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The role of community health workers in COVID-19 home-based care:

Lessons learned from Rwanda

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African Health Observatory
PLATFORM ON HEALTH SYSTEMS AND POLICIES

World Health Organization
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About AHOP policy briefs

AHOP policy briefs are one of a suite of outputs produced by the platform. We aim to capture current concepts, experiences, and solutions that are of importance to health policymaking within the African region, often applying a comparative lens to learn from diverse approaches. We recognise that there are multiple approaches to writing policy briefs. Through consultation we have developed a distinct AHOP approach, with all our briefs following a common template. AHOP briefs bring together existing evidence and present it in an accessible format; use systematic methods transparently stated; and all undergo a formal and rigorous peer review process.

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Cover photo credit: Community health workers lead the fight against malaria in Rwanda. WHO Regional Office for Africa, 2023.

Further information

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Contents

Abbreviations

ASM	Agent de sante maternelle
CHP	Community Health Programme
CHW	Community health worker
ICU	Intensive care unit
MoH	Ministry of health
NCD	Noncommunicable disease
NGO	Nongovernmental organization
PPE	Personal protective equipment
WHO	World Health Organization

Key messages

Investment in the health system is essential for effective pandemic response: Despite Rwanda's rapid implementation of control measures to manage the COVID-19 pandemic, the country faced several challenges in the early stages, due to inadequate infrastructure and a shortage of trained staff.

A home-based care approach alleviated the facility-based care burden during the pandemic: Implemented in September 2020, this key strategy engaged community health workers (CHWs) to provide health education and monitor patients with mild COVID-19 symptoms.

The integration of medical doctors (MDs) into home-based care teams strengthened the COVID-19 response in Rwanda: Operation Save the Neighbour, launched in 2021, integrated MDs into home-based care teams. This improved the quality of care provided to COVID-19 patients, enhanced patient monitoring, and offered additional support to CHWs at household level.

The provision of continuous support to CHWs contributed to overcoming challenges in implementing home-based care models: CHWs played a critical role in community mobilization and surveillance. However, they faced significant challenges, including fear, anxiety, and overwhelming workloads. To support these frontline workers, ongoing training and an adequate supply of resources, including personal protective equipment (PPE), are required.

Executive summary

The issue

The first case of COVID-19 in Rwanda was reported in March 2020 and, despite implementation of rapid measures, cases continued to increase. The pandemic posed significant challenges to Rwanda's health care system, including stretching health worker capacity, inadequate infrastructure such as hospital beds and ventilated rooms, limited availability of PPE, and disruption to the delivery of routine services.

The home-based care model for management of COVID-19 patients

To address challenges, Rwanda introduced a home-based care model for COVID-19 in September 2020. The model required training of CHWs in the management of mild COVID-19 cases to support the existing pandemic response measures. CHWs played a key role in COVID-19 screening, patient monitoring, community mobilization and education, and supporting the social reintegration of recovered COVID-19 patients into the community. In 2021, Operation Save the Neighbour, which involved collaboration among medical doctors, CHWs, and other stakeholders, was introduced to support home-based care.

Impact

The policy was successful in reducing pressure on Rwanda's health system. Engaging CHWs in the fight against COVID-19 improved education and information channels, surveillance, contact identification and tracing, and facilitated the home-based care strategy. Together, these activities significantly reduced the spread of the COVID-19 virus and the health workforce and infrastructure burden. This approach contributed to health system resilience by leveraging existing health services close to the community and community involvement in the fight against the pandemic.

Conclusions

The community-focused approach involved the rapid adaptation of CHW roles and responsibilities to include pandemic-related tasks. The inclusion of medical doctors (MD) in home-based care teams effectively supported CHWs. However, the sustainability of these approaches, particularly involving MDs in home-based care, warrants further analysis, given the country's low health workforce density. Addressing challenges such as inadequate training, psychological impact, limited provision of protective equipment, and excessive workloads for CHWs is crucial. It is also essential to invest in long-term capacity building for CHWs to address broader health system challenges.

Policy implications

The role of CHWs in the COVID-19 response highlights the importance of community-level health systems in responding to outbreaks and maintaining existing services. Ongoing and sufficient investment in the community system is necessary to ensure health system resilience and pandemic preparedness. The following are suggested as critical areas of emphasis for policymakers: (i) plan and prepare for regular training of CHWs on general pandemic preparedness, prevention, treatment, and management; (ii) support CHWs in the safe execution of their work, for example, by equipping them with necessary materials such as PPE; and (iii) encourage stakeholder collaboration in addressing health problems such as pandemics. Finally, the evidence suggests that a working framework should be established to enable the use of the Operation Save the Neighbour initiative for future pandemics. This framework should involve other health professionals such as nurses, midwives, psychologists, and nutritionists.

Introduction

The novel coronavirus disease (COVID-19) was first reported in Wuhan, China, in December 2019 and later declared a pandemic by the World Health Organization (WHO) in early 2020 (World Health Organisation, 2020). Rwanda reported its first case on 14 March 2020, and the following day, the Rwandan government implemented unprecedented measures including the suspension of public gatherings and restrictions on unnecessary travel (Rwanda Prime Minister's Office, 2020).

To facilitate an effective response and coordination mechanism, the government of Rwanda established a multisectoral team composed of the Ministry of Health (MoH), the Rwanda Biomedical Centre, the Ministry of Finance, the Rwanda National Police, local authorities, and non-governmental organizations (NGOs) (Rwanda Ministry of Health, 2021). Several quarantine, isolation, and treatment centres were set up across the country to manage COVID-19 cases (Nkeshimana et al. 2022). However, as the number of COVID-19 cases rapidly increased, exceeding the capacity of treatment centres, a more sustainable solution was required to ease pressure on the already strained health care workforce and infrastructure (Rwanda Biomedical Centre, 2020).

In September 2020, Rwanda introduced a home-based care model for COVID-19 management, which sought to reduce the burden on health facilities by engaging community health workers (CHWs) to provide home-based care for individuals with mild COVID-19 symptoms (Rwanda Biomedical Centre, 2020). Additionally, CHWs played a crucial role in other pandemic response activities, including screening, case identification, contact tracing, and community education. In Rwanda, volunteer CHWs are formally used to address the shortage of health workers by delivering basic curative, preventive, and educational health services. CHWs' services include diagnosing and treating malaria, diarrhoea, and pneumonia among children, providing family planning methods, and facilitating information, education, and communication (IEC) sessions in the community (Rwanda Governance Board, 2017). Leveraging existing community structures, CHWs played a key role in the control of the COVID-19 pandemic in Rwanda (Ballard et al. 2022).

Key questions

This policy brief presents policy options and lessons learnt from engaging CHWs in the management of COVID-19 cases at the community level. It aims to provide insights for policy makers, researchers, programme implementers, and health care providers at the national and regional levels, on how to better plan and respond to future pandemics by leveraging this category of health workers.

Methodology

This brief summarizes evidence from publicly available sources, including published government documents, journal articles, official institutions' websites, and other grey literature. The sources were reviewed and analysed. This brief summarizes available evidence on the use of CHWs in the COVID-19 response, barriers and facilitators to effective implementation of the home-based care model, and the potential impact of engaging CHWs in this and future pandemics.

Rwanda's Community Health Worker Programme

Rwanda faces significant challenges in the effective and equitable provision of health care services, partly due to a shortage of health workers, exacerbated by significant geographical disparities in their distribution.

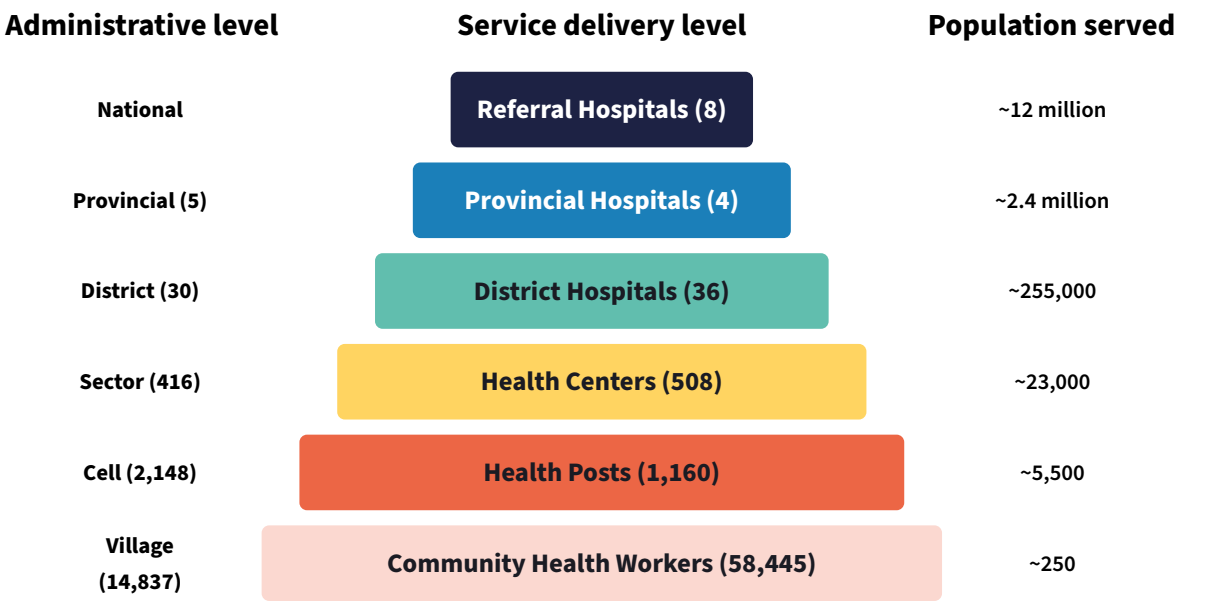
The health worker density in the country is estimated at one doctor per 8918 population, one nurse per 1420 population, and one midwife per 2889 women of reproductive age. This translates to 1.09 health workers per 1000 population, which is less than half of the WHO recommendation (Rwanda Ministry of Health, 2018). To address challenges, Rwanda has adopted a decentralized health care strategy, with care managed at the district level. The district health offices are responsible for the health needs, facilities, and services of their defined population (Rwanda Ministry of Health, 2015).

To expand access to health care services, the government of Rwanda introduced the Community Health Programme (CHP) in 1995 as part of the decentralized strategy (Rwanda Ministry of Health, 2013). CHP is community-driven and implemented at the village level, where health services are closest to the population (see Figure 1) (Rwanda Governance Board, 2017). It is composed of CHWs who play an important role in primary health care delivery (Rwanda Ministry of Health, 2022). In terms of strategy and supervision, MoH is responsible for designing policies, strategies, and guidelines, mobilizing resources, and ensuring that CHWs are adequately trained. At the district level, the "health officer in-charge of community health provides districtwide stewardship of CHWs' activities, while an "health officer in-charge of community health at each health centre oversees CHW activities at the village level (Rwanda Governance Board, 2017).

Approximately 60 000 CHWs are distributed across Rwanda's 14 847 villages. Each village is composed of 100–250 households and is served by four CHWs: one female agent de sante maternelle (ASM), a male-female pair known as binômes, and one CHW leading on noncommunicable diseases (NCDs). ASMs monitor and follow up pregnant women and newborn health care through home visits (Niyigena et al., 2022). Binômes provide a broader range of services, including diagnosis and treatment of childhood illness, antimalarial services, malnutrition screening, and provision of contraceptives. All CHWs, led by the final CHW, are responsible for raising community awareness on NCDs. Each village elects four people to serve as part-time CHWs in a voluntary non-salaried capacity.

In addition to their existing community tasks, CHWs were enlisted to play a crucial role in the fight against COVID-19. The following sections will highlight the involvement of CHWs in the COVID-19 response, focusing on their role in home-based care for COVID-19 patients.

Figure 1: Health care system in Rwanda



Source: Ministry of health, 2015

Management of COVID-19 prior to the introduction of home-based care

Rwanda encountered several challenges in managing the COVID-19 virus in its early stages including inadequate infrastructure to support the required infection prevention control measures, limited oxygen supplies, and a shortage of trained staff (Nkeshimana et al., 2022). To increase the capacity of the health system's physical infrastructure, the government of Rwanda allocated funds for the development of COVID-19 treatment and isolation centres and the procurement of testing equipment (Karim et al., 2021a). In February 2020, the first COVID-19 treatment centre was repurposed from the Kanyinya health centre in the City of Kigali, with 75 floor beds and eight intensive care unit (ICU) beds to manage patients in isolated units (Karim et al., 2021a). Two weeks later, a hotel in the Eastern Province, close to Kigali, was also repurposed as a COVID-19 treatment centre with 126 floor beds and eight ICU beds (Karim et al., 2021). During the pandemic, all 80 public hospitals in Rwanda reserved two beds for isolating patients under COVID-19 investigation and treatment.

In March 2020, the MoH released the first COVID-19 clinical management guidelines, including a directive that all suspected and confirmed cases should be transferred to specialized COVID-19 treatment centres (Rwanda Ministry of Health, 2020). However, there was a rapid increase in community transmission from 431 cases in June to 4840 cases in September 2020 (Rwanda Biomedical Centre, 2020). To cope with this increased pressure, additional health facilities were converted into COVID-19 treatment centres. However, this negatively impacted the continuity of other health services during the pandemic (Rwanda Biomedical Centre, 2020).

Implementation of COVID-19 home-based care

In September 2020, the government of Rwanda introduced a COVID-19 home-based care model to engage community-level structures to alleviate pressure on the health system. Under this model, suspected and confirmed COVID-19 patients with either asymptomatic or mild symptoms were treated at their homes, with monitoring and care largely provided by CHWs. At the time home-based care was initiated, around 70% of COVID-19 cases were mild or asymptomatic, requiring only isolation and supportive management (Rwanda Biomedical Centre, 2020).

To further reduce the burden on health facilities and save lives, Operation Save the Neighbour was incorporated into the home-based care model in 2021. In this, MDs were integrated into existing home-based care teams to support the management of COVID-19 cases in their localities. The adoption of technology to map patients facilitated pairing of doctors with CHWs based on their geographical location (WHO Regional Office for Africa, 2022). This initiative brought together different stakeholders at the community level, including district administrative staff, the District Joint Action Development Forum (a multi-stakeholder platform that ensures sustainable socio-economic development and service delivery to communities), MDs and CHWs (Rwanda Governance Board, n.d.).

Roles of CHWs in COVID-19 home-based care

From the onset of the pandemic, CHWs played a key role in promoting wider and faster detection of cases, particularly in rural areas, and in the search and monitoring of contacts. They also played a critical role in a range of pandemic-related activities including screening, case referral, community education activities, infection prevention and control, and interpersonal communication (Niyigena et al. 2022). They also established a link between communities and the health care system and supported the management of mild COVID-19 cases at home (Rwanda Biomedical Centre, 2020). As part of home-based care, CHWs would monitor patients' temperatures and measure oxygen levels using pulse oximeters. When necessary, they would contact the health centre or sector's command post to initiate a transfer process to the designated health facility for critical care. CHWs would also provide health education on infection control and prevention to all household members, particularly those directly caring for a COVID-19 patient at home (Rwanda Biomedical Centre, 2020).

Social stigma among patients who tested positive for COVID-19 was documented in many settings (Chew et al., 2021). In Rwanda, CHWs played an active role in the social reintegration of recovered cases to mitigate such COVID-19 related stigma in communities through awareness and education. They used phones and digital tools to carry out real-time monitoring of the health status of patients, and shared daily reports via national WhatsApp™ number (Karim et al., 2021b). To discharge these responsibilities effectively, CHWs received training in these pandemic-related activities (Tsiouris et al., 2021).

Challenges in the implementation of the home-based care model

COVID-19 home-based care was an additional responsibility for CHWs many of who encountered challenges in the execution of their tasks. One of the main challenges reported was fear and anxiety about contracting the virus while caring for COVID-19 patients, since PPEs were limited in supply (Niyigena et al., 2022). Another significant challenge reported in other settings such as Nigeria was inadequate PPE (Ajisegiri WS. et al., 2022).

In addition to safety concerns, CHWs faced an increased workload due to the additional COVID-19 related activities. This further worsened existing workload challenges, negatively impacting CHWs' ability to provide effective services for both COVID-19 and routine activities (Niyigena et al., 2022). Heavy workload has been a persistent issue for CHWs, even prior to the pandemic. It negatively affects their ability to meet the needs of their households and engage in other income-generating activities, necessary for their personal growth since they are not paid for their services (Condo et al., 2014). This was also the case in other countries such as Nigeria (Olateju Z et al., 2022), South Africa, Uganda (Nachega, Jean B et al., 2021), and Kenya (Salve, S et al., 2021). CHWs also reported reductions in support for their training, materials such as night torches and raincoats, and supervision of their routine activities – issues that were exacerbated by the pandemic (Niyigena et al., 2022).

Rwanda responded rapidly to the shifting needs of COVID-19 through community-led strategies to minimize the impact of the pandemic and disruption of routine services. However, the observed challenges could have been mitigated by better preparing CHWs and the community through targeted training, community awareness, and the provision of sufficient resources such as PPEs. More broadly, to better promote resilience, the role of CHWs in pandemic preparedness and response could be better acknowledged, especially their role in improving equitable access to health services at the community level and in communicating key health and prevention messages (Boyce et al., 2019). Better pandemic preparedness including planning and training could improve the contribution of CHWs to mitigating risks and containing public health emergencies.

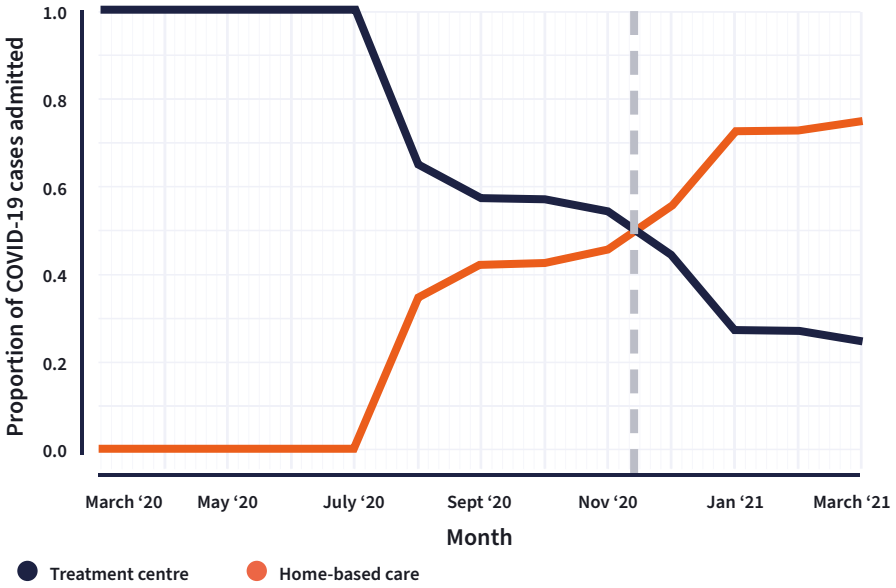
Impact of involving CHWs in COVID-19 management and health system re-engineering

Although CHWs reported a heavy workload from their existing routine community health care tasks (Schurer et al., 2020), their involvement in managing the COVID-19 pandemic helped to bridge gaps in health workforce capacity and improve the health system response to the pandemic. Further, the decentralization of COVID-19 care through CHWs helped to improve equity and brought services closer especially to people in remote places and homes.

Within two weeks of introduction of home-based care, noticeable changes in COVID-19 management at the community level were observed (Figure 2). Home visits increased from 30% to 92% coverage, and 82% of patients in home-based care had their oxygen saturation monitored regularly, facilitating early referrals and decreasing fatalities (WHO Regional Office for Africa, 2022). As of March 2022, approximately 98% of cumulative confirmed COVID-19 cases were managed from their homes, primarily by CHWs.

Engaging CHWs helped to ease the pressure on a stressed health care system and potentially improve its preparedness for future outbreaks. CHWs are now trained across a range of infection prevention measures, including community education and mobilization. They provided information on individual and local risks of infection and encouraged behavioural changes within communities to prevent infection, such as social distancing, wearing of face masks, and hygiene measures. This facilitated the quick penetration of information into the community, ensuring their participation in the response and management of the pandemic. Table 1 provides a summary of the CHWs' roles and responsibilities, enabling factors and challenges, and their impact on the COVID-19 response.

Figure 2: Proportion of COVID-19 cases admitted over time in home-based care and treatment centres



Source: Image taken/adapted from Nkeshimana et al., 2022

Conclusion

Rwanda's response to the COVID-19 pandemic has demonstrated the importance of innovative and context-specific approaches to health service delivery. The use of existing community-level structures, particularly CHWs, and the home-based management of COVID-19, were instrumental in Rwanda's response. The home-based care model not only brought services closer to the people, but also reduced pressure on the health system, ensuring the continuity of routine health services.

To support CHWs in delivering health care services, MDs were included in the home-based care teams, and provided with necessary support and expertise. While the impact of these strategies post-pandemic has not been tested, evidence from the documents synthesized in this brief suggests that the measures were effective in supporting the pandemic response in Rwanda. However, the sustainability of these approaches, especially the use of MDs in home-based care, needs to be analysed further given the low health workforce density in the country. Findings from this analysis also highlight the need for better planning to improve the skills of CHWs, provide them with necessary PPE and other materials, and for the timely involvement of multi-stakeholders to respond to pandemic needs.

While the role of CHWs in the pandemic response and provision of community-level pandemic-related services was positive, it was accompanied by challenges that need to be addressed such as heavy workload and limited resources. Clearly, investing in CHW capacity building has long-term benefits and can also address other challenges within the health care system. Finally, a timely multi-stakeholder approach to pandemic response ensured an efficient pandemic response in Rwanda.

Table 1: Community health workers in home-based care for COVID-19

Roles & responsibilities	Facilitators	Challenges	Impact
Specific responsibilities of CHWs under the home-based care model	Training on additional responsibilities such as identifying COVID-19 symptoms, measuring vital signs, and educating affected households	Increased workload due to pandemic-related responsibilities	Within 2 weeks of introduction: • Home visits increased from 30% to 92% • 82% in home-based care have regular SpO2 monitoring
Case referral for deteriorating cases	Support of MD (linked to a specific CHW)	Fear of COVID-19 infection	By March 2022: • 98% of cumulative COVID-19 confirmed cases were treated from home • Community knowledge and awareness on COVID-19 transmission was improved • Enhanced collaboration among MDs, community health workers, and other stakeholders. • Improved equity in response, reaching rural areas
Through the model and Operation Save the Neighbour, CHWs conducted daily monitoring of COVID-19 patients' vital signs, including SpO2 (at patients homes)	Digital tools accessible through a smartphone to support wider and faster detection of cases	Difficulties in accessing PPE and sanitation facilities	
Education on infection control given to all household members	Daily report via national WhatsApp number	Difficulty maintaining routine activities	
Community awareness and education	Equipping CHWs with a kit of supplies and communication materials	COVID-19-related stigma	
Daily reporting			

Policy implications

This policy brief highlights key areas that could be strengthened to promote the resilience of Rwanda's CHW programme in responding to current and future public health crises:

Invest in education, training, and supervision for CHWs

Policy makers should plan for ongoing training of CHWs on pandemic and infectious disease prevention, treatment, and management. The training should include screening, triage, isolation, treatment, and reporting. Such pandemic preparedness training will equip CHWs with skills to mitigate future pandemics and public health emergencies. Education and training programmes could build on the roles CHWs played during COVID-19, including social mobilization and the distribution of health information, contributing to disease surveillance, and filling health service gaps during outbreaks.

Institutionalize home-based care and Operation Save the Neighbour

The Save the Neighbour initiative was crucial in the fight against COVID-19 under the home-based care model. There is a need to establish a working framework that involves additional health professionals such as nurses, midwives, and nutritionists in such initiatives for public health purposes and future pandemics.

Build on a community-focused approach

Rwanda's joint task force and community-level coordination led to rapid penetration of information and raised community awareness of COVID-19. To sustainably address any future pandemic challenges, policy makers should involve community members and other sectoral stakeholders in the fight against pandemics and epidemics.

Mitigating the risk of infection for CHWs

Policy makers should make effort to provide CHWs with PPE such as gloves, gowns, and masks since their work involves serious risks of infection, particularly in the home management of conditions such as COVID-19 cases. Protective materials for CHWs should be included in the procurement plans of public health facilities.

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