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SHORT COMMUNICATION

THE NEED FOR A BROAD BASE APPROACH USING COMPONENTS OF RESILIENT HEALTH SYSTEM TO IMPROVE CHILD HEALTH IN PAPUA NEW GUINEA.

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INTRODUCTION

Child mortality is a critical indicator of a population's overall health and well-being and the quality of health care and social services available to children and families. One of the top priorities for global health is lowering child mortality, and during the past ten years, considerable progress has been made in this area [1,2,5]. As per the United Nations Inter-Agency Group for the Estimation of Child Mortality, Papua New Guinea's (PNG) infant mortality decreased from 62 per 1000 live births in 1990 to 33 per 1000 live births in 2022, while neonatal mortality decreased from 33 per 1000 live births in 1990 to 21 per 1000 live births in 2022. The under-five death rate (per 1000 live births) decreased from 85 in 1990 to 41 in 2022 [1-3]. The targets of the Sustainable Development Goals (SDG) are benchmarked against under-five death rate in this report. While under-five, newborn, and neonatal mortality have decreased, the reduction rate would need to be accelerated twice to three times to meet the SDG child mortality targets of reducing neonatal mortality as low as 12 per 1000 live births and under-5 mortality to at least 25 per 1000 live births in all countries by 2030. With the current trend of neonatal mortality and under-five mortality, children in Low-Middle Income Countries remain 1.9 times more likely to die before reaching the age of 5 years than others and are therefore unlikely to meet the SDG [2,4]. Because there were so many more births during that time, the overall number of deaths decreased far less than the mortality rate.

The child mortality rates reported by the United Nations Inter-Agency Group are similar to the PNG Demography Health Survey (DHS) 2016-2018 report [5]. Despite improvements in the rates, there are still many challenges to overcome to meet the SDGs. The primary challenges include limited access to immunization, preventative care, and unavailability of essential medicines and interventions to manage communicable diseases such as pneumonia, malaria, diarrheal diseases, and malnutrition, which are the leading causes of death in children in PNG [6,7]. Malnutrition contributes to about half of the deaths. Among many reasons, poor socioeconomic circumstances such as unemployment, low literacy rate, poor sanitation, lack of clean water supply, widespread unavailability or inadequate food supply, and inappropriate feeding practices such as formula feeds contribute to the high burden of malnutrition [6,7].

The mortality rates are further adversely affected by issues such as traveling long distances, challenging geography, the cost of healthcare, deteriorating and non-availability of healthcare infrastructures and equipment, severe shortages of healthcare workers [5], financial constraints, inadequate evaluation of the health programs, and beliefs, perceptions and attitudes of parents and guardians towards health.

From our experiences working and visiting health facilities in rural areas in PNG, nearly all the facilities lack basic medical supplies and consumables like essential medicines, blood pressure machines, weighing scales, thermometers, and have shortages of healthcare workers. These challenges prompted the need to encourage partnerships and empower the people by involving them in decision-making so that they can take ownership of their health.

To strengthen the health system and improve child health mortality rates, we explore the main dimensions of Resilient Health Systems (RHS) and what it means for PNG child health. By improving in these dimensions, the PNG health system may be strengthened and continuing to provide child health care services despite the challenges. This discussion may help establish a shared understanding among researchers, policymakers, health managers, and communities.

DISCUSSION

Resilience Health System (RHS)

According to Kruk et al [8] RHS is a system that includes and considers the capacity of health actors, institutions, and people to prepare and respond effectively to health crises while maintaining core functions, learning from lessons during the crisis, and reorganizing strategies if needed. The Ebola outbreak in West Africa taught the world to build a resilient health system. What was experienced during the outbreak was detrimental since lives were lost, movements and other usual social norms

were disrupted, and essential health services were not performing to expectation [8]. From the lessons learned, Harefeld et al [9] identified and postulated the six dimensions of RHS: (1) reliable and available data information system, (2) adequate funding, (3) adequate health workforce, (4) good health governance, (5) people's values and beliefs, and (6) health resources and infrastructure, which are relevant and can help health actors to respond to unexpected events successfully. There may be variations in the description and approach to resilient health practices in different countries because of variations in the health system structure and operations [10].

Although the RHS can be approached using recognized government health systems, a renewed focus on service delivery through an integrated and people-centered lens is critical to reaching the underserved rural communities and urban marginalized populations and ensuring that no one is left behind. More attention should be directed towards people's voices and health needs, placing people at the center of health care service delivery. This approach promotes good quality of care and accessibility, reduces costs, and responds to people's needs [11,12]. It also avoids governance failure and promotes trust and confidence in healthcare delivery to communities, people, and families. It is universal, equitable, and inclusive of everyone, and decision-making is made according to the people's needs and interests to improve their health outcomes.

An essential step in responding to peoples' voices, views, and needs is creating linkages and interconnecting people to the health actors through partnerships and integrated community health programs. A good connection between these actors builds trust and ensures that the processes (diagnosis, treatment) are complete to improve high-quality health outcomes. This approach is highly influenced by moral and essential values such as teamwork, empowerment, and accountability. Upholding these values promotes safe and effective service delivery, increases patient-provider trust, and improves access to health care [11,12].

Child health resilience system approach.

The PNG National Health Department (NDoH) and the Government of PNG must build an RHS to provide improved and efficient child health services in PNG. Take a step back, look at the failures and achievements in child health over the last decades, and decide which areas need strengthening and improvement. The Government should focus on assessing our health system capacities and identifying its weaknesses, investing in vulnerable aspects of our health system that affect child health, conducting reinforcements during emergencies that involve children, and reviewing child health program outcomes and intervention performances.

The above suggestions are essential in improving the child mortality rates and service

delivery to marginalized and rural communities. Though the six core dimensions of RHS are essential in building a PNG health system, we will focus on four components that need urgent attention to strengthen child health service delivery. The dimensions are (i) improving child health data information, (ii) health funding, (iii) health workforce, and (iv) people's values and beliefs. We discuss these using lessons learned from DHS [3,13] and our observations on child health intervention programs, performances, and child health outcomes.

First, child health requires reliable and accurate health data**.** Child health indicators use estimates of under-five mortality rate, infant mortality rate, and neonatal mortality rate to monitor progress towards SDG 3: Good health and well-being [4]. According to DHS 2016-2018, lack of accurate data is a critical constraint in assessing and planning healthcare systems and responses [5]. There may be other reasons why there was a lack of accurate data, but the obvious reasons are lack of funding and resources, complex data collection system and inadequately trained staff to collect the data. Because of this, PNG NDoH developed an electronic national health information system (eNHIS) to improve data system. Despite the PNG NDoH's capacity to monitor health performances using its eNHIS, the country is heavily decentralized, making health data collection more complicated, inaccurate, and often absent at a village level [9,10]. We need accurate and reliable child health data to influence policies and improve the quality of child health care.

Despite the challenges of collecting data in rural areas, more than twenty hospitals have a Pediatric Hospital Reporting System (PHR) that records common morbidities and mortalities in children. The data from PHR has limitations, because it does not represent the total pediatric population in PNG. However, the information is current and accurate, it is analyzed annually and provides data for child health policies and planning. The data is available on the PNG Pediatric Society website as an annual pediatric morbidity and mortality report [6]. Although the PHR is available in hospitals, a more reliable, upgraded and accurate data system is needed to capture child health data from the community level. We can capture those data by strengthening partnerships and sharing health data among partners with interests in rural health. Some reliable health data are often collected and kept by non-health actors, private organizations, health institutions, and individuals in project areas, such as research, rural health outreach and visit reports, or various community development project reports. A more comprehensive approach to accurate data collection and surveillance is required to establish and maintain relationships between policymakers, researchers, and implementers to address socioeconomic determinants of health that contribute to child health indicators [14,15].

Second, good governance is required to sustain child health services and performance. Two

types of health governance systems exist in PNG: Centralized from NDoH and decentralized through Provincial Health Authority (PHA). The centralized system functions at a strategic level, to review annual corporate plans together with its development partners. In the decentralized system, the PHA, Provincial Health Board, district and lower hospital management are concerned with the development of annual activity plans by extending budget and planning capacity to lower levels [16]. These reform systems could have positive impacts on accountability and equity for good governance. A closer system to the people should be at the PHA level. At this level the decisions are made on health-priority areas in the districts based on good health governance, relationships between different health actors such as government agencies, civil society organizations and private sector entities and people. In rural and remote areas of PNG and some urban marginalized communities, non-health actors strengthen and provide governance support by providing logistics, referral, and retrievals of sick children, private donations, and funding support.

With proper governance, people can be empowered through local community organizations and groups, such as churches, youths, women, and sports groups, that may be willing to participate in child health care services provision, such as public health education, awareness, and immunization. This engagement and empowerment encourage communities to take ownership and responsibility for their health systems [11,12].

Third, health systems require an adequate health workforce. A sufficiently skilled workforce improves the efficiency and effectiveness of delivering health services while minimizing the negative impact on health system [10]. An adequate health workforce strengthens the health system and enables children to continue accessing child health services. In PNG, we need more health workers in many health facilities nationwide. The two main reasons are a severe shortage of trained child healthcare workers, an aging and retiring workforce. To ensure an adequate skilled health workforce, the focus should be on collaboration with health agencies such as Christian Health Services, Catholic Health Services, and the PHA in each Province that employs healthcare workers. These agencies need support to increase their health workforce, by providing financial incentives, upskilling, and providing for the general well-being that can motivate their healthcare workers [16,17]. Improving the health workforce requires increasing the number of healthcare workers being trained and distributing them equally throughout the country to deliver child health services.

Fourth, is sufficient health funding for child health programs. The Government is the primary source of funds for health programs. These funds are available in districts to support district operations, including health. To achieve successful child health program delivery, in each

district, health funds should be allocated and made available to support ongoing child health programs like immunization, postnatal care for newborns, early essential newborn care, and hospital care for children. Available District Services Improvement Program (DSIP) funds should be used to build health infrastructure across PNG, such as staff housing and other health-related infrastructure [2,4,15]. Improving infrastructure, providing essential medical equipment and supplies, and having trained child healthcare workers available are needed to provide efficient and equitable healthcare to children. A sustainable, child resilient health system in PNG should be nationally funded, and additional resources from other sectors should be mobilized [4].

Finally, engaging and empowering people and communities in the decision-making of child health services. Community participation in child health clinics, such as maternal and child health clinics, allows parents access to health care, education, and information. Community involvement will prevent some cultural beliefs and customs that harm children's health. For example, in some cultures, colostrum is considered harmful. Culturally, in most homes, mothers are responsible for their sick children and are expected to take the children to the hospital. The power dynamics and experience of intimate partner violence also contribute to adverse health for children. Fathers and husbands should be encouraged to support health-seeking behaviors and support their children, such as taking their children to get vaccinated. More health education should be made at children's clinics to educate mothers about the importance of hygiene practices, exclusive breastfeeding, prenatal and postnatal care, immunization, and the potential hazards of feeding a baby with infant formula [4].

CONCLUSION

The suggested broad base approach can strengthen the current health system in PNG. Understanding the main dimensions of a resilient health system can create a clear understanding among health actors. A comprehensive approach to resilient child health should focus on improving reliable and accurate health data, funding, increasing and supporting health care workers and encouraging community participation in delivering and accessing child health services. Building child resilient health system may help reduce child health mortality to meet the global health target and achieve the SDG 3 goal.

Conflict of Interest: None

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