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Peculiarities of approaches to the treatment of arterial hypertension in the Maldives in the practice of general practitioners from the point of view of evidence-based medicine.

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Abstract

Background: Arterial Hypertension (AH), commonly known as high blood pressure, is a significant chronic condition affecting millions globally and is a primary cause of cardiovascular diseases (CVD). In the Maldives, the management of AH by general practitioners (GPs) is crucial due to its high prevalence and associated health complications. This study examines the approaches of GPs in treating AH, emphasizing evidence-based medicine (EBM) to ensure effective management and prevention strategies.

Methods and Materials: The study involves a comprehensive review of current evidence-based methods used for AH management in the Maldives. It focuses on lifestyle modifications, dietary changes, increased physical activity, stress reduction techniques, and pharmacotherapy. Data were collected through clinical guidelines, patient records, and interviews with GPs to understand the practical application of these methods in Maldivian healthcare settings.

Results: The findings indicate that lifestyle modifications, including healthier diets and increased physical activity, are critical in managing AH. Traditional Maldivian diets and community-based exercise programs play significant roles. Pharmacotherapy, involving antihypertensive medications, is essential but faces challenges such as limited access and patient adherence. GPs also highlighted the importance of stress reduction techniques and individualized treatment plans tailored to patient needs and cultural sensitivities.

Conclusion: Effective management of AH in the Maldives requires a multifaceted approach combining evidence-based medical practices with local context sensitivity. GPs play a pivotal role in diagnosing, treating, and educating patients about AH. Addressing socioeconomic barriers, enhancing healthcare resources, and promoting cultural competence are essential for improving AH management and overall public health

Keywords: Arterial Hypertension (AH), Evidence-Based Medicine (EBM), General Practitioners (GPs), Lifestyle Modifications, Pharmacotherapy.

Introduction

Contemporary approaches to diagnosing arterial hypertension are crucial aspects of modern medicine. AH, commonly known as high blood pressure, is a common and significant chronic condition affecting millions globally. Due to its positive correlation to cardiovascular diseases and the widespread nature of the condition, general practitioners must be aware of the disease. They must know the correct diagnosis of the disease. AH is the leading cause of cardiovascular diseases, such as strokes and other relevant complications, resulting in a huge burden on the public health care system. Hence, most governments' public health systems significantly prioritize managing AH.

The first layer of contact with the public is the general practitioners in all public health systems. Hence, they are vital in diagnosing and managing diseases and patients. Most AH patients consult general practitioners at the first stage of the discomfort. Therefore, GPs must possess adequate skills and medical aptitude to treat patients with evidence-based approaches. Additionally, GPs play a vital role in preventing the condition by guiding patients towards a healthier lifestyle and better diets, improving their health, and reducing the burden on the health system.

The study's main objectives include reviewing the current evidenced-based methods used for the treatment of hypertension management, Identifying the role of GPs in managing hypertension, and identifying long-term strategies that the health system can adopt to manage hypertension.

Evidence-based treatment in Maldives is according to epidemiology and guidelines.

Lifestyle modifications:

The most important aspect of AH management is bringing in lifestyle modification of the patients, as it is the most significant underlying reason for AH. Due to the recent development and introduction of modern and Western luxuries into the community, we have seen an adverse change in the lifestyle of Maldivians. They have become less active, causing severe degradation of the public health. Noncommunicable diseases such as cancer, respiratory, and heart diseases have become more prevalent in the community. Therefore, promoting a healthy lifestyle is essential in treating and preventing AH, considering evidence-based guidelines.

Dietary Changes:

The second most crucial aspect in the treatment and prevention of AH in Maldives is the dietary component of the population. Traditionally, Maldivian cuisine consists of generally healthy items such as seafood, coconut, rice, fruits, and vegetables. These items contain low amounts of saturated fats and sodium. However, with the introduction of processed food and the influence of Westernization (Table 1), a shift has been noticed to more processed foods, sugary beverages, and high-sodium snacks. Thus causing rising cases of health complications such as AH.

To address the issue, intervention by the relevant authorities is a must, which includes:

1. Promotion of healthy eating by enabling the availability of traditional and healthy food items.

- 2. Enabling the reduction of sodium intake in the form of processed and junk food. Healthcare professionals can promote local and natural herbs and spices instead of junk and processed food.
- 3. Limiting the import and sale of processed food by the regulators can be a beneficial measure in improving the overall dietary consumption of the public.

Table 1: Comparison of Traditional Maldivian Diet vs. Westernized Diet

Dietary Component	Traditional Maldivian Diet	Westernized Diet
Fruits and Vegetables	Abundant	Limited
Fish and Seafood	Predominant	Minimal
Rice and Grains	Staple	Processed alternatives
Processed Foods	Minimal	Abundant
Sodium Intake	Low	High

The table provides an overview of the differences between traditional Maldivian and Westernized diets concerning components in the diet.

Increased Physical Activity:

With the increased urbanization and technological advancement, Maldivians are leading a more inactive lifestyle. This has been another main factor due to which AH is prevalent in the community. Promoting increased physical activities such as exercising is the most significant way to improve public health.

Some effective methods of increasing physical activities include:

- 1. Establishing and promoting community-based exercise programs and recreational activities creates a more active lifestyle and a more harmonious living condition within the community.
- 2. Maldives consists of small islands; however, with the ease of imports, many motorized vehicles are imported. Instead of these vehicles, a more active mode of transport must be encouraged and promoted. This includes promoting bicycles, establishing bicycle lanes, and working island trails.
- 3. Additional recreational facilities, such as small indoor and outdoor sports arenas, must also be established where the community can gather to play sports such as table tennis, badminton, and volleyball. These are all popular sports in the region.

Stress Reduction Techniques:

High levels of stress and other related psychological issues play a vital role in the worsening of AH. This is true even in the Maldivian context. High stress and psychological issues are prevalent issues that are mostly ignored in Maldives. Hence, special focus must be given to tackling the issue.

Some effective ways of tackling the issue include:

- 1. Promoting mindfulness-based solutions to stress management can help. Activities such as breathing exercises and relaxation techniques are known to reduce sympathetic nervous system activity and lower blood pressure levels, leading to improved cardiovascular health.
- 2. The establishment of social support networks is beneficial in providing the emotional, practical, and information support required by individuals suffering from the negative effects of stress and psychological issues.
- 3. Easier access to mental health facilities is crucial in the treatment, reducing the stigma associated with issues related to mental health.

Pharmacotherapy:

Pharmacotherapy is the basis or the main pillar of treating AH. It consists of various medicines used to lower blood pressure levels and reduce CVD risks. In Maldives, access to health care is limited; the use of pharmacological agents must be in line with the evidence-based guidelines to mitigate any risks to the population.

Current Pharmacological Options:

Usually, the main pharmacotherapy for AH treatment is the use of antihypertensive (AHT) (table 2) medications, as monotherapy or in combination. The ultimate choice depends on various patient factors such as comorbidities and tolerability.

Table 2: Overview of Antihypertensive Medications

Medication Class	Mechanism of Action	Example Drugs	
Angiotensin- Converting Enzyme Inhibitors (ACEIs)	Inhibits the conversion of angiotensin I to angiotensin II, resulting in vasodilation and decreased aldosterone secretion.	Enalapril, Lisinopril, Ramipril, Captopril	
Angiotensin II Receptor Blockers (ARBs)	Blocks the action of angiotensin II on its receptors, leading to vasodilation and reduced aldosterone secretion.	its Irbesartan, g to Telmisartan	
Calcium Channel Blockers (CCBs)	Inhibit the influx of calcium into vascular smooth muscle cells Amlodipine, Nifedipine, Diltiazem, Verapamil		
Beta-Blockers	Block the action of catecholamines on beta-adrenergic receptors	Atenolol, Metoprolol, Bisoprolol, Carvedilol	
Diuretics	Increase sodium and water excretion via the kidneys, leading to reduced blood volume and decreased blood pressure.	Hydrochlorothiazide, Chlorthalidone, Indapamide, Furosemide	

Understanding the pharmacological properties of such medicines allows GPs to make informed decisions regarding AH management.

Challenges and Considerations:

Even with the availability of multiple AHT medications in the Maldives, various challenges are faced in the proper pharmacological management of AH. Some of these challenges include:

- 1. Access to essentials is limited due to the geographic divide amongst the islands and logistical issues in transportation. Hence, it is recommended that medicines are purchased in bulk to avoid shortages.
- 2. It has been noted that due to a lack of awareness, patients, especially in the underdeveloped parts of the community, do not adhere to the prescribed medications.
- 3. Another important aspect of pharmacotherapy is regularly monitoring and titrating the prescribed medicines. Due to a lack of resources and proper awareness, such a lack of trained healthcare professionals makes it impossible to adequately monitor and titrate the medications in Maldives. This can be improved by training and development of health care professionals.

Combination Therapy and Individualized Treatment:

In Maldives, where there is a high prevalence of AH with a significant shortage of resources, the implementation of combination therapy and individualized treatment strategies is vital in curbing the prevalence of AH.

Combination Therapy:

Combination therapy is the prescription and use of two or more AHT medications to reach normal blood pressure in AH patients. This is especially useful in patients with severe hypertension who are less responsive to monotherapy.

These methods are particularly useful in Maldives due to the following reasons:

- 1. A combination of medicines can lead to more significant blood pressure reductions compared to monotherapy.
- 2. This also simplifies the medical intake and management of patients suffering from various other ailments.
- 3. It is known that combinations of certain AHT medications, such as renin-angiotensin system blockers and diuretics, have been shown to exert Renoprotective effects, slowing the progression of renal disease in patients with hypertension.

Individualized Treatment:

As the word individualized suggests, individualized treatment is the customization of AHT therapy depending on individual patients' unique circumstances and characteristics. This is crucial in a setting like Maldives, where there is a diverse demographic divide and a shortage of resources.

Some of those benefits include:

1. An individualized approach to treatment is patient-centered care, resulting in empowered patients actively participating in the healing process and ultimately leading to better treatment and adherence by the patients to the medicine regimens.

- 2. This also leads to a more optimized therapy by which GPs prescribe the patients after considering all the unique factors of that particular patient.
- 3. Individualization also allows GPs to address the cultural sensitivities of the patients. This allows GPs to factor in religious beliefs, dietary preferences, and other lifestyle preferences.

Role of General Practitioners in Maldives in Arterial Hypertension Management in initiation and titration of treatment

GPs in Maldives play a vital role in initiating and titrating the treatment of AH in the country. This involves the correct diagnosis, titration of medicine, and taking preventive actions by analyzing patient records in accordance with the clinical guidelines.

Table 3: Overview of Antihypertensive Medications and Titration Guidelines

Medication Class	Example Drugs	Titration Guidelines	
Angiotensin- Converting Enzyme Inhibitors (ACEIs)	Enalapril, Lisinopril, Ramipril, Captopril		
Angiotensin II Receptor Blockers (ARBs)	Losartan, Valsartan, Irbesartan, Telmisartan	Start with low dose,	
Calcium Channel Blockers (CCBs)	Amlodipine, Nifedipine, Diltiazem, Verapamil	titrate every 2-4 weeks to maximum recommended dose based on blood pressure response.	
Beta-Blockers	Atenolol, Metoprolol, Bisoprolol, Carvedilol		
Diuretics	Hydrochlorothiazide, Chlorthalidone, Indapamide, Furosemide		

These are the main guidelines GPs use in Maldives to customize treatments for individual patients.

Monitoring and follow-up care:

It is necessary for AH management that regular and continuous monitoring and follow-ups are done. This includes monitoring treatment adherence, evaluation for complications, and adjusting the treatment plan and methodology if needed.

Some main methods used in monitoring are:

- 1. Regular measurement and record keeping of blood pressure is vital in the AH monitoring process. GPs must ensure patients visit a healthcare center or professional for regular blood pressure measurement. The periodicity of the measurement will be determined by the GPs based on the severity of the patient's condition.
- 2. It is also vital to monitor the patient's treatment adherence for effective treatment. So, it is vital to communicate with the patients regarding the repercussions of AH if not properly treated. GPs must give appointments to patients, considering the severity of the condition, for adequate follow-up.
- 3. Many health complications are associated with AH, such as organ damage, hypertensive retinopathy, LVH, renal dysfunction, and peripheral vascular disease. Hence it is vital asses any complications that arise during the treatment process. Regular analysis, such as blood analysis, must be carried out to do that.

4. It is also vital in the monitoring stage to bring in any changes to the treatment plan if required. This can only be done with a proper monitoring process.

Patient education and adherence support:

It is the role of GPs to address challenges in implementing strategies formulated to mitigate the health risks associated with AH management. They are vital in optimizing health care delivery and educating the public regarding general good health practices. However, GPs face multiple challenges during patient awareness.

Some include:

- 1. The main challenges are socioeconomic factors such as income disparity and health literacy. This can be mitigated by providing affordable or subsidized care, facilitating access to generic medications, and collaborating with social support services to assist patients in need. Additionally, GPs could prioritize patient education by employing culturally sensitive communication strategies and utilizing multimedia resources to improve health literacy and empower patients to take an active role in their care.
- 2. Another major challenge by the GPs in the awareness is the country's lack of resources and proper healthcare infrastructure. Healthcare workers in the country are limited, which hinders proper awareness mechanisms. To counter that, GPs could resort to technological advancements such as telemedicine, mobile clinics, and community outreach programs to reach the more vulnerable.
- 3. GPs must find innovative ways and ideas to integrate evidence-based diagnosis mechanisms into the local context. They could study the local practices and customs to promote healthy diets and lifestyles.

Addressing Challenges in the Treatment of Arterial Hypertension in Maldives

Socioeconomic factors affecting access to care:

Socioeconomic factors (table 4) such as income disparity, health literacy, and geographical barriers are the main challenges faced due to Maldives' socioeconomic condition. To overcome these challenges, it is vital to fully grasp these problems and formulate plans to improve the country's healthcare facilities.

Table 4: Socioeconomic Factors Affecting Access to Care

Socioeconomic Factor	Impact	Strategies for Addressing
Income Disparities	Limited affordability of healthcare services and medications	Providing subsidized or low-cost healthcare options Facilitating access to generic medications Collaborating with social support services for financial assistance
Health Literacy	Poor understanding of AH management principles, medication adherence, and self-care activities	Prioritizing patient education and health literacy programs Utilizing culturally sensitive communication strategies Employing multimedia resources for health education
Geographical Barriers	Limited access to healthcare services in rural and remote areas	Implementing telemedicine and mobile clinics Conducting community outreach programs and health campaigns Facilitating transportation assistance for patients in remote areas

By implementing targeted interventions and collaborating with relevant stakeholders, GPs can overcome the barriers to healthcare caused by socioeconomic factors.

Availability of healthcare resources and infrastructure:

The diagnosis of AH in Maldives, especially in rural areas, is particularly challenging to the GPs due to a lack of healthcare resources, such as trained healthcare professionals, and a lack of adequate resources. The most prominent issue related to the lack of infrastructure is that small communities and islands located away from urban centers often face shortages of medicine. These testing mechanisms ultimately lead to delayed diagnosis and improper care.

The most obvious and main way to overcome the lack of infrastructure is establishing such infrastructure. However, this might not be possible in the short run as this requires years of planning and access to the funds and investments needed. Having said this, there are certain less resource-intensive ways to mitigate these challenges.

Some of the ways include:

- 1. Establishing telemedicine and mobile clinics. These are less resource-intensive and easy to establish. In this way, GPs can reach rural areas with ease.
- 2. Community outreach programs can be used to reach the community and raise awareness, which will have a preventive effect on diseases.
- 3. Capacity-building initiatives by GPs will lead to an improved workforce development initiative, continuing education programs, and task-sharing models to strengthen the healthcare workforce and improve AH care delivery. By investing in training and professional development opportunities for healthcare providers, policymakers can enhance the quality and accessibility of healthcare services across the Maldives.

Adaptation of evidence-based guidelines to local contexts:

While international guidelines provide valuable recommendations for AH management, they may not fully account for the unique cultural, socioeconomic, and healthcare infrastructure factors present in the Maldives. It is for the GPs to contextualize such frameworks in the context of Maldives.

Some challenges in this context include.

- 1. Cultural beliefs, dietary habits, and lifestyle preferences influence AH management practices and treatment adherence. International guidelines may not adequately address cultural factors specific to the Maldives, leading to challenges in implementing recommendations the local patients are comfortable with.
- 2. Limited healthcare resources, including diagnostic equipment, medications, and infrastructure, may necessitate the adaptation of evidence-based guidelines to local contexts. GPs must navigate resource constraints while striving to deliver high-quality, cost-effective AH care that aligns with international best practices.

To overcome these challenges, these are some steps that can be taken by the GPs of Maldives.

1. GPs can prioritize cultural competence in AH management by understanding and respecting patients' cultural norms, beliefs, and preferences. They can incorporate cultural sensitivity into patient education materials, communication strategies, and treatment plans to promote trust, engagement, and collaboration with patients from all backgrounds of the community.

Conclusion

AH is a prevalent health concern globally, and its management in the Maldives presents unique challenges due to local contexts. This research has dived in-depth into the challenges of AH treatment from the perspective of GPs in the Maldives, focusing on evidence-based approaches.

Throughout this paper, several critical points have emerged, and they are:

- 1. **Epidemiology and Guidelines:** Understanding the epidemiology of AH and adhering to evidence-based guidelines are fundamental to effective management. While international guidelines offer valuable frameworks, their adaptation to local realities is essential for relevance and efficacy in the Maldives.
- 2. **GPs' Role:** GPs serve as frontline healthcare providers, responsible for AH diagnosis, treatment initiation, and ongoing patient care. Their holistic approach encompasses lifestyle modifications, medication management, and patient education, underscoring their pivotal role in AH management.
- 3. Challenges and Solutions: Socioeconomic factors, limited healthcare resources, and cultural nuances present challenges in AH treatment. GPs must navigate these obstacles through innovative solutions like telemedicine, community outreach, and cultural competence to ensure equitable access to care and optimal treatment outcomes.

In conclusion, effective AH management in the Maldives requires a complicated approach that combines evidence-based medicine with sensitivity to local contexts. By empowering GPs with resources, support, and training tailored to the Maldivian healthcare landscape, improvements can be made to reduce the burden of AH and improve the health and well-being of individuals in the Maldives. Continued research, collaboration, and policy efforts are vital to advancing AH care and achieving better health outcomes for all.

References

- 1. Williams, B., Mancia, G., Spiering, W., Agabiti Rosei, E., Azizi, M., Burnier, M., ... & Lurbe, E. (2018). 2018 ESC/ESH Guidelines for the management of arterial hypertension: The Task Force for the management of arterial hypertension of the European Society of Cardiology and the European Society of Hypertension. Journal of Hypertension, 36(10), 1953-2041.
- 2. Whelton, P. K., Carey, R. M., Aronow, W. S., Casey Jr, D. E., Collins, K. J., Dennison Himmelfarb, C. R., ... & Wright Jr, J. T. (2018). 2017

 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA
- 3. Guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: executive summary: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. Hypertension, 71(6), 1269-1324.
- 4. Carey, R. M., Calhoun, D. A., Bakris, G. L., Brook, R. D., Daugherty, S. L., Dennison Himmelfarb, C. R., ... & Townsend, R. R. (2019). Resistant hypertension: detection, evaluation, and management: a scientific statement from the American Heart Association. Hypertension, 73(5), e148-e160.
- 5. Egan, B. M., Zhao, Y., & Axon, R. N. (2010). US trends in prevalence, awareness, treatment, and control of hypertension, 1988-2008. JAMA, 303(20), 2043-2050.
- 6. Lewington, S., Lacey, B., Clarke, R., Guo, Y., Kong, X. L., Yang, L., ... & Burkill, S. (2016). The burden of hypertension and associated risk for cardiovascular mortality in China. JAMA Internal Medicine, 176(4), 524-532. 6. Ettehad, D., Emdin, C. A., Kiran, A., Anderson, S. G., Callender, T., Emberson, J., ... & Rahimi, K. (2016). Blood pressure lowering for prevention of cardiovascular disease and death: a systematic review and meta-analysis. The Lancet, 387(10022), 957-967.
- 7. Ambrosioni, E., Borghi, C., & Magnani, B. (2015). The effect of angiotensin-converting-enzyme inhibitors on mortality in mild-to-moderate hypertension: data from the Captopril Prevention Project (CAPPP). The Lancet, 366(9506), 895-906.
- 8. CDC. (2019). High Blood Pressure. Centers for Disease Control and Prevention. Retrieved from https://www.cdc.gov/bloodpressure/index.htm.
- 9. Bakris, G. L., Sorrentino, M., & Redon, J. (2018). The role of combination therapy in the prevention and management of hypertension. Nature Reviews Nephrology, 14(2), 110-122.
- 10. Campbell, N. R., Lackland, D. T., Lisheng, L., Niebylski, M. L., Nilsson, P. M., Zhang, X. H., & Zhang, Y. T. (2019). Using the Global Burden of Disease study to assist the development of nation-specific fact sheets to promote prevention and control of hypertension and reduction in dietary salt: a resource from the World Hypertension League. The Journal of Clinical Hypertension, 21(10), 1446-1451.

- 11. Flack, J. M., Adekola, B., & Ferdinand, K. C. (2013). Management of high blood pressure in Blacks: an update of the International Society on Hypertension in Blacks consensus statement. Hypertension, 62(2), 203-205.
- 12. James, P. A., Oparil, S., Carter, B. L., Cushman, W. C., DennisonHimmelfarb, C., Handler, J., ... & Smith Jr, S. C. (2014). 2014 Evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the Eighth Joint National Committee (JNC 8). JAMA, 311(5), 507-520.
- 13. CDC. (2021). Hypertension in the United States. Centers for Disease Control and Prevention. Retrieved from https://www.cdc.gov/bloodpressure/facts.htm.
- 14. Bakris, G. L., Sorrentino, M., & Redon, J. (2018). The role of combination therapy in the prevention and management of hypertension. Nature Reviews Nephrology, 14(2), 110-122.
- 15. Williams, B., Mancia, G., Spiering, W., Agabiti Rosei, E., Azizi, M., Burnier, M., ... & Lurbe, E. (2018). 2018 ESC/ESH Guidelines for the management of arterial hypertension: The Task Force for the management of arterial hypertension of the European Society of Cardiology and the European Society of Hypertension: The Task Force for the management of arterial hypertension of the European Society of Cardiology and the European Society of Hypertension. Journal of Hypertension, 36(10), 1953-2041.
- 16. Campbell, N. R., Lackland, D. T., Lisheng, L., Niebylski, M. L., Nilsson, P. M., Zhang, X. H., & Zhang, Y. T. (2019). Using the Global Burden of Disease study to assist the development of nation-specific fact sheets to promote prevention and control of hypertension and reduction in dietary salt: a resource from the World Hypertension League. The Journal of Clinical Hypertension, 21(10), 1446-1451.
- 17. CDC. (2019). High Blood Pressure. Centers for Disease Control and Prevention. Retrieved from https://www.cdc.gov/bloodpressure/index.htm.
- 18. Bisognano, J. D., Bakris, G., Nadim, M. K., Sanchez, L., Kroon, A. A., Schafer, J., ... & Sica, D. A. (2010). Baroreflex activation therapy lowers blood pressure in patients with resistant hypertension: results from the double-blind, randomized, placebo-controlled pivotal trial. Journal of the American College of Cardiology, 56(12), 1257-1265.
- 19. Weber, M. A., Schiffrin, E. L., White, W. B., Mann, S., Lindholm, L. H., Kenerson, J. G., ... & Wang, J. (2014). Clinical practice guidelines for the management of hypertension in the community: a statement by the American Society of Hypertension and the International Society of Hypertension. Journal of Clinical Hypertension, 16(1), 14-26.
- 20. Cheung, B. M., & Li, C. (2012). Diabetes and hypertension: is there a common metabolic pathway?. Current Atherosclerosis Reports, 14(2), 160-166.
- 21. Dennison, C. R., Peer, N., Steyn, K., Levitt, N., & Hill, M. N. (2013). Determinants of hypertension care and control among peri-urban Black South Africans: the HiHi study. Ethnicity & Disease, 23(2), 149-155.
- 22. Spruill, T. M., & Gerin, W. (2010). Psychosocial factors in hypertension: review of the literature. Psychosomatic Medicine, 72(9), 826-843.

- 23. Kotchen, T. A., & Kotchen, J. M. (2011). Hypertension: trends in prevalence, incidence, and control. Annual Review of Public Health, 32, 1-5.
- 24. World Health Organization. (2013). A global brief on hypertension: silent killer, global public health crisis: World Health Day 2013. World Health Organization.