challenges of these programs, and proposing the following checklist of key considerations for such initiatives:**Error! Bookmark not defined.** alignment with countries' national health and development plans, needs, capacity, laws and policies; strong mechanisms to ensure financial, performance, and public accountability; strong risk management and mitigation strategies; and clear transitioning plans for long-term sustainability.

[i] In accordance with paragraph 3 of A/RES/66/2
[ii] In accordance with paragraph 36 of A/RES/73/2
[iii] In accordance with paragraph 24(a) of A/RES/74/2
[iv] In accordance with paragraph 16 of A/RES/73/2
[v] In accordance with paragraph 42 of /A/RES/73/2

B.3 – Summary of key private sector NCD access initiatives to date

Since the UN High Level Meeting in 2011, the private sector has developed and implemented initiatives for NCD product access. To date, the most visible company initiatives in the area of access have predominantly focused on donation programs, differential pricing, and health system strengthening efforts.

It is not within the remit of WHO to evaluate, review, endorse or recommend the Access to Medicine Foundation (ATMF) Index or Access Accelerated Initiative. However, as two of the most significant reporting and evaluation efforts of NCD access initiatives by the private sector to date, this section of the annex briefly outlines their efforts and findings and may provide some lessons learned for efforts going forward.

The ATMF reports in their longitudinal study over 2008-2018 that the issue of access to medicines has gained prominence within the pharmaceutical industry over the past 10 years, and describes how pharmaceutical companies have used three main tools to address access to medicines, namely differential pricing, product licensing, and donations [34]. Several companies run small-scale access initiatives; from 17 access to medicine initiatives in all disease categories in 2000, an increase to 102 initiatives in 2015 has been seen. Forty-eight percent of these initiatives used a donation strategy and 44% used a price reduction strategy. Of great concern is that only seven initiatives were evaluated, and most of these evaluations were of low or very low quality [35]. It is promising to see that an increasing number of companies are developing additional business models targeting low- income populations, with a specific access strategy as part of the global corporate strategy.

The ATMF further states that the main focus of increased access to medicine has been on Neglected Tropical Diseases (NTDs), vaccines, HIV/AIDS, malaria and tuberculosis. From a Research and Development (R&D) perspective, medicines for NCDs account for the largest proportion of the pipeline included in the latest Access to Medicines Index of 2021, even if the focus is on the needs of high-income countries (HICs) and not LMICs. Moreover, fewer than 30% of new NCD products in late development stage are covered by any specific access plans directed at access and affordability for poor and vulnerable populations [36].

To date, the main access initiative for NCD medicines developed by the pharmaceutical sector is Access Accelerated (AA). AA was launched at the World Economic Forum (WEF) 2017 in Davos to "lead private sector engagement in driving access to NCD prevention, treatment and care", with the aim to reach the UN SDGs and the 2030 target to reduce premature NCD deaths by one-third. AA is a Chief Executive Officer-led initiative hosted by the IFPMA. In 2019, AA reported 27 member companies and five implementing partners, the World Bank Group, City Cancer Challenge, NCD Alliance, PATH, and World Heart Federation, involved in different initiatives [37]. In AA's latest annual report on its third year of activity (2019), 107 company initiatives addressing NCDs in 136 countries are mentioned. Within AA, a monitoring and evaluation platform has been developed with Boston University, creating the Access Observatory [38]. The Access Observatory was developed and funded by Access Accelerated, which is hosted by and funded by the International Federation of Pharmaceutical Manufacturers and Associations (IFPMA). At the end of 2020 the Access Observatory reported 61 active access programs operating in 104 countries. The report highlights that many programs were focused on a few countries in sub- Saharan Africa and Southeast Asia with these using "community activities that aimed to increase awareness of disease symptoms and treatment options; health service strengthening activities, most notably health provider training courses; and direct health service delivery. Cancer was the most common disease focus (61%), followed by general NCD care (18%) and diabetes (15%)." [39] Of these initiatives, 8 programs and 13% of the total active programs focused on cardiovascular diseases, including hypertension. One of the areas mentioned by the Access Observatory remains the need for significant improvement in all programs conducting and reporting on a thorough needs assessment prior to implementation. This is important given WHO guidance to Member States on such initiatives [40].

ANNEX C.1: Hypertension availability by sector (2016-2019 MedMon Surveys)

World Bank Income Classification	WHO Region	Country (coded)	Year (most recent survey)	Hypertensive Product Category	Formulation	Sector	# facilities with product available	# facilities surveyed	Availability (%)
Low income	AFR	AFR1	2016	ace inhibitors	cap/tab	private	3	5	60%
Low income	AFR	AFR1	2016	ace inhibitors	cap/tab	public	0	6	0%
Low income	AFR	AFR2	2016	ace inhibitors	cap/tab	private	3	5	60%
Low income	AFR	AFR2	2016	ace inhibitors	cap/tab	public	0	5	0%
Low income	AFR	AFR3	2017	ace inhibitors	cap/tab	private	21	32	66%
Low income	AFR	AFR3	2017	ace inhibitors	cap/tab	public	14	33	42%
Low income	AFR	AFR5	2017	ace inhibitors	cap/tab	private	37	39	95%
Low income	AFR	AFR5	2017	ace inhibitors	cap/tab	public	37	56	66%
Low income	AFR	AFR7	2016	ace inhibitors	cap/tab	private	3	8	38%
Low income	AFR	AFR7	2016	ace inhibitors	cap/tab	public	1	5	20%
Low income	AFR	AFR8	2017	ace inhibitors	cap/tab	private	25	25	100%
Low income	AFR	AFR8	2017	ace inhibitors	cap/tab	public	28	34	82%
Low income	AFR	AFR9	2017	ace inhibitors	cap/tab	private	17	24	71%
Low income	AFR	AFR9	2017	ace inhibitors	cap/tab	public	17	21	81%
Low income	AFR	AFR1	2016	betablockers	cap/tab	private	4	4	100%
Low income	AFR	AFR1	2016	betablockers	cap/tab	public	6	6	100%
Low income	AFR	AFR2	2016	betablockers	cap/tab	private	5	5	100%
Low income	AFR	AFR2	2016	betablockers	cap/tab	public	5	5	100%
Low income	AFR	AFR3	2017	betablockers	cap/tab	private	7	32	22%
Low income	AFR	AFR5	2017	betablockers	cap/tab	private	35	39	90%
Low income	AFR	AFR7	2016	betablockers	cap/tab	private	6	6	100%
Low income	AFR	AFR7	2016	betablockers	cap/tab	public	3	3	100%
Low income	AFR	AFR8	2017	betablockers	cap/tab	private	22	25	88%
Low income	AFR	AFR9	2017	betablockers	cap/tab	private	18	24	75%
Low income	AFR	AFR1	2016	calcium channel blockers	cap/tab	private	4	5	80%
Low income	AFR	AFR1	2016	calcium channel blockers	cap/tab	public	2	6	33%
Low income	AFR	AFR12	2018	calcium channel blockers	cap/tab	private	33	38	87%

Low income	AFR	AFR12	2018	calcium channel blockers	cap/tab	public	25	42	60%
Low income	AFR	AFR2	2016	calcium channel blockers	cap/tab	private	5	5	100%
Low income	AFR	AFR2	2016	calcium channel blockers	cap/tab	public	0	5	0%
Low income	AFR	AFR3	2017	calcium channel blockers	cap/tab	private	23	32	72%
Low income	AFR	AFR3	2017	calcium channel blockers	cap/tab	public	12	33	36%
Low income	AFR	AFR5	2017	calcium channel blockers	cap/tab	private	36	39	92%
Low income	AFR	AFR5	2017	calcium channel blockers	cap/tab	public	42	56	75%
Low income	AFR	AFR7	2016	calcium channel blockers	cap/tab	private	8	8	100%
Low income	AFR	AFR7	2016	calcium channel blockers	cap/tab	public	1	5	20%
Low income	AFR	AFR8	2017	calcium channel blockers	cap/tab	private	25	25	100%
Low income	AFR	AFR8	2017	calcium channel blockers	cap/tab	public	26	34	76%
Low income	AFR	AFR9	2017	calcium channel blockers	cap/tab	private	20	24	83%
Low income	AFR	AFR9	2017	calcium channel blockers	cap/tab	public	18	21	86%
Low income	AFR	AFR12	2018	loop diuretics	cap/tab	private	29	38	76%
Low income	AFR	AFR12	2018	loop diuretics	cap/tab	public	16	42	38%
Low income	AFR	AFR1	2016	thiazide diuretics	cap/tab	private	5	5	100%
Low income	AFR	AFR1	2016	thiazide diuretics	cap/tab	public	6	6	100%
Low income	AFR	AFR12	2018	thiazide diuretics	cap/tab	private	31	38	82%
Low income	AFR	AFR12	2018	thiazide diuretics	cap/tab	public	32	42	76%
Low income	AFR	AFR2	2016	thiazide diuretics	cap/tab	private	5	5	100%
Low income	AFR	AFR2	2016	thiazide diuretics	cap/tab	public	5	5	100%
Low income	AFR	AFR3	2017	thiazide diuretics	cap/tab	private	16	32	50%
Low income	AFR	AFR3	2017	thiazide diuretics	cap/tab	public	13	33	39%
Low income	AFR	AFR5	2017	thiazide diuretics	cap/tab	private	32	39	82%
Low income	AFR	AFR5	2017	thiazide diuretics	cap/tab	public	34	56	61%
Low income	AFR	AFR7	2016	thiazide diuretics	cap/tab	private	8	8	100%
Low income	AFR	AFR7	2016	thiazide diuretics	cap/tab	public	5	5	100%
Low income	AFR	AFR8	2017	thiazide diuretics	cap/tab	private	1	25	4%
Low income	AFR	AFR8	2017	thiazide diuretics	cap/tab	public	6	34	18%
Low income	AFR	AFR9	2017	thiazide diuretics	cap/tab	private	14	24	58%
Low income	AFR	AFR9	2017	thiazide diuretics	cap/tab	public	16	21	76%

Lower middle income	AFR	AFR10	2016	ace inhibitors	cap/tab	private	5	5	100%
Lower middle income	AFR	AFR10	2016	ace inhibitors	cap/tab	public	5	5	100%
Lower middle income	AFR	AFR11	2018	ace inhibitors	cap/tab	private	17	30	57%
Lower middle income	AFR	AFR11	2018	ace inhibitors	cap/tab	public	13	25	52%
Lower middle income	AFR	AFR13	2016	ace inhibitors	cap/tab	private	3	3	100%
Lower middle income	AFR	AFR13	2016	ace inhibitors	cap/tab	public	4	6	67%
Lower middle income	AFR	AFR14	2016	ace inhibitors	cap/tab	private	3	5	60%
Lower middle income	AFR	AFR14	2016	ace inhibitors	cap/tab	public	1	3	33%
Lower middle income	AFR	AFR4	2016	ace inhibitors	cap/tab	private	1	5	20%
Lower middle income	AFR	AFR4	2016	ace inhibitors	cap/tab	public	0	5	0%
Lower middle income	AFR	AFR6	2018	ace inhibitors	cap/tab	private	15	17	88%
Lower middle income	AFR	AFR6	2018	ace inhibitors	cap/tab	public	15	37	41%
Lower middle income	AMR	AMR1	2016	ace inhibitors	cap/tab	private	5	5	100%
Lower middle income	AMR	AMR1	2016	ace inhibitors	cap/tab	public	6	6	100%
Lower middle income	AMR	AMR6	2016	ace inhibitors	cap/tab	private	1	1	100%
Lower middle income	EUR	EUR1	2016	ace inhibitors	cap/tab	private	5	5	100%
Lower middle income	EUR	EUR1	2016	ace inhibitors	cap/tab	public	5	5	100%
Lower middle income	EUR	EUR3	2019	ace inhibitors	cap/tab	private	73	73	100%
Lower middle income	EUR	EUR3	2019	ace inhibitors	cap/tab	private (special)	52	52	100%
Lower middle income	EUR	EUR3	2019	ace inhibitors	cap/tab	public	8	8	100%
Lower middle income	SEAR	SEAR1	2019	ace inhibitors	cap/tab	private	24	25	96%
Lower middle income	SEAR	SEAR1	2019	ace inhibitors	cap/tab	public	5	46	11%
Lower middle income	SEAR	SEAR2	2019	ace inhibitors	cap/tab	private	120	120	100%
Lower middle income	SEAR	SEAR2	2019	alpha blockers	cap/tab	private	116	120	97%
Lower middle income	EUR	EUR3	2019	ARBs	cap/tab	private (special)	47	52	90%
Lower middle income	SEAR	SEAR2	2019	ARBs	cap/tab	private	120	120	100%
Lower middle income	AFR	AFR11	2018	betablockers	cap/tab	private	21	30	70%
Lower middle income	AFR	AFR11	2018	betablockers	cap/tab	public	17	25	68%
Lower middle income	AFR	AFR14	2016	betablockers	cap/tab	private	5	5	100%
Lower middle income	AFR	AFR14	2016	betablockers	cap/tab	public	3	3	100%

Lower middle income	AFR	AFR4	2016	betablockers	cap/tab	public	4	4	100%
Lower middle income	AMR	AMR1	2016	betablockers	cap/tab	private	5	5	100%
Lower middle income	AMR	AMR1	2016	betablockers	cap/tab	public	6	6	100%
Lower middle income	AMR	AMR6	2016	betablockers	cap/tab	private	1	1	100%
Lower middle income	EUR	EUR1	2016	betablockers	cap/tab	private	5	5	100%
Lower middle income	EUR	EUR1	2016	betablockers	cap/tab	public	4	4	100%
Lower middle income	EUR	EUR3	2019	betablockers	cap/tab	private	69	73	95%
Lower middle income	EUR	EUR3	2019	betablockers	cap/tab	private (special)	52	52	100%
Lower middle income	EUR	EUR3	2019	betablockers	cap/tab	public	8	8	100%
Lower middle income	SEAR	SEAR1	2019	betablockers	cap/tab	private	24	25	96%
Lower middle income	SEAR	SEAR1	2019	betablockers	cap/tab	public	18	46	39%
Lower middle income	SEAR	SEAR2	2019	betablockers	cap/tab	private	117	120	98%
Lower middle income	AFR	AFR10	2016	calcium channel blockers	cap/tab	private	5	5	100%
Lower middle income	AFR	AFR10	2016	calcium channel blockers	cap/tab	public	1	5	20%
Lower middle income	AFR	AFR11	2018	calcium channel blockers	cap/tab	private	20	30	67%
Lower middle income	AFR	AFR11	2018	calcium channel blockers	cap/tab	public	8	25	32%
Lower middle income	AFR	AFR13	2016	calcium channel blockers	cap/tab	private	3	3	100%
Lower middle income	AFR	AFR13	2016	calcium channel blockers	cap/tab	public	3	6	50%
Lower middle income	AFR	AFR14	2016	calcium channel blockers	cap/tab	private	1	5	20%
Lower middle income	AFR	AFR14	2016	calcium channel blockers	cap/tab	public	1	3	33%
Lower middle income	AFR	AFR4	2016	calcium channel blockers	cap/tab	private	5	5	100%
Lower middle income	AFR	AFR4	2016	calcium channel blockers	cap/tab	public	1	5	20%
Lower middle income	AFR	AFR6	2018	calcium channel blockers	cap/tab	private	15	17	88%
Lower middle income	AFR	AFR6	2018	calcium channel blockers	cap/tab	public	15	37	41%
Lower middle income	AMR	AMR1	2016	calcium channel blockers	cap/tab	private	3	5	60%
Lower middle income	AMR	AMR1	2016	calcium channel blockers	cap/tab	public	3	6	50%
Lower middle income	AMR	AMR6	2016	calcium channel blockers	cap/tab	private	1	1	100%
Lower middle income	EUR	EUR1	2016	calcium channel blockers	cap/tab	private	5	5	100%
Lower middle income	EUR	EUR1	2016	calcium channel blockers	cap/tab	public	1	5	20%
Lower middle income	EUR	EUR3	2019	calcium channel blockers	cap/tab	private	72	73	99%

Lower middle income	EUR	EUR3	2019	calcium channel blockers	cap/tab	private (special)	52	52	100%
Lower middle income	EUR	EUR3	2019	calcium channel blockers	cap/tab	public	8	8	100%
Lower middle income	SEAR	SEAR1	2019	calcium channel blockers	cap/tab	private	23	25	92%
Lower middle income	SEAR	SEAR1	2019	calcium channel blockers	cap/tab	public	24	46	52%
Lower middle income	SEAR	SEAR2	2019	calcium channel blockers	cap/tab	private	120	120	100%
Lower middle income	AFR	AFR11	2018	loop diuretics	cap/tab	private	26	30	87%
Lower middle income	AFR	AFR11	2018	loop diuretics	cap/tab	public	23	25	92%
Lower middle income	AFR	AFR6	2018	loop diuretics	cap/tab	private	14	17	82%
Lower middle income	AFR	AFR6	2018	loop diuretics	cap/tab	public	14	37	38%
Lower middle income	EUR	EUR3	2019	loop diuretics	cap/tab	private	73	73	100%
Lower middle income	EUR	EUR3	2019	loop diuretics	cap/tab	private (special)	50	52	96%
Lower middle income	EUR	EUR3	2019	loop diuretics	cap/tab	public	8	8	100%
Lower middle income	SEAR	SEAR1	2019	loop diuretics	cap/tab	private	25	25	100%
Lower middle income	SEAR	SEAR1	2019	loop diuretics	cap/tab	public	12	46	26%
Lower middle income	SEAR	SEAR2	2019	loop diuretics	cap/tab	private	115	120	96%
Lower middle income	EUR	EUR3	2019	potassium diuretics	cap/tab	private	64	73	88%
Lower middle income	EUR	EUR3	2019	potassium diuretics	cap/tab	private (special)	51	52	98%
Lower middle income	EUR	EUR3	2019	potassium diuretics	cap/tab	public	8	8	100%
Lower middle income	AFR	AFR10	2016	thiazide diuretics	cap/tab	private	5	5	100%
Lower middle income	AFR	AFR10	2016	thiazide diuretics	cap/tab	public	5	5	100%
Lower middle income	AFR	AFR11	2016	thiazide diuretics	cap/tab	private	5	5	100%
Lower middle income	AFR	AFR11	2016	thiazide diuretics	cap/tab	public	5	5	100%
Lower middle income	AFR	AFR13	2016	thiazide diuretics	cap/tab	private	3	3	100%
Lower middle income	AFR	AFR13	2016	thiazide diuretics	cap/tab	public	6	6	100%
Lower middle income	AFR	AFR14	2016	thiazide diuretics	cap/tab	private	5	5	100%
Lower middle income	AFR	AFR14	2016	thiazide diuretics	cap/tab	public	3	3	100%
Lower middle income	AFR	AFR4	2016	thiazide diuretics	cap/tab	private	5	5	100%
Lower middle income	AFR	AFR4	2016	thiazide diuretics	cap/tab	public	5	5	100%
Lower middle income	AMR	AMR1	2016	thiazide diuretics	cap/tab	private	5	5	100%

Lower middle income	AMR	AMR1	2016	thiazide diuretics	cap/tab	public	6	6	100%
Lower middle income	AMR	AMR6	2016	thiazide diuretics	cap/tab	private	1	1	100%
Lower middle income	EUR	EUR1	2016	thiazide diuretics	cap/tab	private	5	5	100%
Lower middle income	EUR	EUR1	2016	thiazide diuretics	cap/tab	public	5	5	100%
Lower middle income	EUR	EUR3	2019	thiazide diuretics	cap/tab	private	52	73	71%
Lower middle income	EUR	EUR3	2019	thiazide diuretics	cap/tab	private (special)	51	52	98%
Lower middle income	EUR	EUR3	2019	thiazide diuretics	cap/tab	public	6	8	75%
Lower middle income	SEAR	SEAR1	2019	thiazide diuretics	cap/tab	private	13	25	52%
Lower middle income	SEAR	SEAR1	2019	thiazide diuretics	cap/tab	public	1	46	2%
Upper middle income	AMR	AMR3	2016	ace inhibitors	cap/tab	private	5	5	100%
Upper middle income	AMR	AMR3	2016	ace inhibitors	cap/tab	public	6	6	100%
Upper middle income	AMR	AMR4	2016	ace inhibitors	cap/tab	private	4	5	80%
Upper middle income	AMR	AMR4	2016	ace inhibitors	cap/tab	public	1	5	20%
Upper middle income	AMR	AMR5	2016	ace inhibitors	cap/tab	private	5	5	100%
Upper middle income	AMR	AMR5	2016	ace inhibitors	cap/tab	public	5	6	83%
Upper middle income	EUR	EUR2	2019	ace inhibitors	cap/tab	private	32	34	94%
Upper middle income	EUR	EUR2	2019	ace inhibitors	cap/tab	public	24	26	92%
Upper middle income	EUR	EUR2	2019	ARBs	cap/tab	private	30	34	88%
Upper middle income	EUR	EUR2	2019	ARBs	cap/tab	public	25	26	96%
Upper middle income	AMR	AMR3	2016	betablockers	cap/tab	private	5	5	100%
Upper middle income	AMR	AMR3	2016	betablockers	cap/tab	public	6	6	100%
Upper middle income	AMR	AMR4	2016	betablockers	cap/tab	private	5	5	100%
Upper middle income	AMR	AMR4	2016	betablockers	cap/tab	public	5	5	100%
Upper middle income	AMR	AMR5	2016	betablockers	cap/tab	private	5	5	100%
Upper middle income	AMR	AMR5	2016	betablockers	cap/tab	public	5	5	100%
Upper middle income	EUR	EUR2	2019	betablockers	cap/tab	private	33	34	97%
Upper middle income	EUR	EUR2	2019	betablockers	cap/tab	public	26	26	100%
Upper middle income	AMR	AMR3	2016	calcium channel blockers	cap/tab	private	5	5	100%
Upper middle income	AMR	AMR3	2016	calcium channel blockers	cap/tab	public	6	6	100%
Upper middle income	AMR	AMR4	2016	calcium channel blockers	cap/tab	private	3	5	60%

Upper middle income	AMR	AMR4	2016	calcium channel blockers	cap/tab	public	2	5	40%
Upper middle income	AMR	AMR5	2016	calcium channel blockers	cap/tab	private	5	5	100%
Upper middle income	AMR	AMR5	2016	calcium channel blockers	cap/tab	public	5	6	83%
Upper middle income	EUR	EUR2	2019	calcium channel blockers	cap/tab	private	31	34	91%
Upper middle income	EUR	EUR2	2019	calcium channel blockers	cap/tab	public	24	26	92%
Upper middle income	EUR	EUR2	2019	loop diuretics	cap/tab	private	33	34	97%
Upper middle income	EUR	EUR2	2019	loop diuretics	cap/tab	public	22	26	85%
Upper middle income	AMR	AMR3	2016	thiazide diuretics	cap/tab	private	5	5	100%
Upper middle income	AMR	AMR3	2016	thiazide diuretics	cap/tab	public	6	6	100%
Upper middle income	AMR	AMR4	2016	thiazide diuretics	cap/tab	private	5	5	100%
Upper middle income	AMR	AMR4	2016	thiazide diuretics	cap/tab	public	5	5	100%
Upper middle income	AMR	AMR5	2016	thiazide diuretics	cap/tab	private	5	5	100%
Upper middle income	AMR	AMR5	2016	thiazide diuretics	cap/tab	public	6	6	100%
Upper middle income	EUR	EUR2	2019	thiazide diuretics	cap/tab	private	19	34	56%
Upper middle income	EUR	EUR2	2019	thiazide diuretics	cap/tab	public	10	26	38%
High income	AMR	AMR2	2016	ace inhibitors	cap/tab	private	4	4	100%
High income	AMR	AMR2	2016	ace inhibitors	cap/tab	public	4	4	100%
High income	AMR	AMR7	2016	ace inhibitors	cap/tab	private	5	5	100%
High income	AMR	AMR7	2016	ace inhibitors	cap/tab	public	4	5	80%
High income	AMR	AMR2	2016	betablockers	cap/tab	private	4	4	100%
High income	AMR	AMR2	2016	betablockers	cap/tab	public	4	4	100%
High income	AMR	AMR7	2016	betablockers	cap/tab	private	5	5	100%
High income	AMR	AMR7	2016	betablockers	cap/tab	public	5	5	100%
High income	AMR	AMR2	2016	calcium channel blockers	cap/tab	private	4	4	100%
High income	AMR	AMR2	2016	calcium channel blockers	cap/tab	public	3	4	75%
High income	AMR	AMR7	2016	calcium channel blockers	cap/tab	private	5	5	100%
High income	AMR	AMR7	2016	calcium channel blockers	cap/tab	public	4	5	80%
High income	AMR	AMR2	2016	thiazide diuretics	cap/tab	private	4	4	100%
High income	AMR	AMR2	2016	thiazide diuretics	cap/tab	public	4	4	100%
High income	AMR	AMR7	2016	thiazide diuretics	cap/tab	private	5	5	100%
High income	AMR	AMR7	2016	thiazide diuretics	cap/tab	public	5	5	100%

ANNEX C.2: Hypertension prices by sector (2016-2019 MedMon Surveys)

World Bank Income Classification	WHO Region	Country (coded)	Medicine	Year (most recent survey)	Sector	Median Unit Price (USD)[1]	Tablets /Month[2]	Monthly Cost of Treatment (USD)	Daily Wage (USD)[3]	Days Wage/Monthly Treatment
Low income	AFR	AFR3	amlodipine 5mg cap/tab	2017	private	0.05	30	1.62	3.53	0.46
Low income	AFR	AFR3	amlodipine 5mg cap/tab	2017	public	0.06	30	1.73	3.53	0.49
Low income	AFR	AFR5	amlodipine 5mg cap/tab	2017	private	0.07	30	2.08	0.52	3.97
Low income	AFR	AFR5	amlodipine 5mg cap/tab	2017	public	0.02	30	0.52	0.52	0.99
Low income	AFR	AFR9	amlodipine 5mg cap/tab	2017	private	0.06	30	1.93	8.63	0.22
Low income	AFR	AFR9	amlodipine 5mg cap/tab	2017	public	0.00	30	0.04	8.63	0.00
Low income	AFR	AFR2	atenolol 50mg cap/tab	2016	private	0.15	45	6.75	2.08	3.24
Low income	AFR	AFR3	atenolol 50mg cap/tab	2017	private	0.17	45	7.45	3.53	2.11
Low income	AFR	AFR3	atenolol 50mg cap/tab	2017	public	0.14	45	6.22	3.53	1.76
Low income	AFR	AFR5	atenolol 50mg cap/tab	2017	private	0.03	45	1.36	0.52	2.60
Low income	AFR	AFR5	atenolol 50mg cap/tab	2017	public	0.02	45	0.97	0.52	1.86
Low income	AFR	AFR7	atenolol 50mg cap/tab	2016	private	0.20	45	8.82	1.67	5.29
Low income	AFR	AFR9	atenolol 50mg cap/tab	2017	private	0.09	45	3.94	8.63	0.46
Low income	AFR	AFR3	enalapril 5mg cap/tab	2017	private	0.06	60	3.69	3.53	1.04
Low income	AFR	AFR3	enalapril 5mg cap/tab	2017	public	0.00	60	0.01	3.53	0.00
Low income	AFR	AFR5	enalapril 5mg cap/tab	2017	private	0.02	60	1.30	0.52	2.48
Low income	AFR	AFR5	enalapril 5mg cap/tab	2017	public	0.02	60	1.17	0.52	2.23
Low income	AFR	AFR9	enalapril 5mg cap/tab	2017	private	0.25	60	15.21	8.63	1.76
Low income	AFR	AFR9	enalapril 5mg cap/tab	2017	public	0.00	60	0.08	8.63	0.01
Low income	AFR	AFR12	furosemide 40mg cap/tab	2018	private	0.01	30	0.39	0.05	7.29
Lower middle income	AFR	AFR11	amlodipine 5mg cap/tab	2018	private	0.09	30	2.64	1.53	1.73
Lower middle income	AFR	AFR11	amlodipine 5mg cap/tab	2016	private	0.09	30	2.75	1.53	1.80
Lower middle income	AFR	AFR11	amlodipine 5mg cap/tab	2018	public	0.15	30	4.63	1.53	3.02
Lower middle income	AFR	AFR13	amlodipine 5mg cap/tab	2016	private	0.04	30	1.06	1.63	0.65
Lower middle income	AFR	AFR6	amlodipine 5mg cap/tab	2018	private	0.10	30	2.90	1.73	1.67
Lower middle income	AFR	AFR6	amlodipine 5mg cap/tab	2018	public	0.04	30	1.25	1.73	0.72
Lower middle income	AMR	AMR1	amlodipine 5mg cap/tab	2016	private	0.22	30	6.47	10.90	0.59

World Bank Income Classification	WHO Region	Country (coded)	Medicine	Year (most recent survey)	Sector	Median Unit Price (USD)[1]	Tablets /Month[2]	Monthly Cost of Treatment (USD)	Daily Wage (USD)[3]	Days Wage/Monthly Treatment
Lower middle income	AMR	AMR1	amlodipine 5mg cap/tab	2016	public	0.09	30	2.76	10.90	0.25
Lower middle income	AMR	AMR6	amlodipine 5mg cap/tab	2016	private	0.03	30	0.90	8.12	0.11
Lower middle income	EUR	EUR1	amlodipine 5mg cap/tab	2016	private	0.02	30	0.62	0.51	1.24
Lower middle income	EUR	EUR3	amlodipine 5mg cap/tab	2019	private	0.02	30	0.59	5.38	0.11
Lower middle income	EUR	EUR3	amlodipine 5mg cap/tab	2019	private (AMP)	0.02	30	0.50	5.38	0.09
Lower middle income	EUR	EUR3	amlodipine 5mg cap/tab	2019	public	0.02	30	0.66	5.38	0.12
Lower middle income	SEAR	SEAR1	amlodipine 5mg cap/tab	2019	private	0.06	30	1.77	0.59	2.99
Lower middle income	SEAR	SEAR2	amlodipine 5mg cap/tab	2019	private	0.09	30	2.66	2.33	1.14
Lower middle income	AFR	AFR11	atenolol 50mg cap/tab	2018	private	0.07	45	2.97	1.53	1.94
Lower middle income	AFR	AFR11	atenolol 50mg cap/tab	2018	public	0.04	45	1.98	1.53	1.29
Lower middle income	AFR	AFR14	atenolol 50mg cap/tab	2016	private	0.07	45	3.00	0.93	3.21
Lower middle income	AFR	AFR14	atenolol 50mg cap/tab	2016	public	0.03	45	1.43	0.93	1.53
Lower middle income	AFR	AFR4	atenolol 50mg cap/tab	2016	private	0.16	45	7.30	11.57	0.63
Lower middle income	AFR	AFR6	atenolol 50mg cap/tab	2018	private	0.06	45	2.50	1.73	1.44
Lower middle income	AFR	AFR6	atenolol 50mg cap/tab	2016	private	0.06	45	2.85	1.73	1.65
Lower middle income	AFR	AFR6	atenolol 50mg cap/tab	2018	public	0.03	45	1.56	1.73	0.90
Lower middle income	AFR	AFR6	atenolol 50mg cap/tab	2016	public	0.03	45	1.48	1.73	0.86
Lower middle income	EUR	EUR1	atenolol 50mg cap/tab	2016	private	0.01	45	0.31	0.51	0.62
Lower middle income	EUR	EUR3	atenolol 50mg cap/tab	2019	private	0.02	45	0.87	5.38	0.16
Lower middle income	EUR	EUR3	atenolol 50mg cap/tab	2019	private (AMP)	0.02	45	0.87	5.38	0.16
Lower middle income	EUR	EUR3	atenolol 50mg cap/tab	2019	public	0.02	45	0.87	5.38	0.16
Lower middle income	SEAR	SEAR1	atenolol 50mg cap/tab	2019	private	0.01	45	0.41	0.59	0.69
Lower middle income	SEAR	SEAR2	atenolol 50mg cap/tab	2019	private	0.01	45	0.31	2.33	0.13
Lower middle income	AFR	AFR11	enalapril 5mg cap/tab	2018	private	0.18	60	10.63	1.53	6.94
Lower middle income	AFR	AFR11	enalapril 5mg cap/tab	2016	private	0.23	60	13.75	1.53	8.98
Lower middle income	AFR	AFR11	enalapril 5mg cap/tab	2018	public	0.09	60	5.42	1.53	3.54
Lower middle income	AFR	AFR13	enalapril 5mg cap/tab	2016	private	0.04	60	2.12	1.63	1.30

World Bank Income Classification	WHO Region	Country (coded)	Medicine	Year (most recent survey)	Sector	Median Unit Price (USD)[1]	Tablets /Month[2]	Monthly Cost of Treatment (USD)	Daily Wage (USD)[3]	Days Wage/Monthly Treatment
Lower middle income	AMR	AMR1	enalapril 5mg cap/tab	2016	private	0.04	60	2.59	10.90	0.24
Lower middle income	AMR	AMR1	enalapril 5mg cap/tab	2016	public	0.03	60	1.59	10.90	0.15
Lower middle income	AMR	AMR6	enalapril 5mg cap/tab	2016	private	0.03	60	1.50	8.12	0.18
Lower middle income	EUR	EUR1	enalapril 5mg cap/tab	2016	private	0.01	60	0.62	0.51	1.24
Lower middle income	EUR	EUR3	enalapril 5mg cap/tab	2019	private (AMP)	0.03	60	1.79	5.38	0.33
Lower middle income	SEAR	SEAR2	enalapril 5mg cap/tab	2019	private	0.01	60	0.75	2.33	0.32
Lower middle income	AFR	AFR11	furosemide 40mg cap/tab	2018	private	0.02	30	0.66	1.53	0.43
Lower middle income	AFR	AFR11	furosemide 40mg cap/tab	2018	public	0.02	30	0.66	1.53	0.43
Lower middle income	AFR	AFR6	furosemide 40mg cap/tab	2018	private	0.04	30	1.29	1.73	0.75
Lower middle income	AFR	AFR6	furosemide 40mg cap/tab	2018	public	0.02	30	0.75	1.73	0.43
Lower middle income	EUR	EUR3	furosemide 40mg cap/tab	2019	private	0.01	30	0.22	5.38	0.04
Lower middle income	EUR	EUR3	furosemide 40mg cap/tab	2019	private (AMP)	0.01	30	0.21	5.38	0.04
Lower middle income	EUR	EUR3	furosemide 40mg cap/tab	2019	public	0.01	30	0.23	5.38	0.04
Lower middle income	SEAR	SEAR1	furosemide 40mg cap/tab	2019	private	0.01	30	0.23	0.59	0.38
Lower middle income	SEAR	SEAR2	furosemide 40mg cap/tab	2019	private	0.02	30	0.49	2.33	0.21
Lower middle income	EUR	EUR3	hydrochlorothiazide 25mg cap/tab	2019	private	0.05	30	1.64	5.38	0.30
Lower middle income	EUR	EUR3	hydrochlorothiazide 25mg cap/tab	2019	private (AMP)	0.05	30	1.51	5.38	0.28
Lower middle income	EUR	EUR3	hydrochlorothiazide 25mg cap/tab	2019	public	0.11	30	3.43	5.38	0.64
Lower middle income	SEAR	SEAR1	hydrochlorothiazide 25mg cap/tab	2019	private	0.01	30	0.25	0.59	0.42
Upper middle income	AMR	AMR3	amlodipine 5mg cap/tab	2016	private	0.02	30	0.63	7.53	0.08
Upper middle income	AMR	AMR4	amlodipine 5mg cap/tab	2016	private	0.25	30	7.50	13.33	0.56
Upper middle income	AMR	AMR5	amlodipine 5mg cap/tab	2016	private	0.61	30	18.33	9.30	1.97
Upper middle income	AMR	AMR5	amlodipine 5mg cap/tab	2016	public	0.01	30	0.35	9.30	0.04
Upper middle income	EUR	EUR2	amlodipine 5mg cap/tab	2019	private	0.06	30	1.84	1.90	0.97
Upper middle income	EUR	EUR2	amlodipine 5mg cap/tab	2019	public	0.06	30	1.75	1.90	0.92

World Bank Income Classification	WHO Region	Country (coded)	Medicine	Year (most recent survey)	Sector	Median Unit Price (USD)[1]	Tablets /Month[2]	Monthly Cost of Treatment (USD)	Daily Wage (USD)[3]	Days Wage/Monthly Treatment
Upper middle income	AMR	AMR4	atenolol 50mg cap/tab	2016	private	0.24	45	10.80	13.33	0.81
Upper middle income	AMR	AMR4	atenolol 50mg cap/tab	2016	public	0.12	45	5.22	13.33	0.39
Upper middle income	AMR	AMR3	enalapril 5mg cap/tab	2016	private	0.04	60	2.20	7.53	0.29
Upper middle income	AMR	AMR4	enalapril 5mg cap/tab	2016	private	0.06	60	3.30	13.33	0.25
Upper middle income	EUR	EUR2	enalapril 5mg cap/tab	2019	private	0.06	60	3.64	1.90	1.92
Upper middle income	EUR	EUR2	enalapril 5mg cap/tab	2019	public	0.06	60	3.57	1.90	1.88
Upper middle income	EUR	EUR2	furosemide 40mg cap/tab	2019	private	0.03	30	0.83	1.90	0.44
Upper middle income	EUR	EUR2	furosemide 40mg cap/tab	2019	public	0.04	30	1.11	1.90	0.58
Upper middle income	EUR	EUR2	hydrochlorothiazide 25mg cap/tab	2019	private	0.11	30	3.15	1.90	1.66
Upper middle income	EUR	EUR2	hydrochlorothiazide 25mg cap/tab	2019	public	0.10	30	3.02	1.90	1.59
High income	AMR	AMR2	amlodipine 5mg cap/tab	2016	private	0.18	30	5.40	15.63	0.35
High income	AMR	AMR2	atenolol 50mg cap/tab	2016	private	0.05	45	2.39	15.63	0.15
High income	AMR	AMR7	atenolol 50mg cap/tab	2016	private	0.05	45	2.05	15.59	0.13
High income	AMR	AMR2	enalapril 5mg cap/tab	2016	private	0.08	60	4.83	15.63	0.31

1. Prices reported in local currency unit and converted to USD based on average exchange rate during survey period
2. Based on ATC/DDD index
3. Based on minimum wages reported by the International Labour Organization (primary) or the Wage Indicator Foundation (secondary)
4. Note: 2016 data come from the first MedMon capital city survey (small sample size) offering limited choices for calcium channel blockers (amlodipine 5mg cap/tab or nifedipine R 20mg cap/tab only), beta blockers (atenolol, metoprolol, bisoprolol, or carvedilol only), and diuretics (hydrochlorothiazide 25mg cap/tab only)"

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