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1	**RAPID POLICY BRIEF NUMBER: 014-01**
2	**RESEARCH DOMAIN: COVID-19 AND HYPERTENSION**
3	**TITLE:** The effects of COVID-19 on persons living with hypertension.
4	**DATE OF PUBLICATION: 26/03/2021**
5	**BACKGROUND** The COVID-19 pandemic has led to significant morbidity and mortality coupled with severe strain on health systems globally [1]. Although most people recover from the disease, it has been shown that people living with comorbidities such as hypertension, diabetes, and obesity are affected differently from the remaining population [2,3]. Therefore, this policy brief aims to summarize evidence on the effects of COVID-19 on persons living with hypertension.
6	**SEARCH STRATEGY / RESEARCH METHODS** Five databases were searched for studies conducted between December 2019 and February 28, 2021, including PUBMED, WHO COVID-19 database, Cochrane COVID-19 Study Register, and Google scholar. The search terms used were: "hypertension," "high blood pressure," "COVID-19", "SARS-CoV-2", and "Coronavirus," using relevant Boolean operators. A further search was done, which included "Africa" and a search string of all countries in Africa to identify studies specific to the continent. A total of 19 articles were used to synthesize findings summarized in this policy brief, and the majority of them were systematic reviews, including meta-analyses.
7	**SUMMARY OF GLOBALLY PUBLISHED LITERATURE RELATED TO THE SUBJECT** Living with hypertension is associated with worse outcomes from COVID-19 from a systematic review conducted in China, based on April 10, 2020 literature search [4]. In a systematic review of the association of metabolic risk factors and risk of Covid-19, mostly involving studies from the USA and China, hypertension was more seen to be the most prevalent comorbidity (32%) than obesity (29%) and diabetes (22%) [5]. A systematic review and meta-analysis of 10,898 patients by Momtazmanesh and colleagues showed showed that patients with hypertension were more than twice more likely to die from COVID- 19 than

	other patients; 3.8 times more likely to be admitted in intensive care units (ICU) and 2.5 times more likely to develop severe COVID-19 infection [2]. Dorjee and colleagues, in a systematic review of 77 studies that included 38906 hospitalized pateints, demonstrated 50% of hospitalized patients had hypertension. Of all the COVID-19 patients that died, 66% had hypertension [6]. Similarly, in the US, 55% of patients who were hospitalized due to COVID-19 had hypertension (55%) [6] Many other studies have shown hypertension to be associated with a higher risk of severe infections and mortality [3,7–15]. Increased mortality among persons with hypertension may be due to the upregulation of Angiotensin-Converting Enzyme 2 (ACE2). However, the reason for the upregulation is still unclear [9].
8	**SUMMARY OF AFRICA-SPECIFIC LITERATURE ON THE SUBJECT** Evidence from studies reported in Africa suggests that persons living with hypertension are also severely affected [1], just like their counterparts in other parts of the world. A preliminary analysis conducted in 14 countries in Africa showed that hypertension is one of the commonest comorbidities associated with COVID-19 patients [1]. Another study, an epidemiological analysis of COVID-19 related deaths between March and July 2020 in South Africa, showed similar findings among people who died from the disease [16]. Similarly, a surveillance study of COVID-19 hospital admissions among persons living with HIV in South Africa also showed that having hypertension is associated with increased mortality [17]. Increased mortality in persons living with hypertension has also been reported in African countries in Africa, including the Democratic Republic of Congo [18], Nigeria [18], and Kenya [19].
9	**POLICY FINDINGS** • Hypertension is one of the most common comorbidities in patients infected with COVID-19. • Strong evidence suggests that persons living with hypertension are at higher risks of developing severe complications from COVID-19, being hospitalized, being admitted to the ICUs, and dying from the disease. • Evidence also suggests an upregulation of ACE2 among COVID-19 with hypertension. This evidence is essential to inform the management of COVID-19 among this category of persons.
10	**ONGOING RESEARCH IN THE AFRICAN REGION** None found
11	**AFRO RECOMMENDATIONS FOR FURTHER RESEARCH**

Research is needed on the impact of the COVID-19 pandemic on healthcare services provided to people living with comorbidities, such as hypertension, in Africa.

More research is also required to fully understand the pathophysiology of COVID-19 among persons living with hypertension, especially on the mechanism behind the upregulation of ACE2.

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