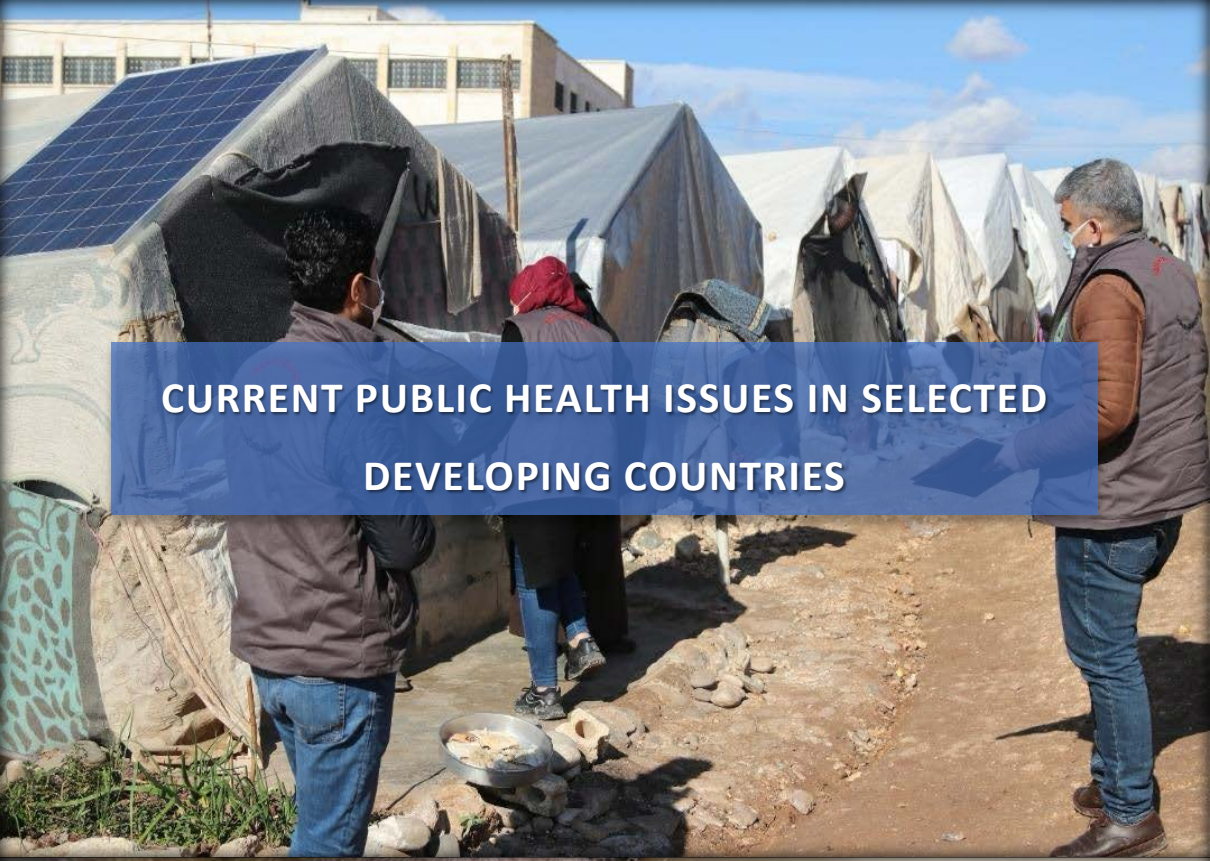

CURRENT PUBLIC HEALTH ISSUES IN SELECTED DEVELOPING COUNTRIES

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HEALTHCARE STATUS IN THE ROHINGYA REFUGEES CAMPS OF COX'S BAZAR DISTRICT IN BANGLADESH

Mohammed Abdullah JAINUL[1]

Nimetcan Mehmet ORHUN[2]

1. INTRODUCTION

Accessibility to health services refers to the opportunity to obtain access to health services in the existing health services, if they are available. The term "obtaining access" to health services is multidimensional that depends on wide ranges of factor just beyond physical proximity to healthcare facilities, rather overcoming challenges related to finances, infrastructure or organization, sociocultural norms, and other barriers that limits people's ability to get health services when they need it (Gulliford et al., 2002). In the conflict zone or humanitarian crises, the accessibility broadens beyond the traditional concept due to raise of unique circumstances and fragile situations including security, cultural sensitivity, protection and emergency coordination.

Unlike many developing countries who are making considerable progress to reach United nations 3rd SDGs that is to ensure healthy lives and health and wellbeing of all peoples regardless of ages, Bangladesh, being a Low- and Middle-income country (LMIC) is still facing diverse challenges to access to

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healthcare services (Sen et al., 2023). In terms of hospital equipment and standard of caregiving there are noticeable disparities in between rural and urban areas or Bangladesh (Akter, M., & Kabir, H. (2023). Moreover, the underfinanced healthcare system, lack of available health insurance and universal health coverages causes high out of pocket expenditures (OOPE) that hits to 67% of total health costs in Bangladesh (Rahman et al., 2022). considering the financial status and poor health services the rural population are more likely to experience challenges to access to healthcare and hence suffers more in common diseases including malnutrition, infectious and non-communicable diseases and child mortality (Fauveau et al., 1990). According to Bangladesh Household Income and Expenditure Survey (2016), 25% of the total population of Bangladesh suffered of Catastrophic Health expenditures (CHE), while another 14% of Bangladesh population lived without healthcare services mainly due to treatment cost, lack of accompany or permission to healthcare, and the travel distance to health facilities (Rahman et al., 2022).

Following a brutal military crackdown over Rohingya in Rakhine state of Myanmar in late 2017, in few weeks more than 750,000 Rohingya crossed the border to flee Bangladesh just to survive with lives (*Crisis Mounts for Rohingya Refugees in Bangladesh | Crisis Group*, 2024). With no end in sight, the population are living in the hilly makeshift camps in the cox's bazar district, a rural area with limited healthcare access in Bangladesh. Healthcare access chronic diseases is so fragile, for instance the nearest facilities for chemotherapy are in Chittagong which is more or less 100 miles away for the local population (Ahmed, 2024). the apart from inadequate healthcare infrastructure to meet health need of approximately a million of Rohingya refugees in makeshift camps, the fund and ration cuts that deteriorated the food, nutritional status and access to

medicine sharply, the tiny bamboo and tarpaulin made shelters, and movement restriction causes trauma and stress as well make them more vulnerable to access to health services (Ahmed, 2024; *Food Ration Cuts in Bangladesh: A Year of Struggles and Hope for Rohingya Refugees*, 2024).

As of March 2024, more than 978,003 Rohingya have been residing in Bangladesh (*Country - Bangladesh*, March 31, 2024). The country is not a signatory of the1951 Refugee Convention, almost all the Rohingya are registered as forcibly displaced Myanmar nationals (FDMN) although the Myanmar doesn't recognize them as its nationals (MSF, 2010). Hence being accounted as the largest stateless population group around the world (ACAPS, 2024). The UNHCR recognized some 32,000 Rohingya as refugees, most of them came far before 2017's major influx and are settled in registered refugee camps. (UNHCR, 2011; Mahmood et al., 2017). The remaining population continuing staying in 34 unregistered makeshift camps in the southern part of Bangladesh (Rawal et al., 2021). Being deprived of formal legal status made them more vulnerable to lives including extreme movement restrictions and are not permitted to legally work. Therefore, the entire population is dependent on the humanitarian support from their day-to-day support to health. The camp condition is insecure and violent, overcrowding led to lack of minimal privacy and WASH facilities are irregular and inadequate (IOM, 2022; *Operational Data Portal*, 2024)

Despite these factors, this vulnerable group resides in makeshift camps, relying entirely on external aid from entities like the United Nations (UN), the Government of Bangladesh (GOB), and various non-governmental organizations (NGOs). Despite the combined efforts of diverse national and international bodies, comprehensive reports on the refugees' overall health status are rarely available. (*ISCG, 2018)*. They experienced a range of communicable and non-communicable illnesses, alongside

frequent accidents and injuries within their camps. The absence of sufficient provisions such as food, water, shelter, sanitation, and notably low levels of immunization seemed to converge, forming a perfect storm for their public health challenges.

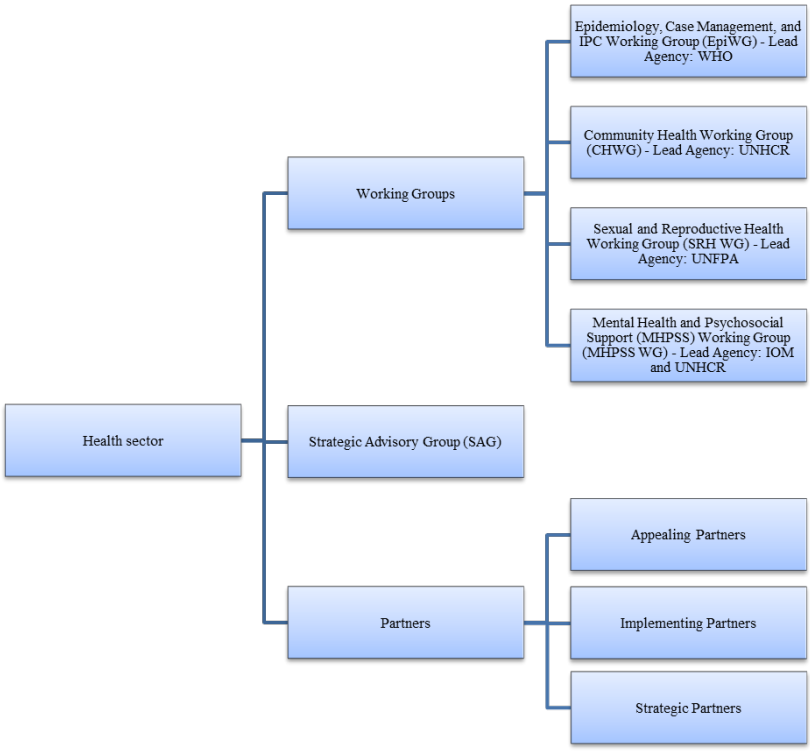
In a conflict situation, which is associated with forced displacement, loss of access to medication or devices, and interruption of care due to destruction of health infrastructures or lack of human resources or medical supplies, probability of getting injured, as well as non-functionality of infrastructures like electricity, water, sanitation or even housing, people with NCDs are more vulnerable due to their needs to continuous care over a long time, regular treatment, might associate with acute complications and require additional interventions, and necessitate coordination of care providers and follow up. What worsen the situation is the COVID-19 pandemic, especially in the low-middle income countries which added additional pressure on the already stretched health systems and led to disruption of chronic disease services including treatment and screening in addition to the direct impact of the pandemic, people with NCD have a higher risk of severe COVID-19 disease and are more likely to die from COVID-19 (*NCDs and COVID-19*, 2023, PAHO, 2020). Moreover, A secondary analysis shows low availability and/or poor affordability is resulting in few essential NCD medicines meeting the target in low- and middle-income countries (Ewen et al., 2017). Another study examined the obstacles to accessing healthcare services and medications, identifying socioeconomic and cultural factors. It emphasized the significance of health systems within regulatory and policy frameworks, ensuring financial coverage and providing free medicines. The study also underscored the importance of healthcare providers in bridging the gap in medication accessibility and the need for patient health education and disease management. (Castillo-Laborde et al., 2022). The conflict not

only affects the health of fragile population but also the community that hosts the vulnerable population, resulting a high burden of diseases and death (*WHO, 2024c*).

2. HEALTH SECTOR OF THE ROHINGYA REFUGEE RESPONSE

the government of Bangladesh is the ultimate accountable authority for the Rohingya response in Bangladesh. The overall refugee response is divided into eight sectors including education, food security, Health, Livelihoods and skill development, nutrition, protection, Shelter-CCCM and WASH. (*Rohingya Response*, 2024). The health sector is equivalent to a health cluster according to the who Global health cluster guide and WHO is in the lead of Health Sector in the Rohingya refugee response in Cox's Bazar. The Health Sector comprising of a Strategic Advisory Group (SAG), Working Groups (WG) and Partners for its functioning (*Health | Rohingya Response* 2024). Health Sector SAG strategic advisory group (SAG) led by WHO. The other permanent members include Civil Surgeon Officer, Ministry of Health and Family Welfare, Health Coordinator, Refugee Health Unit, Office of RRRC, UNHCR, IOM, UNFPA and UNICEF. A number of national and international NGOs are included as appealing partners, implementing partners and strategic partners for the health response in Cox's Bazar.

Figure1. Coordination of Health sector in Rohingya Refugee Response in Cox's Bazar



3. HEALTHCARE FACILITIES IN THE ROHINGYA REFUGEE CAMPS

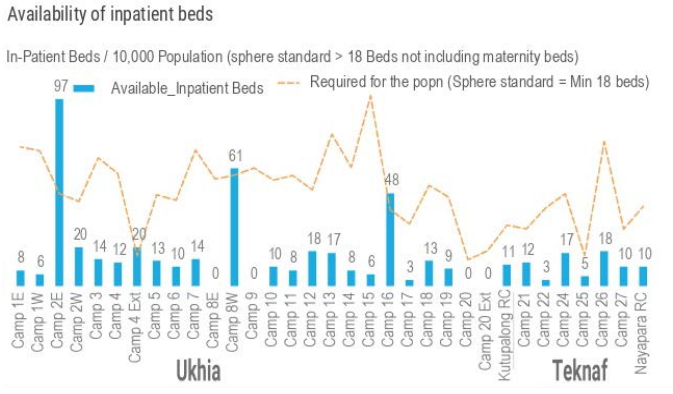
For the healthcare, the entire Rohingya refugee population is dependent on local and International NGOs (non-government organizations) health posts established for refugees within the camps. Access to local clinics and hospitals are limited due to restrictions imposed by the local government. However few Rohingya visit to local clinics and hospitals outside the camps with prior permission but most don't access the opportunity due

to the hassles related to obtaining permission, financial issue and other issues.

As of March 2024, Health sector reporting, a total of 56 implementing partner including international and local NGOs and UN agencies as well as 17 appealing partners are actively working for the health response (WHO, 2024). In all 33 camps there are total of 113 health facilities including health posts, primary health centres, facilities with CEmONC services and field hospitals. Of then only 3 facilities are with surgical facilities that is far beyond the minimal requirements set by the United Nations for Humanitarian emergencies (WHO, 2022; *The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response*, 2018).

In the latest health facility monitoring survey that had been published in 2022, the total health facilities are equipped with only 507 beds and 198 dedicated maternity beds, where the facilities are quite basic in those mobile healthcare stations. According to WHO, a very minimum required number of beds per 10000 population is 18. However, only 03 camps met the requirements, whereas the other camps are on scarcity (figure 2).

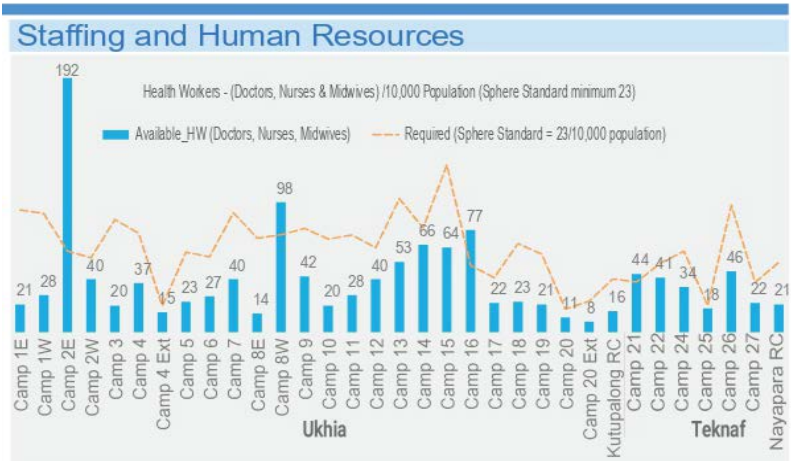
Figure 2. Snapshot of Availability of the in-Patient Beds in All Camps per 10000 Refugee Population



Source: (WHO, 2022).

The shortage of staffs and human resources (doctors, nurses and midwives) in healthcare is high in all in the makeshift camps. Where the Sphere standard minimum of skilled healthcare staffs is 23 per 10000 populations in humanitarian response, only 04 camps have met the requirements (*The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response*, 2018). In some camps has the gap is too huge to reach half of the population (figure 3). However, no data has been obtained about the number of doctors, nurses or midwives individually.

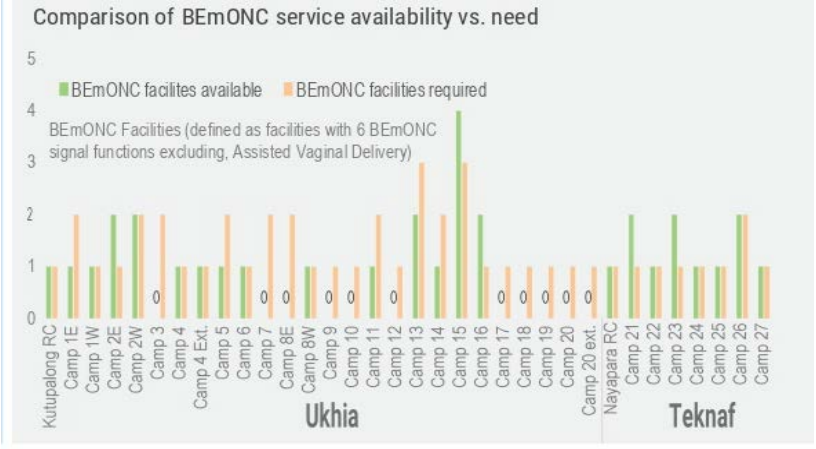
Figure 3. Snapshot of Availability of Skilled Staffs Per 10000 Populations in The Makeshift Camps



Source: (WHO, 2022).

In the humanitarian responses like Rohingya refugee response where the fertility rate is very high, the necessity of Basic Emergency Obstetric and Neonatal Care (BEmONC) is crucial. However, in Cox's Bazar makeshift camps almost half of the area the BEmONC facilities are beyond minimum requirements (figure 4).

Figure 4. Snapshot of Comparison of Bemonc Service Availability vs. Need



Source: (WHO, 2022).

As per report, about half of the total health posts and primary healthcare centers are deprived of basic lab and diagnostic testing facilities. A long-term experience of oppression and genocide caused the Rohingya community to suffer with mental and psychosocial health issues. Unfortunately, up to date, only 43 health posts have a trained staff who can provide Mental Health and Psychosocial Support (MHPSS). In response to communicable and infectious diseases, the whole response has 141 isolation beds which is tend to no support in such extremely congested camp where the prevalence of such diseases is very high (WHO, 2022). However, most of the health posts (90%) and PHC (93%) have available Mid-upper arm circumference (MUAC) screening facilities to measure nutritional deficiency. In all PHCs and 98% of all HPs have at least one family planning methods are available as per monitoring survey as of march 2022. No data has been published from respective authority about the HIV detection facilities, but it is quite limited according to Hossain & Zablotska-Manos, 2022.

4. MAJOR HEALTH CHALLENGES AMONG THE ROHINGYA REFUGEES AND FDMNS IN BANGLADESH

4.1. Infectious Diseases

The Early Warning Alert and Response System (EWARS) reports that most of the identified cases among the Rohingya Acute respiratory infections (ARI), acute watery diarrhea (AWD) and injuries since the beginning of influx in late 2017. Only in 2024 until week the account reached to 285,115 cases of ARI, 28,364 cases of AWD and 31,453 cases injuries/wounds (WHO, 2024b).

Besides, every year during monsoon the combination of heavy rainfall and warm temperature creates ideal condition for breeding of Ades mosquito in the camps. The outbreak starts around week 25 of the year that remains until week 40. The cases of dengue reach its peak at around week 30 to week 35 (WHO, 2024b).

According to several findings, the high occurrence of hepatitis C among the Rohingya population is found alarming. A survey conducted in the Lambasia camp in Cox's Bazar district among smaller Rohingya refugees revealed a high prevalence of HCV, with 13.2% of participants testing positive for HCV RNA. (Mahtab et al., 2019). Different study showed that among Rohingya adult more than one in five of the study population were tested with HCV, while the female population are more vulnerable to it (26%) (Ali et al., 2022). MSF presented the devastating findings of their recent survey in the recent health sector coordination meeting held in march 2024 reporting that one third of the Rohingya adults in camps are exposed to HCV accounting 29.7% are seropositive and 19.6% are with active HCV infection (Health Sector Cox's Bazar, 2024).

Given that the HIV prevalence rate in the Myanmar population is 0.8%, it is projected that about 5,000 of Rohingya population have arrived with HIV infection in Bangladesh during influx in 2017 (Hsan et al., 2019). Although the mass screening of HIV infection is not allowed for humanitarian concerns, however the anti-retroviral therapy centre of Cox's Bazar General Hospital reported that, as of 2023 total of 927 Rohingya have been identified with HIV infection, assuming that the actual figure could be much higher (Shuvo, 2023).

Suspected Varicella cases has been observed since the beginning of crisis and usually the trend is upward during the first half of the calendar year. As of week 14, in 2024, a total of 5,192 Varicella cases have been observed, with a morbidity rate of 0.5%. While Diphtheria and measles were previously significant health concerns, they are now largely under control, although transmission remains present for these diseases (WHO, 2024b).

4.2. Non-Communicable Diseases (NCD)

Not adequate data are available to observe the trend of NCDs among the Rohingya refugees in the camps in Bangladesh. However, considering the attributing factors for NCDs including physical inactivity, tobacco use, unhealthy diet, poor environment as well as the recent publications, the forcibly displaced Rohingya refugees are at high risk of NCDs. Recent research reported that 53.4% of the total sample population from the Rohingya refugees in Bangladesh use tobacco including smokeless tobacco (Rahman et al., 2022). Along with that, no or inadequate physical activity (89.6%), Insufficient fruit and vegetable intake (23.7%), adding extra salt in meal (34.5%) were also common among the Rohingya that are causative factors for NCDs (Rahman et al., 2022). The hilly landscape, bad condition of the pathways and roads and other social factors lead to accidents and injuries. In 2024, a total of 31,454 cases of injuries and wounds have been

recorded until week 14in the camps (WHO, 2024b). The actual burden of NCD in the camps is under-reported and underestimated that might cause a greater impact in future.

4.3. Child Health and Malnutrition

According to the UNHCR operational data, 52.7 percent of Rohingya refugees are children who are most vulnerable groups among the refugees (Operational Data Portal, 2024). Majority of the children's illnesses are caused by the polluted environment and water. A study shows that most of the acute respiratory infections (ARI) cases are among the children under 10 (Oishi & Alam, 2020). Diarrhea and unexplained fever are also very common in Rohingya children (Joarder et al., 2020). Children from the Rohingya community frequently suffer from nutritional deficits such underweight, stunting, wasting, and iron deficiency anemia (Leidman et al., 2018).

4.4. Mental Health

Rohingya people who were forcibly moved to Bangladesh have suffered grave effects from the violence, persecution, and trauma that led to suffer from severe mental and psychosocial health. On top of that, the current living condition under tarpaulin made tiny shelters within confined camps where they have no permission to go out of the wire fence, and no income generation activities cause them a burden of mental health status. A recent meta-analysis on the mental health and wellbeing among the Rohingya found multiple mental health symptoms including depression and posttraumatic stress disorder that ranged from 12-89% (Das et al., 2022). As low as 9% so as high as 70% Rohingya are suffering from anxiety disorder, as per reports (Das et al., 2022). Numerous other psychological symptoms, such as persistent complex bereavement disorder, feeling horrible, fearful, angry, etc., were also experienced. In camps adolescent girls experience metal stress and anxiety as they have to use

shared toilet with males and having no private spaces for changing cloths and to sleep even inside the shelters (Save the Children International, 2018).

4.5. Sexual and Reproductive Health (SRH)

Given that most of them are women and children, there has been a significant rise in the health hazards associated with them. Because there are so many issues in the Rohingya camps, their sexual and reproductive health is being negatively impacted both directly and indirectly by poor cleanliness, inadequate sanitation, and a lack of use and awareness of contraception (Jannat et al., 2022). According to the most recent data, many pregnant Rohingya women were unable to receive antenatal care (ANC) due to the service's unavailability or inaccessibility (Joarder et al., 2020). Report suggests that only one out of 5 Rohingya women are included in pregnancy related care and services (Hossain & Dawson, 2022). The use of contraception is not also common due to theirs cultural and religious beliefs which result to unwanted pregnancy and spread sexually transmitted diseases.

4.6. Gender Based Violation

Rohingya women commonly experience gender-based violation including sexual abuse or exploitation such as rape, forced sexual favors, and unwanted sex (Joarder et al., 2020). According to a latest meta-analysis, the percentage of Rohingya refugee women who had experienced gender-based abuse was around 72%, and 56.5% of them had had unwanted sex with their spouses Hossain & Dawson, 2022). The young Rohingya female volunteers are also experiencing gender-based violation and receiving threats from different Rohingya entities (Saltmarsh, 2022). The incidences of GBV against the Rohingya women and girls by their own family members continue to be startlingly high (IRC, 2021). They have been beaten, punched, pushed or verbally

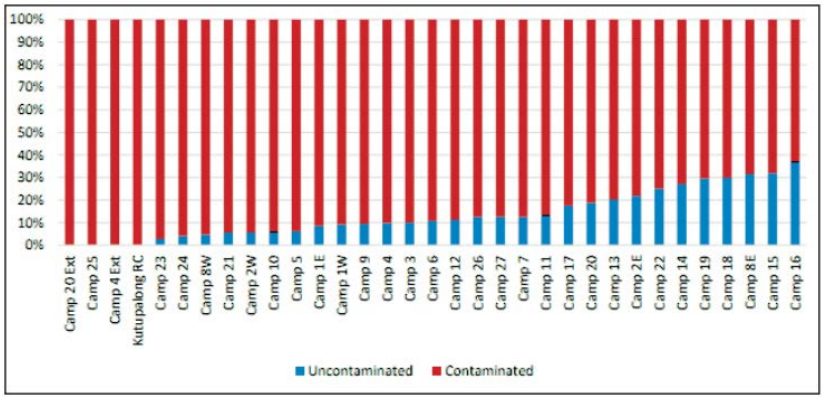
attacked for even burning the food while cooking or going outside of the shelters without informing the husband.

5. FACTORS CONTRIBUTING ROHINGYA REFUGEE HEALTH CRISIS

5.1. Poor Water, Sanitation and Hygiene (WASH)

WASH refers to access to Water, Sanitation and Hygiene where the provision of access to safe drinking water, water for domestic activities and washing. The provision also ensures the safe removal and disposal of toilet wastes and healthy behavioral promotions (Banerjee, 2019). The ability of tube-wells to consistently produce enough clean drinking water is a key WASH indicator. According to reports, the Rohingya refugees must utilize the contaminated water that is supplied by the shallow tube-wells in the camps for drinking and other purposes (WHO, 2019). The scarcity of clean and safe water in the hillside area of Cox's Bazar district where hillsides where a million of Rohingya the refugees are housed temporarily led to the spread of diseases like cholera, typhoid, and diarrhea (Akhter et al., 2020). 56% of households in the Rohingya refugee camps struggle to access to water distribution points because of the distance and long waiting hours in line (ISCG, 2019). Moreover, in monsoon the water pollution status is too high throughout the camps that made the Rohingya no choice but to use it (WHO, 2019). Additionally, the current supply of tube-wells is insufficient to fulfill the rising demand.

Figure 5. Snapshot Camp-Wise Contamination of Household Water



Source: (WHO, 2022).

The poor living condition in the camp, where individuals share small, cramped areas and have insufficient access to water for washing clothes and bedding are directly linked to the rapid rise in scabies occurrences (MSF, 2022). The scabies cases counted double in 2022 compared to the earlier year, counting 73000 cases subjected to treatment and the cases are still in spike (MSF, 2022).

The total population is enclosed in 13 square kilometer that caused a high population density of around 73000 per square kilometer. That leads the highly infectious diseases spread quickly after one person contracts it, and reinfection is also very likely. The management of Covid-19 was crucial since there was not enough space to maintain the social distancing (IOM & ACAPS, 2020).

5.2. Fund Cuts and Unavailability of The Treatment for Chronic Diseases

For over a year, due to funding constraints, WFP has been providing only $8 per person per month for food, which is equivalent to 27 cents a day. This budget was reduced from $12

to $10 in March 2023, and then decreased again to $8 in June 2023. With the limited food vouchers of just $8, the refugees especially for female-headed households, have forced them to cut back on meals, directly affecting their health and nutrition (Pirovolakis, 2023). From the start mass Rohingya influx, there have been limited health services and treatment facilities available for chronic and non-communicable disease (NCD) patients. Funding cuts have further hindered their access to essential health services and medication (Ahmed, 2024). Hence, individuals living with NCDs in the refugee camps often experience worsening conditions because of trauma, stress, and challenges in accessing medications or services. According UNOCHA around 75% of the required fund in health sector remained unmet, which means 25% of the health needs among for the Rohingya population in camps was met (FTS, 2023).

5.3. Restriction On Rohingya Moving or Working Beyond Camps

Bangladesh as a host country for more about a million Rohingya, the government has been highly praised locally and internationally. However, the government is constraining the movement of Rohingya out of the camps, even inside the camps continuously. Even though the administration stated that the concern is linked to the security, it is unclear what exactly motivated that approach. Hoque, 2018 suggested that there is a significant impact on the bilateral relationships in between Bangladesh-Myanmar and Bangladesh-India based on how the host government treats the Rohingya. The author delineated the pro-humanitarian stance of Bangladesh towards Rohingya negatively impacted on the bilateral relationships with Myanmar and India (Haque, 2018). In the year 2020 the Bangladesh government installed wire fence surrounding the camps that restrict the Rohingya to seek healthcare support in local hospitals. Besides, there are no or very few vehicle movements within the

camps. That caused the patient difficult to reach the health posts that are available within the camps. In practice, the Rohingya are not allowed to get treatment from local hospitals, unless prior permission form the camp in charge (CIC), a government staff assigned to oversee the refugees in the camp. However, the process to get permission is complex and time consuming that makes most Rohingya unable to achieve.

5.4. Socio-Cultural Elements

A lot of time, Rohingya are not willing to receive treatments form health post or clinics in the camps. That could be due to their previous experience of maltreatment in Myanmar where many times there was avoided treatment, subjected to extortion or experienced of intentional killings (IOM & ACAPS, 2020).

Impacts of societal influence and cultural norms restrict many of the Rohingya, especially the women and girls to access the healthcare. Most of the girls are still not comfortable to discuss their menstrual related problems with their mother or other female members in their families (Jannat et al., 2022). Moreover, girls are culturally not allowed to visit the health centers without an attendant whether they are from family or relatives, which makes difficult for girls to access the healthcare especially reproductive health.

A high number of male Rohingya are ignorant of reproductive health of their intimate partners, and at the same time they are the dominant character in decision making. Their religious interpretation of not adopting family planning methods resulted to more unwanted pregnancy and delivery related complications (Jannat et al., 2022). However, some women receive family planning methods from the NGOs which are other than condoms, however, unprotected sexual intercourse still increase the risk of sexually transmitted diseases. Lack of

knowledge and disbelief of health promotions leads spreading of highly communicable diseases like HIV and scabies.

5.5. Access to Healthcare: Insights From Rohingya Refugees

The core of humanitarian ethics is to ensure the safe and dignified services to the beneficiaries. The provision is more crucial in case of humanitarian health. But in numerous consultations, issues relating to dangerous and degrading access to health care were persistently brought. Besides, undignified distribution of assistance, inadequate gender segregation which is core in Rohingya cultural context, racial discrimination by the local staffs hampers the trust building in between Rohingya and service providers. Moreover, particularly in health services, the Rohingya identified multiple reasons that made them difficult or unable to access to healthcare in the Rohingya makeshift camps in Bangladesh.

Form the refugee point of view, in terms of water access, the insufficient functional water points as well as access to those water points are the main challenges. In a narrative consultation the Rohingya said it makes then hard to access to the clean water due to lack of water points needed as well as reaching the point at they are in far distance with terrain (ACAPS & IOM, 2021). Participants also cited that many of the water points are broken and are only operational for a small portion of the day.

> "They provide tap water for one day, then abruptly halt it for five days. There's no avenue for complaint. Even if we voice our concerns, we receive no response from humanitarian organizations. Water distribution lacks consistency; we're left unsure when the next supply will come. We only receive two or three pots of water from the tap, far from sufficient. This scarcity leads to

disputes among those who receive less. If there were adequate water provision, everyone could access what they need. Despite a nearby tube well, it's not functioning either." (ACAPS & IOM, 2021)

Girls and women claimed they gather water at particular times of the day to avoid crowds. This appears to vary depending on the region, but it frequently occurs at night, which carries additional risks. Some water points are only operational for a few hours each day, which causes crowding and does not correspond to the preferred time for women and girls to collect water. Many of the female participants added that carrying water is physically tiring and frequently results in headaches, backaches, and other problems.

"The water source is located far from our settlement, making it difficult to collect water downhill. The suction line of the tube well installed in our area doesn't reach the water source, requiring us to exert significant effort to pump water. Even younger individuals struggle to draw water from the tube well."

-Rohingya woman, aged 56+

The absence of safe, gender-segregated latrines and bathing facilities near shelters emerged as a significant issue. Women and girls faced challenging choices: either using facilities during the day, risking their reputation and dignity as men could see them, or waiting until nightfall when there's limited lighting, increasing the risk of accidents or assaults.

"We encounter difficulties accessing toilets during the day. Even when we urgently need to use them, we must wait until nightfall. If we attempt to use the toilets during the day, men stare at us, accusing us of improper behavior and tarnishing our reputation. They shame us and undermine our dignity, making it impossible for us to use the facilities during daylight hours."

-Rohingya girls aged 13–17

The Rohingya place a high value on having access to quality healthcare, with many sell the other aid to seek alternative medical care from the local healthcare providers and expressing worry about a future without proper medical facilities. According to the Rohingya the major problems related to access to health services are perceived incorrect/ineffective treatment, poor behavior of staff at clinics, long wait lines at clinics, medicine prescribed not available, poor-quality consultation with doctors and unavailability of required treatment.

The most frequently raised concern was that the Rohingya believed they were given the wrong medication or that their problems were not resolved. Many Rohingya are confused about the practice of the physicians who prescribe medicines without any physical examinations. Mistrust grows when the doctors do not explain the prescription while majority of the Rohingya has no idea about what have been written on prescriptions

The medical treatments offered to us are not suitable. At [a humanitarian organization's clinic], only basic treatment is available; there are no provisions for emergency care. As per Bangladesh regulations, we are unable to seek treatment at private clinics outside the camps. Sometimes, we require treatment in Chittagong,

but we lack the means as we have no means of earning money. Many individuals perish due to inadequate treatment. Access to treatment for serious illnesses would greatly benefit us. For instance, the cost of a course of medication for Hepatitis C is 75,000 taka. How can we afford this without any income? The absence of proper treatment is contributing to the escalation of various diseases, with Hepatitis C spreading among the community. Therefore, we urge for improved health facilities where we can receive appropriate treatment for conditions like jaundice, TB, and others.'

-Boys aged 13–17 (ACAPS & IOM, 2021)

Persons with disabilities, pregnant women, elderly women and people with chronic illness are suffering mostly with transportation. The challenges of getting transportation result them to remain untreated, hence illness getting more serious. At the health posts the poor staff behavior is one of the major discussions among the Rohingya, both male and female. In fact, even boys and males spoke about the poor staff behaviors like yelling, insulting and scolding and women are unfortunately more subjected to that. The participants suggested that the health care staffs including doctors behave rudely and ask them to leave without prior explanation that made them feel dishonored.

"Bangladeshis often scold and speak harshly to us. I witnessed an elderly man at a clinic struggling to wear the blood pressure cuff correctly, and the clinic staff scolded him severely, claiming that Rohingya people are ignorant. There's a perception among Bangladeshis that Rohingya are troublemakers, which is why we had to

seek refuge here. Additionally, we endure long queues at the clinics."

–Rohingya woman. (ACAPS & IOM, 2021)

"We only observe foreigners from afar, never having direct interactions with them. We're unaware of what translators convey to them. Once, I visited a clinic regarding white patches on my skin. A foreigner was present, and a Bangladeshi translator interpreted my words. However, the translator seemed to laugh and say things differently, causing me great embarrassment."

-Girls aged 13–17 (ACAPS & IOM, 2021)

6. CONCLUSION

Based on the evidence and discussions, the healthcare infrastructure available to serve approximately one million Rohingya in 33 makeshift camps falls significantly short of the recommended minimum standards in humanitarian settings. Urgent measures are clearly necessary to enhance healthcare and well-being for Rohingya refugees in Bangladesh. While the Rohingya crisis undoubtedly strains Bangladesh's economy and infrastructure, a more compassionate approach is imperative.

In neighboring India, refugees have access to government hospitals for healthcare, and Turkey, hosting the largest refugee population globally, permits refugees to use local medical facilities. Bangladesh could similarly allow Rohingya refugees, especially the most vulnerable individuals with chronic illnesses, access to local hospitals without obstacles. Moreover, the government should welcome more local and international organizations to address the considerable healthcare needs.

Facilitating transportation within camps is essential; currently, movement between camps is restricted and expensive due to security measures. Improving camp-to-camp transport could reduce illness and preventable deaths. Streamlining permissions from the Camp-in-Charge (CIC) and requiring patients to seek treatment outside the camps only with health post referrals can reduce time and complexity, crucial in emergencies.

NGOs operating in the camps must implement measures compatible with ensuring refugee healthcare. Community engagement and consultation are vital for building trust and delivering effective healthcare services. Given the life-saving nature of healthcare, budget allocations for this sector should be increased to meet the minimum Sphere requirements for humanitarian health. Recruiting and training more Rohingya individuals in healthcare can mitigate language barriers and racial discrimination. Reports have highlighted instances of discriminatory and disrespectful behavior by local healthcare staff toward Rohingya, necessitating extensive training and stringent regulations to address these concerns. Understanding Rohingya communities' knowledge, attitudes, and perceptions regarding health events, as well as their cultural beliefs and health-seeking behaviors, is critical to enhancing their utilization of healthcare services. Third-party evaluations of healthcare processes and effectiveness are indispensable for ensuring accountability and safeguarding refugee health and well-being.

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REJECTION OF VACCINATION AMONG THE PARENTS FOR CHILD DESTINATION IN INDONESIA

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1. INTRODUCTION

Vaccination is an essential part of maintaining global health. Vaccination programs have significantly decreased mortality and morbidity caused by various infectious illnesses. By boosting a person's antibodies, vaccination may protect against infectious illnesses. It may compromise herd immunity. The likelihood of the disease prevalence decreases as vaccinated people in the community increase (Gür 2019). Vaccination, according to the World Health Organization (WHO), saves 4-5 million lives per year (WHO 2019a) . Smallpox, a once-common and deadly infectious illness eradicated globally owing to vaccination in 1977, is an example of the effectiveness of immunization campaigns (Ward et al. 2018).

Even though vaccines have in the past kept people from getting diseases that could kill them, some people need to know

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more about their history and benefits (Özceylan, Toprak, and Esen 2020). One of the most successful and cost-effective ways to improve public health is to get more people vaccinated. This could save 1.5 million lives (WHO 2019a). Since 2019, the number of children who haven't been vaccinated will rise by 5 million by 2021. In the previous three years, this worldwide coverage has declined from 86% to 81% in 2021, and 25 million infants do not receive vital immunizations. This is the most since 2009 when the number was 20 million (WHO 2022b). In 2019, the World Health Organization ranked vaccine rejection as being one of the ten greatest threats to global health (WHO 2019b).

From 2013 to 2018, basic vaccination coverage in Indonesia remained low, did not meet global coverage, and now even dropped. It shows a decrease in fundamental vaccination coverage decreased from 59.2% to 57.9%, with practically every area in Indonesia falling below the herd immunity threshold (Ministry of Health 2018). Vaccine belief in its relevance, safety, and efficacy dropped in Indonesia between November 2015 and December 2019 (De Figueiredo et al. 2020).

This problem is the background for this report, which will discuss the factors that have reduced the vaccine acceptance rate for children in Indonesia. It has to do with parents who reject to get their children vaccinated since parents are responsible for rearing their children.

2. VACCINATION REJECTION

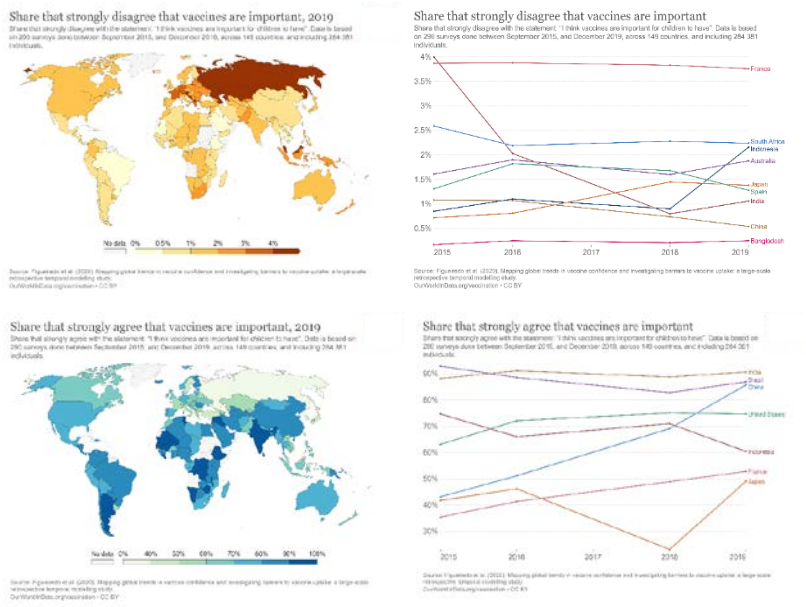
In terms of vaccine behavior, there are three attitudes about vaccination among community groups: vaccine acceptance, vaccine hesitation, and vaccine refusal or rejection. One of them is refusing a vaccine, which has a small effect on getting all basic immunizations, as happened in the America. In 2017, National Immunization Survey found that the number of children who

were not fully vaccinated rose from 0.3% to 1.3% in one year (Jenco 2018). Following the 2018 Basic Health Research, 1.3% fewer Indonesian parents got their children vaccinated against all acute diseases (Ministry of Health 2018).

In addition, between 2015 and 2019, vaccination trust in Indonesia fell dramatically. It was because Muslim leaders, including a member of the Indonesian Muslim Ulama Institution (MUI), questioned vaccination safety, especially the MMR (measles, mumps, and rubella) vaccination. Finally, they issued a fatwa -religious law- based on Decree Number 33 of 2018, saying that the MR vaccine for immunization was haram (forbidden). Furthermore, many local healers took advantage of this moment to actively promote natural alternative solutions to avoid vaccines, and this has contributed to the reduced confidence in vaccines in Indonesia. It achieved the next step of the vaccination campaign beyond Java Island by dropping from 95% to 53%. However, after a few days, MUI revised the decision after lengthy discussions with the health ministry. The MUI issued its latest fatwa, which stated that the MR vaccine is mubah (neutral), meaning that something forbidden (in this case, a vaccine made from non-halal) may be used temporarily before there is a halal vaccine. Even so, the low level of parental trust in vaccines for children continues to increase until 2021 (Rochmyaningsih 2018; Yufika et al. 2020).

Figure 1**.** For groups that think that vaccines are important for children, in most countries, more than 80% consider child vaccination urgent. However, Indonesia remains under 70%, and the proportion of children consenting to critical immunizations has decreased from 70.9% in 2018 to 60.4% in 2019. The percentage of groups in Indonesia that disagree that children's immunizations are safe has increased, rising from 0.90% in 2018 to 2.16% in 2019 (De Figueiredo et al. 2020).

Figure 1. Graph Of the Percentages for Disagree and Agree That Vaccines Are Important



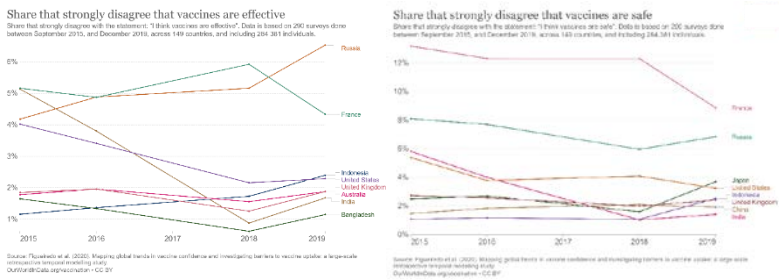
Source: (Figueiredo et al 2020)**.**

Through their statements and actions in conventional and social media, groups that have doubts or don't believe at all may indirectly or directly influence politics, social networks, and individuals. Social media promoted misconceptions about vaccine safety, efficacy, and adverse effects, which fueled the anti-vaccine movement. Religion, personal ideology, and lack of confidence in government or administrative authority also contribute (Setyaningsih and Siregar 2021).

Figure 2. Based on the percentage of disapproval that vaccines are effective, Indonesia experienced an increase in distrust that the vaccine was effective from 1.73% (2018) to 2.40% (2019). Meanwhile, despite the percentage of disapproval that vaccines are safe, Indonesia experienced an increase in distrust that vaccines were safe from 1.05% (2018) to 2.51% (2019).[8] Therefore, the primary reason parents resist vaccinations

is to protect their children. These parents feel that vaccination is dangerous or that children who have not been vaccinated are healthier than those who have.

Figure 2. Graph Of the Percentages for Disagree That Vaccines Are Effective and Save

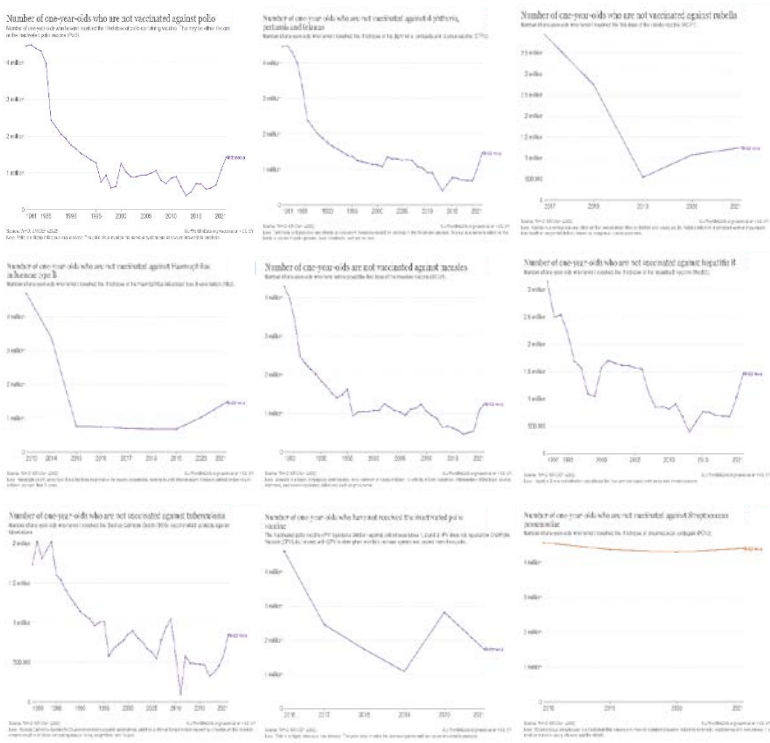


Source: (Figueiredo et al 2020)**.**

Figure 3. provides further information. In Indonesia, the number of one-year-olds who did not receive the polio vaccination increased from 676,608 in 2019 to 1.42 million in 2021; the number of children who received the diphtheria, pertussis, and tetanus vaccine increased significantly from 676,608 in 2019 to 1.47 million in 2021; the number of children who received the measles vaccine increased significantly from 541,286 in 2019 to 1.25 million in 2021; and the number (2021). The number of BCG vaccinations dramatically rose from 451,072 in 2019 to 846,637 in 2021. The number of individuals who did not get the Haemophilus influenza type B vaccination increased from 676,608 in 2019 to 1.47 million in 2021. 541,286 individuals did not get the rubella immunization in 2019, compared to 1.25 million in 2021. The number of individuals who did not receive the inactive polio vaccine increased from 1.08 million in 2019 to 1.74 million in 2021, then returned to 1.74 million in 2021; the number of individuals who did not receive the streptococcus pneumoniae vaccine increased from 4.38 million in 2019 to 4.41 million in 2020 (WHO 2022c).

Furthermore, with an attitude of doubt and refusal, more and more children are not vaccinated or are vaccinated too late, and most of this is due to their parents' decisions. It eventually led to the emergence of polio cases in November 2022, when it was reported that three children had contracted polio in the Pidie District, Aceh. After investigation, it turned out that their parents had never given their children the most basic immunizations. Due to the emergence of one case of the last polio outbreak in 2019 in Papua and three new cases in 2022, the ministry of health announced the status of the case as an "extraordinary event." On November 28, an immunization campaign was launched for 1.2 million children under 13 in Aceh province (WHO 2022a).

Figure 3. Graph Shows the Number of One-Year-Olds Who Were Not Vaccinated

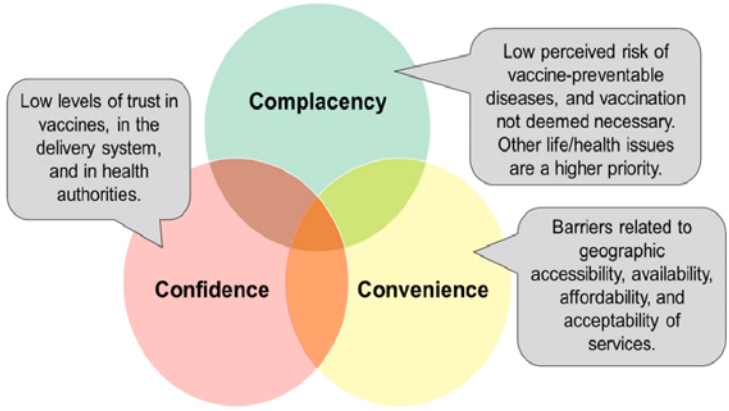


Source: (WHO 2022c)**.**

3. FACTORS CAUSING PARENTS' VACCINE REJECTION OF THEIR CHILDREN

Figure 4. That contribute to vaccine doubts, and the possibility of vaccine rejection can be divided into three categories: complacency, convenience, and confident**.** An example of complacency, such as the low perception of vaccine-preventable diseases, is due to the belief that people are quite satisfied because the body can provide natural immunity without having to use vaccines. Limited access, availability, and affordability to receive vaccines are examples of convenience. Examples of confidence include concern about vaccination safety, worry of potential adverse consequences, misunderstandings regarding vaccine safety and efficacy, concern about potential "immune system exposure," negative vaccination experiences in the past, doubts about how serious the pharmaceutical industry, as well as philosophical and religious concerns are some of the reasons why people don't want to get vaccinated (MacDonald 2015; Succi 2018).

Figure 4. Possible Reasons for Vaccination Rejection or Hesitation



Source: (MacDonald 2015)**.**

There are many things that cause people to reject or doubt vaccines, but they can be put into three groups: social, cultural, political, and personal.

3.1. Socio-cultural factors

a. Opinion of friends, family history, and support

Researchers know that parents' decisions not to get their children vaccinated are not just based on their own will, but are also affected by social decisions (Attwell, Smith, and Ward 2018). As an example, parents who didn't want their kids to get the MMR vaccine compared their reasons with those of other parents. They try to figure out what other people in their family and community will think of them if they make bad decisions (Brown et al. 2012).

b. Issues of religion and culture

Thinking that the components in the vaccine are contrary to religious beliefs and teachings (forbidden), e.g., gelatin comes from animals that are used in producing some vaccines and human fetal tissue used in rubella components. Vaccination does not exist in Islam, and it is not the Prophet's sunnah or way of life (Khattak et al. 2021; Yigit, Ozkaya-Parlakay, and Senel 2021).

c. About vaccines from the media and mistrust of health professionals

Thinking that chemicals in vaccines harm human health, believing that vaccination is an economic business for pharmaceutical companies, distrusting the companies that produce vaccines, and distrusting pediatricians regarding information received about vaccines (Yigit et al. 2021). Many studies have shown that the mass media is widely used to search for information in the general public, especially the Internet, where misinformation and inaccurate data are now widespread. Most sources in the media that are against vaccines use emotional appeals, like personal stories about how vaccines hurt people, to argue against the safety of vaccines (Kata 2012).

3.2. Political Factors

Public figures have a significant impact on most political aspects, and some individuals have purposefully polarized the vaccination debate by preying on unreliable publics and flaws in the political system. Furthermore, there is widespread distrust of the government and scientific elites due to political insecurity (Olson, Berry, and Kumar 2020).

3.3. Personal factors

a. Personal beliefs or philosophical reasons

Some parents think that their children's natural immunity is better than the immunity they get from vaccines. Many parents may not see the sickness as avoidable, serious, or life-threatening, and salutogenic parenting ensures their children's development, welfare, and health. It must avoid the various risks that exist. They prefer not to include chemical additions to their children's body (Ward et al. 2018). This style of salutogenesis is a professional parenting method used by parents who have children at Waldorf schools in the United States, which have low rates of child vaccination (Sobo 2015).

b. Fear of side effects, accompanied by a misconception about the vaccine's safety and effectiveness

Some parents believe that the possible negative effects of immunizations outweigh the advantages. They raise doubts about the reaction's short-term harm and possible adverse long-term effects. The most common vaccination myth today is that it contains mercury and can cause autism (McKee and Bohannon 2016). Recent surveys also show that some parents are skeptical about the safety of vaccines and hesitate to vaccinate their children (Bianco et al. 2019).

c. Income level and education level

Particularly in Germany and the UK, socioeconomic level and education level are important factors causing refusal and hesitation to vaccinate. The majority of families that resist immunizations have greater incomes and education levels than the national average (Özceylan et al. 2020). According to research by Opel et al., parents with a greater level of education are nearly four times more likely to be concerned about vaccination safety than parents with a lower educational background (Opel et al. 2011). In addition, based on a 2021 research by Khattak FA, parental unwillingness to vaccinate is correlated with illiteracy. A lack of knowledge leads to a lack of comprehension about the advantages of vaccination. Also, susceptible to gossip and incorrect information are parents with low levels of education (Khattak et al. 2021).

4. INTERVENTION AND STRATEGY

The following interventions and strategies have been implemented recently to overcome groups that refuse and are hesitant about vaccines for children (Olson et al. 2020);

a. Inform and educate

   Individually tailored web-based educational materials include image adjustments for parental races, content adjustments for specific vaccine-related issues, experience customization for the parent's experience, and identity matching with the children's names for communicating purposes.

b. Remind or recall

   We are using customized calendars to encourage child immunization for up to twenty-four months, contributing in a 66% increase in vaccination rates.

c. Improve Community

The "The Immunity Community" and "I Immunize" campaigns are examples of social marketing campaigns.

d. Provide support.

To enhance parents' vaccination-related attitudes, an integrated website-based platform that displays vaccine information that is easily accessible, interactive, and attractive.

e. Enable communication

Using the Vaccination Education Kit, which includes calendars, flyers, and attractive booklets, helps improve communication between physicians and parents regarding vaccine risks and benefits during vaccination schedule visits.

f. Face-to-Face

One of the best ways to get parents to talk about childhood vaccines and change their attitudes, behaviors, and plans to vaccinate is through one-on-one dialogue-based communication strategies.

g. Technology-Based

More people will be willing to get vaccinated if they see information about vaccines on websites that also have social media features.

5. CONCLUSION

Causes of vaccine rejection in developing countries (especially Indonesia) refer more to religious beliefs prohibiting vaccines. Then followed by other general factors such as cases in developed countries caused by uncertainty about safety, unsure of

effectiveness, fear of side effects, mistrust of vaccines fueled by the news and growing myths about adverse effects causing autism, societal distrust against government agencies, and the pharmaceutical business exploits its vaccination programs alone. Based on the cause of the occurrence, Vaccine rejection requires not only health-related knowledge but also a comprehensive approach to confidence in order to influence people's choices about immunizations. Our recommendations are as follows: First, start establishing and developing trust with parents throughout the first pregnancy and early in a woman's pregnancy when she will become a mother. Second, create vaccination education materials that are suitable for the target audience in terms of content, wording and manner, numbering, society, style, design, and illustrations. Third, combining communication techniques based on conversation with an interactive approach to providing balanced vaccine information will provide exciting and fair information about the advantages and disadvantages of vaccines, include adverse effects. Furthermore, finally, using technology to promote vaccination by developing a phone app offering information on childhood immunizations for new moms and parents.

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MALNUTRITION AMONG THE CHILDREN IN SYRIA

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1. INTRODUCTION

The ongoing conflict in Syria has resulted in one of the most severe and intricate humanitarian crises globally. This has led to the loss of hundreds of thousands of lives, triggered an immense displacement crisis, and caused extensive damage to civilian and agricultural infrastructure. This destruction includes homes, schools, healthcare facilities, water supply networks, and irrigation systems (‘Syrian Arab Republic: 2024 Humanitarian Needs Overview (December 2023) - Syrian Arab Republic | ReliefWeb’, n.d.-a). Millions have fled their homes, either becoming internally displaced within Syria or seeking refuge beyond its borders. The enduring crisis throughout 2020 has exacerbated the plight of individuals, strained services, and restricted access. Consequently, the number of Syrians requiring humanitarian aid surged from 13.4 million in 2021 to 14.6 million in 2022(‘2022 Humanitarian Needs Overview: Syrian Arab Republic (February 2022) [EN/AR] - Syrian Arab Republic | ReliefWeb’, n.d.), to 15.3 million in 2023 (‘Syrian Arab

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Republic: 2023 Humanitarian Needs Overview (December 2022) - Syrian Arab Republic | ReliefWeb', n.d.), and 16.7 million in 2024 ('Syrian Arab Republic: 2024 Humanitarian Needs Overview (December 2023) - Syrian Arab Republic | ReliefWeb', n.d.-b).

Within this demographic, there are 2.3 million children under the age of five, and 4.1 million women aged between 15 and 49, facing the repercussions of the crisis ('Syrian Arab Republic: 2024 Humanitarian Needs Overview (December 2023) - Syrian Arab Republic | ReliefWeb', n.d.-b). In 2023, 12.1 million individuals experienced food insecurity, marking a 51 percent rise from the levels seen in 2019 ('Syria | World Food Programme', n.d.). The main demographics in need of health and nutrition support comprise children under five years old, women aged 15 to 49 (especially those who are pregnant or nursing), individuals aged 60 and above, persons with disabilities, individuals with noncommunicable diseases (NCDs), internally displaced persons (IDPs), and those located in areas with restricted access. Furthermore, individuals dwelling close to or within zones of ongoing conflict, hostility, or insecurity are particularly vulnerable due to challenges in accessing humanitarian healthcare services ('Syrian Arab Republic: 2024 Humanitarian Needs Overview (December 2023) - Syrian Arab Republic | ReliefWeb', n.d.-b). While lack of medicines, supplies, health staff, and specialized health services are still the main barriers to health access.

After more than thirteen years of the Syrian crisis, Syria is divided into four spheres of influence which are controlled by mutually hostile forces. Two-thirds of the nation, governed by the Syrian government and overseen by the Ministry of Health, contrast with the northeastern regions. These areas, under the administration of North and East Syria, encompass Al-Hasakeh, Raqqa, Deir Ezzor, and segments of the Aleppo governorate. In

addition to two spheres in Northwest Syria, area of northern Idlib governorate, as well as parts of Aleppo, which is under the control of the Syrian Salvation Government (SSG), and north Aleppo which is under the control of the interim Syrian governorate backed by the Turkish authorities.

During 2019, a nutrition SMART survey disclosed moderate levels of Global Acute Malnutrition (GAM) at 0.4% and stunting at 12%. However, maternal anemia was prevalent at 27%, and there were notable instances of micronutrient deficiencies among children (Harphoush et al., 2023a). Nutritional indicators raised significant concerns in 2023, with the Global Acute Malnutrition (GAM) rate escalating to 4.8% (‘Syrian Arab Republic: 2024 Humanitarian Needs Overview (December 2023) - Syrian Arab Republic | ReliefWeb’, n.d.-b; UNICEF, n.d.-b).

Between 2019 and 2023, there was a one million rise in the total number of pregnant and lactating women as well as children requiring life-saving nutrition interventions, escalating from 4.9 to 5.9 million (‘Annual Country Report | World Food Programme’, n.d.).

MAM cases among children under five years old increased 55 percent in 2023 compared to 2022. In the same age group, the prevalence of stunting varied from 25 to 28 percent, representing an increase of 150,000 compared to 2019 (‘Syrian Arab Republic: 2024 Humanitarian Needs Overview (December 2023) - Syrian Arab Republic | ReliefWeb’, n.d.-b). Moreover, twenty percent of school children experienced anemia, while forty percent attended school without eating breakfast, and 1 in 10 children 6-23 received Minimal Acceptable Diet (‘Annual Country Report | World Food Programme’, n.d.; ‘WoS: Nutrition Sector Bulletin - Issue 1 - Jan-June 2023 - Syrian Arab Republic | ReliefWeb’, n.d.). Moreover, less than 1% of children under five

years old received Vitamin A supplementation or deworming while less than 5% of pregnant lactating women who have MAM admitted for treatment (‘WoS: Nutrition Sector Bulletin - Issue 1 - Jan-June 2023 - Syrian Arab Republic | ReliefWeb’, n.d.). Field studies conducted by the Ministry of Health, with support from UNICEF and WHO, indicate that the mortality rate of children under 5 years old has risen from 17.4 to 23.7 per thousand live births between 2008 and 2019 (UNICEF, n.d.-a).

Chronic malnutrition persists as a major public health and developmental challenge in Syria, with over 0.5 million Syrian children affected annually as of 2020(‘Whole of Syria Nutrition Cluster Sector Brief (January - December 2020) - Syrian Arab Republic | ReliefWeb’, n.d.), while it was almost 100 k more in 2023 (‘UNICEF warns of looming child nutrition crisis in Syria amid 12 years of conflict and deadly earthquakes’, n.d.-a). Stunting arises from prolonged undernutrition and inflicts irreversible physical and cognitive harm on children. This hampers their ability to learn and diminishes their productivity and earnings in adulthood

Concerns persist regarding maternal malnutrition. Roughly one in every four pregnant and breastfeeding women and girls faced acute malnutrition. Additionally, one out of every five teenage girls, aged 15 to 19 years, either had children, were pregnant, or were lactating. Additionally, one in every two pregnant and lactating mothers suffered from anemia (‘Annual Country Report | World Food Programme’, n.d.; ‘WoS: Nutrition Sector Bulletin - Issue 1 - Jan-June 2023 - Syrian Arab Republic | ReliefWeb’, n.d.). Ten percent of pregnant and breastfeeding women and girls (PBWGs) experienced wasting, while thirty-nine percent of pregnant and lactating women (PLW) had minimal dietary diversity (‘Annual Country Report | World Food Programme’, n.d.; ‘Whole of Syria Joint Statement: Protecting Maternal, Infant and Young Child Nutrition during the

Earthquake response in Syria (12th of February 2023) - Syrian Arab Republic | ReliefWeb', n.d.).

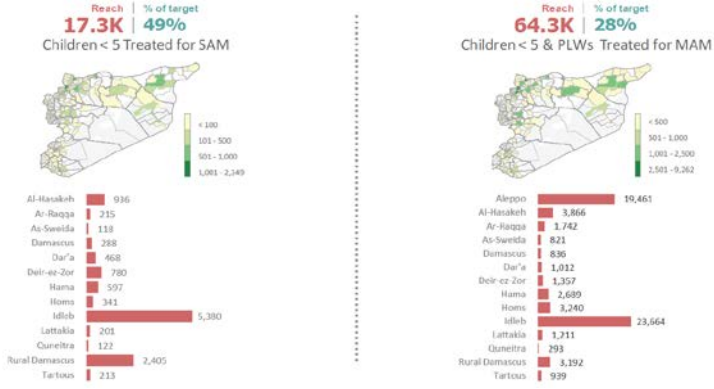
The critical nutrition situation in Syria is shaped by numerous factors, this includes inadequate Infant and Young Children Feeding (IYCF) practices, increased maternal malnutrition rates, economic instability, reduced purchasing power, prevalent poverty, and food insecurity, subpar WASH (Water, Sanitation, and Hygiene) practices, insufficient routine immunization coverage, infrastructure destruction leading to restricted health service accessibility, depletion of skilled personnel, disease outbreaks, family separations, early marriage of children, poverty, displacement, and heightened risks of Gender-Based Violence (GBV).

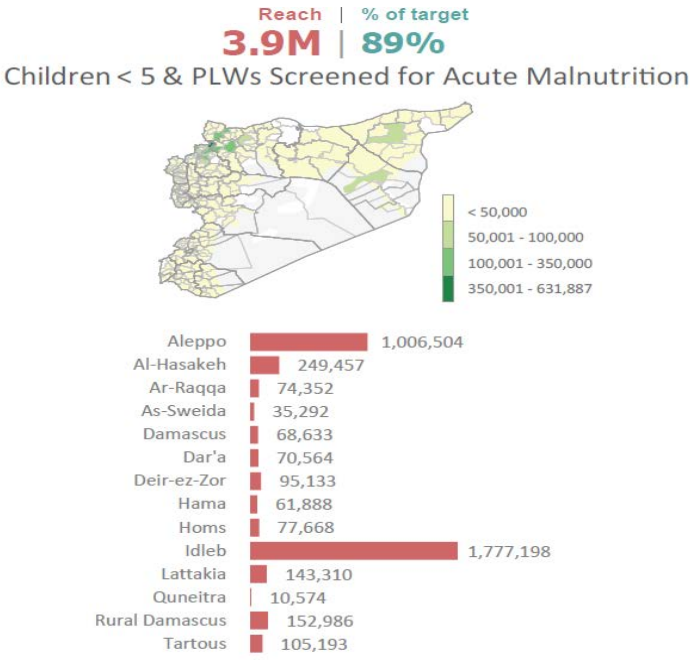
Furthermore, the health situation became worse due to the COVID-19 pandemic and the cholera outbreak. As of July 2022, Syria had recorded a total of 197,973 confirmed COVID-19 cases, with 7,228 associated deaths ('Syrian Arab Republic: Public Health Situation Analysis (PHSA) Long-form | Last update: 18 August 2022 - Syrian Arab Republic | ReliefWeb', n.d.). While up to Dec 17th, 2023, the total number of suspected cholera cases was 61,671 with 1,868 positive cases in the whole of Syria's 14 affected governorates with 0.2% case fatality (CFR) ('WoS Cholera Outbreak Situation Report No.10 | HumanitarianResponse', n.d.). This further weakened the already fragile healthcare system, diverting scarce resources toward combating these outbreaks and disrupting essential health services. Adding to the humanitarian crisis, an earthquake struck Northwest Syria on February 6th, 2023, significantly affecting 8.8 million people. Reports indicate at least 5,791 fatalities and 10,041 injuries. The earthquakes left approximately 53,000 families (totaling 265,000 individuals) homeless, as their residences were severely or completely destroyed. Moreover, the disaster ravaged critical services, notably water and sanitation,

healthcare, and social protection systems. (‘Flash Appeal: Syrian Arab Republic Earthquake (February - May 2023) [EN/AR] - Syrian Arab Republic | ReliefWeb’, n.d.).

Figure 1 below presents the gap between the estimated numbers of children under 5 who have been screened and treated for acute and moderate malnutrition (‘Whole of Syria: Nutrition Dashboard, January – December 2021 - Syrian Arab Republic | ReliefWeb’, n.d.).

Figure 1. Gap between the estimated malnutrition cases and achievements regarding MUAC screening and treatment (‘Whole of Syria: Nutrition Dashboard, January – December 2021 - Syrian Arab Republic | ReliefWeb’, n.d.).





The insufficient funding for nutrition stems from its perceived lower priority compared to emergency situations. Moreover, the COVID-19 pandemic and economic downturn pose further challenges to nutrition operations and outcomes. Recognizing that nutrition cannot be addressed in isolation, a multisector approach is imperative. Nevertheless, the ability to execute nutrition initiatives throughout Syria remains restricted. Consequently, there is an urgent requirement for additional partners with advanced multisector programming capabilities to assist in the delivery of effective nutrition programs.

1.1. Definition of Malnutrition Among Children

According to SPHERE standard, the following table 1 presents the typical thresholds for acute malnutrition in children between 6 and 59 months old (‘What are humanitarian standards? | Sphere Standards’, n.d.).

Table 1. Typical Threshold for Acute Malnutrition Among Children Aged 6 to 59-Month-Old

	Age group	Moderate acute malnutrition	Severe acute malnutrition
1	Children between 6 to 59 months	WFH* −3 to −2 Z score and/or 11.5–12.5 cm	WFH <−3 Z score and/or MUAC <11.5 cm and/or nutritional oedema

*Weight for Hight

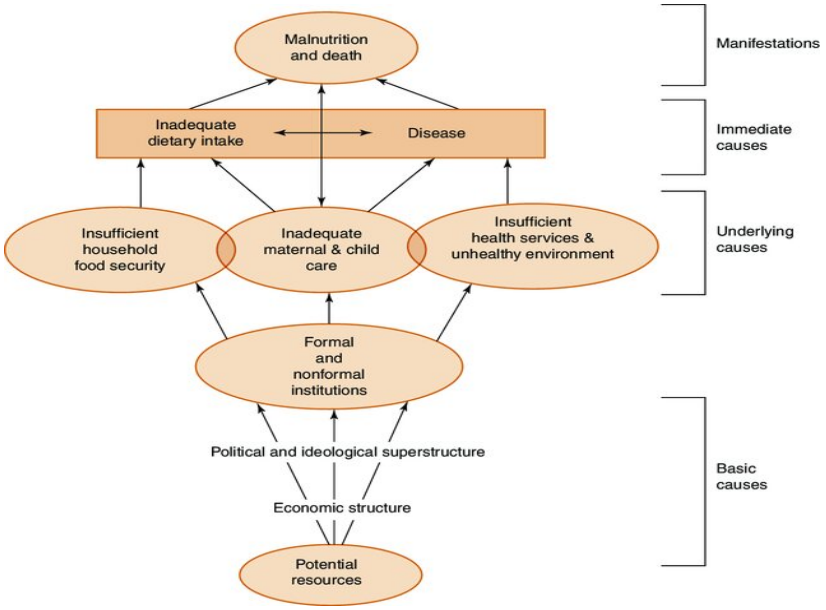
According to WHO standards, the WFH Z score is the recommended indicator for reporting anthropometric survey results. Meanwhile, MUAC serves as an independent measure for acute malnutrition and is strongly correlated with mortality. The occurrence of low MUAC helps predict the number of beneficiaries for supplementary feeding and therapeutic care programs, occasionally acting as the sole admission criterion for feeding interventions. When evaluating nutritional status in children aged 5 to 19 years, the WHO 2007 growth standards are utilized. These growth reference curves closely match the WHO child growth standards applicable to children aged 6 to 59 months and adhere to recommended thresholds for adults (‘What are humanitarian standards? | Sphere Standards’, n.d.).

1.2. General causes of malnutrition:

They are classified into different levels and reflect multi sectorial and multidimensional perspectives (Figure 2). They are basic, underlying and immediate causes, they are all applied for the Syrian context and can guide the potential interventions to tackle malnutrition challenges in Syria. **The basic causes** address the **country or region level challenges** that affect the children nutritional status. Mainly political and structural process in the country is included here. They include policies and programs impact the people access to financial, natural and economic

resources and might lead to lack of access to health and other fundamental services. In another word, the main obstacles that are responsible for inequity distribution of the human and social resources among different areas and accordingly disrupt accessibility to livelihood opportunities, food resources and quality nutritional services. They additionally include socioeconomic, cultural factors, climate events and changes, exposure to droughts and floods. While **the underlying causes** focus on the **household level challenges,** they are mainly linked with household income situation. Poverty and poor livelihood strategies of the households have a negative effect on food security, adequate feeding practices and access to quality health care services. Furthermore, low-income household have poor/less access to adequate services related to water and sanitation facilities, best hygiene practices which contribute to poor nutritional status of the household children as well as be more exposed to get diseases. **The immediate causes arise** from the combined impact of fundamental and underlying factors at the **individual level,** manifested in susceptibility to illness and insufficient food consumption. Short term consequences: contributing to a child's vulnerability and exposure to infection. Even though, children might die from infections, malnutrition can be an underlying factor for long-term chronic health issues. Long term consequences: Influence the health, education, and productivity trajectories of children as they transition into adulthood. As well as chronic malnutrition effects the cognitive ability and therefore economic earnings in the long-term.

Figure 2. General Causes of Malnutrition, Source UNICEF
Conceptual Framework for Causes of Malnutrition



Source: (Reinhardt & Fanzo, 2014).

Malnutrition in Syria exemplifies a significant public health issue cutting across various sectors. Its ramifications, particularly in chronic cases, extend across generations and affect individuals, communities, and the country over both immediate and extended periods. A comprehensive grasp of its root causes from foundational levels is crucial for effectively tackling the burden of chronic malnutrition at the national level.

2. CHALLENGES IN THE SYRIAN CONTEXT

- Hostilities and Intensity of Explosive Incidents:

By June 2021, there were reports of 600 attacks on 350 health facilities, with the majority attributed to the Government of Syria (GoS) and its allies (Ekzayez, Alhaj Ahmad, Alhaleb, & Checchi, 2021). As much as 70 percent of the healthcare

workforce has departed from the nation (‘Syria anniversary press release (6 March 2020) - Syrian Arab Republic | ReliefWeb’, n.d.). By the conclusion of 2022, only 58% of hospitals and 55% of primary healthcare centers were operational (‘Summary of key performance indicators - Whole of Syria (November 2022) - Syrian Arab Republic | ReliefWeb’, n.d.).

Only 54 per cent of the population in Syria has access to an improved water source (‘Syrian Arab Republic: 2024 Humanitarian Needs Overview (December 2023) - Syrian Arab Republic | ReliefWeb’, n.d.-b). As of August 2022, there were 685 recorded attacks on schools and assaults on education personnel (‘Whole of Syria (WoS): Attacks on Education in Syria (March 2011 - June 2022) - Syrian Arab Republic | ReliefWeb’, n.d.), additionally, 2.45 million children were not attending school (‘The situation of children in Syria | UNICEF Syrian Arab Republic’, n.d.).

- Mass displacement:

Displacement continues to define the Syrian crisis. By the end of 2022, the cumulative count of internally displaced people (IDPs) had reached 6.9 million, representing one-third of the entire population. Ninety-seven percent of these displacements were driven primarily by escalated hostilities. The majority of IDPs have been enduring prolonged displacement in the northwest region of the country (‘Syria | IDMC - Internal Displacement Monitorning Centre’, n.d.).

- Economic decay

What makes the situation devastating is the economic decay and deviation of the local currency, which fed into higher domestic prices, causing high inflation. After depreciating by 224 percent in 2020, the market exchange rate of the Syrian pound against the US dollar declined by 26% in 2021 (‘Syria Economic

Monitor, Spring 2022 : Lost Generation of Syrians', n.d.), with prices skyrocketing by more than 800% in the last two years alone, an astonishing 90% of the population now lives below the poverty line ('Syria: Unprecedented rise in poverty rate, significant shortfall in humanitarian aid funding', n.d.). Millions of vulnerable families across the country are now forced to make difficult decisions to set their coping mechanism. They have to decide if they have to buy medicines for their sick relatives or cover the expenses of putting food on the table and sending their children to school ('The impact of Syria's economic crisis on families | NRC', n.d.).

- Infectious diseases outbreaks:

The prolonged conflict in Syria inflicted severe damage upon the health system, dismantling its infrastructure. This situation has made early detection of disease outbreaks in Syria more challenging (Eneh et al., 2023). Furthermore, the overcrowded shelters, damage to the water supply chain, poor hygiene practices, insufficient water treatment facilities, and broader environmental challenges in Syria could contribute to the widespread dissemination of V. cholerae in the nation.

What exacerbates the impact of infectious diseases is the added strain on the already fragile sectors and systems in Syria, alongside the diversion of available resources to address immediate priorities, thereby impeding regular services. It's been estimated that since the onset of the COVID-19 pandemic in Syria, approximately 300,000 jobs have been lost (Harphoush et al., 2023b). Yet, the COVID-19 pandemic, which worsened food security on a global scale, placed significant strain on economically disadvantaged communities. This escalation increased the likelihood of declining nutritional well-being among susceptible demographics, notably women and children, perpetuating a destructive cycle with malnutrition. Furthermore,

children already malnourished and with weakened immune systems are at increased risk of contracting cholera. (‘UNICEF warns of looming child nutrition crisis in Syria amid 12 years of conflict and deadly earthquakes’, n.d.-b).

- Lack of Coordination:

Parties are controlling many areas – hubs - with a little bit or no coordination with other parties in terms of the humanitarian needs; Northwest Syria, Northeast Syria, South and Central Syria. It strongly influences the rest of the causes and vs versa the parties usually use the humanitarian needs to gain power and political benefits which aggregate people suffering accordingly.

According to the above mentioned four spheres of influence, sub-national health systems, emerged. They differ about funding, governance, key stakeholders, models of health-service delivery, and degrees of destruction to health facilities and related infrastructures (Atassi et al., 2022; ‘Everybody’s War: The Politics of Aid in the Syria Crisis - Google Books’, n.d.). This resulted in lack of coordination or collaboration, which has contributed to health risks on population like outbreaks of communicable diseases-for example, a polio outbreak in northeast Syria in 2017-2018(‘Polio outbreak in Syria successfully stopped - Syrian Arab Republic | ReliefWeb’, n.d.), and has led to challenges coordinating the COVID-19 pandemic, which has exposed existing fractures within the health system and overwhelmed health system capacity across all areas (‘Syrian Arab Republic: COVID-19 Response Update No. 07 - 5 July 2020 - Syrian Arab Republic | ReliefWeb’, n.d.).

Continuous civilian casualties and forced displacement resulting from ongoing hostilities, coupled with restricted access to already failing essential services and insufficient housing alternatives, alongside numerous distinct protection risks, together contribute to the humanitarian requirements of the

populace. Notably, there has been a 57% surge in the number of individuals experiencing food insecurity, the cumulative count stands at 12.4 million (an increase from 7.9 million in early 2020). Alarmingly, nearly half of those affected are children (‘11 years of conflict in Syria: Threat of hunger has never been higher - Syrian Arab Republic | ReliefWeb’, n.d.). Families are resorting to detrimental coping strategies, such as pulling children out of school for labor, selling assets, migrating due to food shortages, and promoting early child marriages.

Disruptions caused by COVID-19, along with exacerbated economic hardships, have significantly diminished purchasing power, rendering food and other essential goods financially unattainable. As a result, dietary quality and diversity are likely to have suffered adverse effects. The elevated cost of nutritious food or formula remained the predominant obstacle reported in feeding young children across both northwest and northeast regions, resulting in a significant decline in the nutrition status. Consequently, there has been an increase in both acute and chronic malnutrition, particularly among internally displaced persons and in the northwest region (USAID, IMMAP, & DATA FRIENDLY SPACE, 2020).

Key messages:

- A significant number of children in Syria are impacted by malnutrition.
- The causes of malnutrition are diverse, originating from various sectors and frequently intersecting with one another, there is no single intervention to solve malnutrition among children in Syria. The sectors that influence malnutrition encompass health, water and sanitation, infrastructure, agriculture, education, among others.

- Tackling malnutrition comprehensively demands prompt, comprehensive, and multi-sectoral interventions to effectively address nutritional needs.
- Failure to address severe food insecurity and various manifestations of malnutrition will inflict devastating consequences on hundreds of thousands of Syrians. This includes increased mortality in the short term and enduring, irreversible physical and mental health repercussions in the long term, impacting individuals across their lifespan and influencing future generations.
- The nutritional landscape in Syria is anticipated to be shaped by the dynamics of infectious disease outbreaks and the severity of food security issues. These factors will impact dietary diversity, maternal health, and nutritional status.
- Rising escalations and heightened hostilities are expected to worsen the nutritional conditions of mothers and children. This arises from recurring displacements and limited access to vital health and nutrition services, coupled with a rise in detrimental coping mechanisms.

3. CONCLUSION

The humanitarian crisis in Syria, exacerbated by conflict and outbreaks of infectious diseases, has elevated the risk of food insecurity and malnutrition among vulnerable groups. Multi-sectoral strategies that integrate healthcare interventions, nutrition education, and support for food production are critical to addressing these complex challenges and improving the well-being of those most affected by the crisis. Collective action is necessary to lessen the crisis's impact, protect vulnerable groups, and support Syria's recovery and development. Here are some

recommendations; 1) Management of malnutrition: It starts from removing the barriers to screening, since many of the cases especially in the hard-to-reach areas are not reported. It requires safe access to all areas to collate a reliable data to be used in setting the strategical interventions. Next, the goal is to develop well-defined and mutually agreed-upon long-term national strategies, ensuring comprehensive coverage of all malnutrition cases by engaging communities from the outset and establishing an ample number of well-equipped facilities, 2) Multi sectoral approach: Food and nutrition initiatives should collaborate with WASH (Water, Sanitation, and Hygiene), shelter and settlement, and healthcare efforts in a cohesive manner. For instance, ensuring people have access to sufficient and clean water is crucial for preparing nutritious meals and promoting safe feeding practices. Access to sanitation and hygiene facilities helps mitigate the risk of disease outbreaks. Adequate shelter not only provides cooking amenities but also shields individuals from harsh weather conditions, thereby lowering the risk of illness. Improved healthcare accessibility correlates with enhanced nutritional statuses, fostering greater capacity to pursue livelihood opportunities. Addressing root causes effectively can prevent and mitigate malnutrition, 3) Coordination: Facilitating cohesion among all stakeholders, including governments, international organizations, and donors, is essential. Effective coordination relies on precise and reliable data collection and sharing among various hubs. This supports endeavors to streamline humanitarian responses across hubs based on collectively agreed-upon strategic priorities, 4) Advocacy: To seek political consensus in Syria and move from the emergency response phase to the recovery phase and start health reform and rebuilding the health system with all components there. The involved parties in the conflict must cease their violations of international humanitarian and human rights laws. To ensure equity in resources distribution as well as safe access to the proper

support. Lack of funds and attacking health and other civilian facilities should be on the advocacy list of topics.

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WOMEN AND ACCESS TO HEALTH CARE IN NORTHWEST SYRIA

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1. INTRODUCTION

The evidence suggests that public healthcare has not historically been a top governmental goal. Worldwide, public healthcare spending was less than 1% of GDP until 1930. To put this in perspective, the nations that spend the most on public healthcare now allocate roughly 10% of their GDP to this sector (Ortiz-Ospina & Roser, 2024).

People's experiences and access to healthcare are influenced by their gender. The way health services are arranged and delivered can have a beneficial or negative effect on people's ability to access healthcare information, support, and services, as well as the caliber of these interactions. All people should be able to afford, receive, and accept health care, and it should be

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provided with dignity, equity, and excellence (Gender and Health, n.d.).

In addition, women and girls are more likely to have unintended pregnancies, STDs including HIV, cervical cancer, malnourishment, blurred vision, respiratory illnesses, famine, and elder abuse. Gender inequality also exposes women and girls to intolerable levels of violence, and it makes them especially susceptible to destructive practices like forced, young, and female genital mutilation. WHO statistics show that nearly one in three women worldwide have experienced non-partner sexual assault or abuse in intimate relationships, either physically or sexually. Women, on the other hand, are more likely to be carers, old, destitute, alone, and uninsured, resulting in distinct healthcare demands than men.

The immunology, drug use, and metabolism of women may differ. However, there are greater variances between men and women, making it harder to draw simple conclusions. Women's health has been overlooked or marginalized. Recent improvements have attempted to incorporate women's issues and concerns into healthcare research.

Finally, the epidemic has highlighted vulnerabilities in social, political, and economic structures, as well as exacerbated a slew of gender inequities, exacerbating the pandemic's effects. COVID-19 has increased women's exposure to violence in their households while decreasing access to and availability of services. Simultaneously, the epidemic has highlighted the crucial necessity of global health security, as well as the involvement of health and care professionals, the majority of whom are women (Judelson, 2002).

Access to health care means utilizing personal health services on time to attain optimal health results (IOM, 1993)

(*Elements of Access to Health Care | Agency for Healthcare Research and Quality*, n.d.).

The main pillars of access in the context of access to health services are (*The Healthy People 2020 Website Has Been Archived.*, n.d.):

1. Coverage: People without insurance are more likely to be in poor health and are less likely to receive medical attention. Numerous people depend on health insurance programs offered by the government, such as Medicaid. Health insurance in nations that provide it is the primary resource for target groups in the community to gain access to health care, but humanitarian relief and financing from international donors and UN organizations are the primary resources in conflict-affected and resource-limited countries.

2. Services: Service availability, diversity, integration, and specialization.

3. Timeliness: Having the capacity to provide medical care as soon as a need is crucial pillar of access to health services.

4. Providers with the necessary skills, training, and cultural competency.

Approximately 25% of people on the planet currently reside in areas affected by conflict, natural disasters, and displacement. When paired with inadequate national health systems, these circumstances make it difficult to deliver basic health care where they are most needed. As a result, significant rates of disease and mortality are found in countries with unstable, conflict-affected, and vulnerable environments: more than 70% of cases of diseases like measles, cholera, and meningitis that are prone to outbreaks; 60% of maternal deaths that may have been avoided; 45% of infant fatalities and 53% of deaths among children under the age of five (*Accessing Essential Health*

Services in Fragile, Conflict-Affected and Vulnerable Settings, n.d.).

The percentage of uninsured and underinsured women is higher. In addition to working part-time or in occupations or positions without insurance, they might not be qualified for family or spouse insurance if they are unmarried or divorced. By 2025, only 37% of American women between the ages of 65 and 69 will still be married for the first time (Bureau, n.d.).

One of the worst humanitarian crises the world is now experiencing is the Syrian conflict. The Syrian conflict has resulted in over 614,000 deaths and nearly 14 million forced migrations in quest of safety (SOHR, 2023). Almost 5.5 million Syrian refugees reside in the five countries that encircle Syria: Turkey, Lebanon, Jordan, Iraq, and Egypt. Of these 14 million, 6.8 million were Syrian internally displaced people (IDPs) (*Syria Refugee Crisis Explained*, n.d.). Syria's northern areas, ruled by rebel groups, and the country's interior continue to be separated.

Northwest Syria is home to 4.43 million people. Of them, 2.77 million, or 63%, are IDPs. Many pressures have had a significant impact on all aspects of society, but healthcare workers (HCWs) have been disproportionately impacted. These include the conflict, cholera epidemics, the COVID-19 pandemic, and the 2023 earthquake. Over 948 confirmed medical worker deaths have occurred since the conflict started in 2011, and the regime and its allies have frequently targeted healthcare facilities, severely damaging their infrastructure (“Medical Personnel Are Targeted in Syria,” n.d.). The COVID-19 pandemic, which resulted in 106,451 confirmed cases and 2527 deaths in NW Syria, made these issues even worse (*EWARN*, n.d.). The intensive care units (ICUs) in the region's COVID-19 hospitals were operating at up to 93% capacity (*Second Wave of COVID-19 Surging in Northwest Syria - Syrian Arab Republic* |

ReliefWeb, 2021), and medical personnel were having difficulty finding necessary supplies. In addition, epidemics of infectious diseases such as cholera—of which 16,389 suspected cases were reported in the 2022 outbreak—put more pressure on the hospital system (Tarnas et al., 2023). A 7.7-magnitude earthquake that slammed the region in February 2023 seriously devastated the infrastructure after more than ten years of conflict. The earthquake affected at least fifty-five healthcare facilities; consequently, thirty-one of them were forced to cease operations (*North-West Syria*, 2023). Hospitals could not accommodate the massive number of victims due to their limited ICU, surgical, and medical bed capacity. Therefore, Northern Aleppo and Idleb Province, which are under the control of TBAF and HTS, are included in the term North-West Syria (NWS).

2. CHALLENGES AND DIFFICULTIES

2.1. Global context

1. Lack of services: According to a December 2014 report, poor countries have a shocking shortage of essential sexual and reproductive health services. According to the report, Adding It Up: Although 225 million women in developing nations want to prevent getting pregnant but do not utilize modern contraception, according to The Costs and Benefits of Investing in Sexual and Reproductive Health (2014) (*Adding It Up: Investing in Sexual and Reproductive Health 2019 | Guttmacher Institute*, n.d.).

2. Inability to pay: The most important challenge in mid and low-income countries is financing the health sector and health services, women in many countries are suffering to meet their health needs because of low expenditure on health which back to low budgets designating health, and lack of funding from international donors, what makes services poor and paid, most of

the women with low income can't pay which deprives them of access to health services.

3. Quality of care: Despite efforts to improve service quality, it is projected that 30% of patients did not obtain prescribed preventative care or treatment in 2009. Readmissions and poor health outcomes can arise from inadequate care coordination within and between facilities; around 20% of discharged senior patients return to the hospital within 30 days. Hospital-acquired diseases killed approximately 100,000 Americans in 2007, while medical errors are predicted to kill between 44,000 and 98,000 Americans each year (*2012 National Healthcare Quality Report*, n.d.).

4. Armed conflict: Women experience considerable morbidity and mortality as a result of armed wars. Approximately 16 million women were internally displaced in 2017, according to global databases of refugees and internally displaced persons. Based on geographical data, there were 265 million non-displaced women in 2017 who were living dangerously close to armed conflict (within 50 km), up from 185 million in 2000. Conflict around women increases their probability of dying from nonviolent causes by a large margin; greater mortality rates are associated with more intense and protracted conflicts. Living close to high-intensity conflicts increases the risk of death for women of reproductive age by three times compared to those who live in peaceful areas. The likelihood that women and children will survive an armed war is indirectly impacted by malnutrition, bodily harm, infectious diseases, poor mental health, and poor sexual and reproductive health (Bendavid et al., 2021).

5. Migration: Women have been moving at comparable rates to men for the previous 40 years, accounting for around half of all migrants in 2005. Women and children are disproportionately affected by displacement caused by wars and

human trafficking. More frequently than not, female migrants' health suffers. Women face double discrimination because of their gender and status as migrants (Adanu & Johnson, 2009).

6. Decision making: Generally speaking, men lead global health while women provide it. Though they comprise 70% of the health workforce, just 25% of women occupy leadership posts (*Delivered by Women, Led by Men*, n.d.).

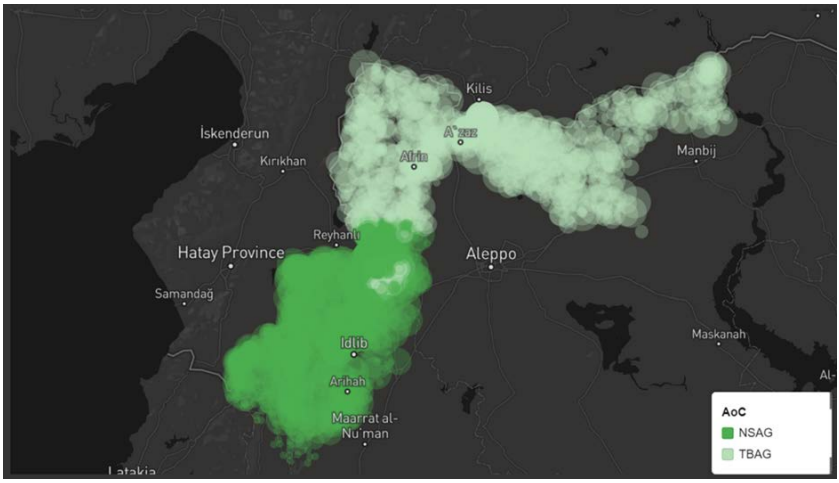
7. Laws and legislation: Although there have been notable advancements in the development and defense of rights impacting women's health, these have not always resulted in real gains to women's health.

Restrictions about abortion are further exacerbated by the continued criminalization of pregnant individuals, particularly those who are in prison, have HIV, or struggle with substance abuse issues. Due to social, political, and environmental injustices, many areas already suffer from health disparities; limits on abortion services make these problems worse (Brandi & Gill, 2023).

2.2. Northwest Syria Context

The Syrian context is one of the most complicated contexts globally, the has been continuous for more than 10 years destroyed the health system and health infrastructure, millions of people were displaced internally and externally, and thousands of medical staff were migrated to other countries, in addition to, conditions of war, absence of medical teaching, humanitarian bad situation, complete dependence on donors and weakness of governance all make health sector suffering more and more.

Figure 1. Northwest Syria area



Source: (*HNAP FSS: Folder "Total Population 2021 - 2022,"* n.d.).

The war divided the map of Syria into three separate and variant areas in the northeast, northwest, and the Government of Syria GoS. Northwest Syria is the region that includes most of Idlib, western and northern Aleppo, and some minor pieces of Hama and Latakia governorates, the area has been out of government control for more than 10 years, and witnesses from time to time an escalation of military operations, but this decreased to minimum after the Russian-Turkish ceasefire declaration end of 2019, the area is still challenging environment for access to healthcare services for women and girls and characterize by the following challenges:

1. Lack of medical equipment, medication, and consumables: The results show that, given their monthly patient load of thousands, the surgery, lab, clinic, and intensive care unit departments have substantial needs for appropriate medical device maintenance and repair. Access to high-quality healthcare facilities and services is severely restricted for both hospital management and patients. The key factors influencing events of all kinds include inadequate maintenance systems and a shortage

of specialized technical personnel, such as biomedical engineers and clinical engineers in hospitals. Medical equipment in hospitals was and is out of service or overworked. Numerous casualties have been admitted to hospitals, and most of the vital medical equipment either needs routine maintenance or must be shut down because of faults. It is anticipated that the number of active cases—disability included—will rise, A total of 57 items have been identified for localized repair by Field Ready (*Rapid Needs Assessment Report for Medical Devices in Healthcare Facilities (North-West Syria) (February 2023) - Syrian Arab Republic | ReliefWeb*, 2023).

2. Shortage of medical staff ratio for population: Based on HeRAMS Q4 2023, there are 1,797 doctors (570 in Aleppo and 1,209 in Idleb), 3,206 nurses (1,044 in Aleppo and 1,209 in Idleb), and 599 midwives (261 in Aleppo and 338 in Idleb). The density of key health workers (e.g. doctors, nurses, and midwives) per 10,000 population in NWS, is 11/000 (3.5 for doctors and 8.3 for nurses/midwives) (TÜRKIYE HEALTH CLUSTER FOR NORTHWEST OF SYRIA, 2023). Overall these indicators are far below the minimum necessary to achieve the SDGs (44.5/000) (WHO 2016) or UHC (91.3/000) (Lozano et al. 2019).

In comparison to East Mediterranean countries, NWS is below the regional average density of key health workers (e.g. physicians, nurses, and midwives) per 10,000 populations which is 35.5/000 for these countries (WHO 2018). NWS is also below the density in Government of Syria-controlled areas which is around 26 per 10,000 populations.

Table 1. Distribution of health staff by districts/populations (Aleppo/Idleb) in the Q4 2023 Northwest Syria (28).

Governorate	District	Population*	Hospital	Mobile Clinic	Other	PHC**	Specialized Care Centre	General Medical Doctor	General Surgeon	Orthopedic Surgeon	Others Surgeon	Gynecologist	Internist	Paediatrician	Midwife	Nurse	Community Health Worker	Technicians	Pharmacist /Drug Dispenser
Aleppo	Afrin	647,796	5	16	0	27	5	62	7	5	5	26	21	41	79	218	104	117	49
	Al Bab	290,003	3	3	3	16	4	30	0	1	0	9	8	24	39	172	46	73	22
	A'zaz	583,020	8	11	8	33	5	88	10	7	18	19	24	45	95	427	126	243	54
	Jarablus	117,631	1	0	2	7	2	13	0	0	0	4	3	7	13	58	21	21	9
	Jebel Saman	341,791	6	2	1	12	2	27	9	8	5	8	17	19	35	169	38	100	24
Total		1,980,241	23	32	14	95	18	220	26	21	28	66	73	136	261	1044	335	554	158
Idleb	Ariha	208,901	2	3	5	7	1	17	3	4	0	3	1	5	20	86	37	32	8
	Harim	1,761,199	27	18	14	55	10	205	34	53	56	44	88	105	151	1057	299	711	119
	Idleb	772,510	14	11	12	26	12	117	25	19	50	49	97	90	107	751	192	633	65
	Jisr-Ash-Shugur	328,822	7	5	3	13	3	59	16	9	9	11	12	28	60	268	70	194	30
Total		3,071,289	50	37	34	101	26	398	78	85	115	107	198	228	338	2,162	598	1,570	232
Grand Total		5,051,530	73	69	48	196	44	618	104	106	143	173	271	364	599	3,206	933	2,124	390

3. Weakness of governance and health systems: Following the government troops' withdrawal from Northwest Syria due to the conflict, several national projects have sought to develop alternative models to administration to displace the current system of central authority. Creating so-called "Central Bodies"—institutional governance structures in charge of thematic planning and service delivery, such as the referral unit, which oversees organizing and carrying out medical referral services—was one of the more recent developments. Nonetheless, these bodies' administrative policies and processes may lack maturity or organization. It is unacceptable to ignore the governance of this strategy, particularly considering the pressing need for a methodical approach to strategic planning, the accomplishment of strategic humanitarian objectives, and the effective use of existing resources. Numerous frameworks for evaluating governance have been created. None, though, were designed to be used in long-term humanitarian situations. The purpose of this study is to evaluate how well Northwest Syria's current health governance structure central bodies—performed governance duties in the absence of a recognized government (Alaref et al., 2023)

4. Dependence of financing : More than one in three health facilities in Syria are unable to function to their full potential due to pervasive instability and severe budget deficiencies. The others are frequently overworked, understocked, and unable to assist patients in critical medical

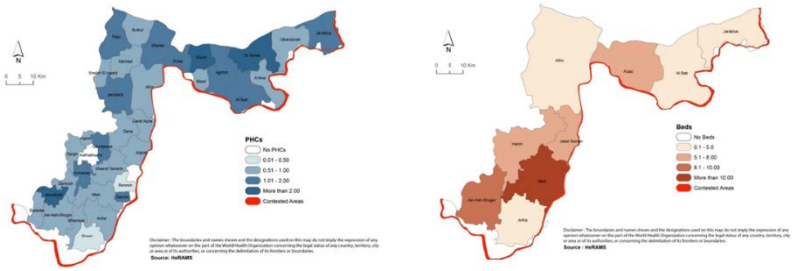
situations. This has resulted in a terrible number of pregnant women in northwest Syria encountering obstetric problems and passing away; many of them did so while being moved between hospitals that were severely short on vital supplies like blood and medication (*After 13 Years of Crisis, We Hear from Female Health Workers in Syria Leading the Charge for Women and Girls*, n.d.).

5. Quality of care and health services: There have been significant effects on Northwest Syria (NWS), which has made it difficult to provide high-quality healthcare services. The situation has gotten worse due to attacks on healthcare personnel and institutions. Particularly targeted are professionals and students in the healthcare industry, which has disrupted their education, led to relocation, and created a scarcity of qualified healthcare workers. Numerous initiatives have backed long-term initiatives to upgrade healthcare facilities and supply skilled personnel to solve these issues. To guarantee thorough and efficient training opportunities, partnerships with many stakeholders have been formed. This will help healthcare professionals better meet the healthcare demands of the populace. To improve healthcare capacity building, various undergraduate, graduate, and research programs have been created. The objective of these programs is to improve the knowledge and abilities of healthcare providers in NWS to raise the standard of care. The health system has been strengthened, and efforts have been made to increase policymakers' ability to use evidence-based knowledge to make well-informed decisions. The effective improvement of capacity-building initiatives at all levels has been greatly aided by international and regional collaborations as well as financial resources (Ahmed et al., 2024)

6. Lack of health services and facilities: There are 632 health facilities in HeRAMS's fourth quarter 2023 report, as opposed to 629 in the third quarter 2023 report.

Compared to 435 in the third quarter of 2023, 443 HFs are operational. The following is a breakdown of the operational healthcare facilities: Hospitals make up 73 (16.5%), followed by stationary PHCs (206/46.5%), mobile clinics (70/15.8%), specialized care centers (10.4%), and other health facilities (10.8%) (Türkiye Health Cluster For Northwest Of Syria, 2023). There were 52 health partners listed as managing and providing support. In the third quarter of 2023, there were 629 reported health facilities, 435 operating HFs, 187 nonfunctioning, and 7 had no reports; in contrast, out of a total of (632) reported health facilities, 443 HFs were functioning, 182 were non-functioning, and 7 had no reports. There are 632 health facilities in HeRAMS's fourth quarter 2023 report, as opposed to 629 in the third quarter 2023 report. Compared to 435 in the third quarter of 2023, 443 HFs are operational. The following is a breakdown of the operational healthcare facilities: Hospitals make up 73 (16.5%), followed by stationary PHCs (206/46.5%), mobile clinics (70/15.8%), specialized care centers (10.4%), and other health facilities (10.8%) (Türkiye Health Cluster For Northwest Of Syria, 2023). There were 52 health partners listed as managing and providing support. In the third quarter of 2023, there were 629 reported health facilities, 435 operating HFs, 187 nonfunctioning, and 7 had no reports; in contrast, out of a total of (632) reported health facilities, 443 HFs were functioning, 182 were nonfunctioning, and 7 had no reports. Of all the operational health facilities that have been reported from North Syria, 248 (56.0%) are located in the governorate of Idleb, 182 (41.1%) are in the governorate of Aleppo, and 13 (2.9%) are located in the governorates of Northeast Syria (Al-Hasakeh and Ar-Raqqa) (Türkiye Health Cluster For Northwest Of Syria, 2023).

Figure 2. Functional Primary Health Centers Phcs (Blue) and Hospital Beds Including ICU Beds (Red) In Northwest Syria Per District/25,000 Population



Source: (Türkiye Health Cluster For Northwest Of Syria, 2023).

Access to healthcare and services is hard, especially those vulnerable children and women, and high rates of morbidities and mortalities are still noticed in the very complicated regions. SRH services (ANC, PNC, RH, STIs, CMR, FP, Abortions, Deliveries, and Female Cancers) are still challenging and women still suffering from reaching like services. In Northwest Syria, the data received for July 2021 represented 225 health facilities (with different levels of care: Mobile clinics, PHCs, BEmONC, CEmONC, and general hospitals) from 28 implementing partners in Northwest Syria. Northwest Syria health facilities' data except Al-Hasaka and Al-Raqa: Total number of SRH consultations: 176,163. Total ANC antenatal care consultations: 71,421, out of which there were 25,460 ANC 1st visit only and 15,944 ANC 4th visit only. Total PNC Postnatal care visits: 13,756, out of which 65% were PNC visits conducted within the 1st 24 hours after delivery (8,875). Moreover, 719 women have completed 4 PNC visits within the first 42 days after delivery. A total 20,176 women visited these health facilities seeking care for family planning services. Among these women, there were 9,144 new users of any Family planning method, representing 45% of the total number of women who visited for family planning services. The percentage of PNC visits (within the 1st 24 hours after

delivery) to the total number of deliveries was 83% (*EWARN*, n.d.).

2.2.1. Deliveries

The total number of deliveries that took place in the health facilities (EmONC facilities) was 10,654. Out of the total, there were 8,228 vaginal deliveries (77%) and 2,426 through cesarean sections (23%).

Additionally, the total number of deliveries among girls under 18 years old was 935 (9% of the total deliveries). 5% is the percentage of cesarean sections for girls less than 18 years old from the total cesarean sections. Moreover, as it is mentioned above, the total number of deliveries in girls less than 18 years old was 935; 88% of them delivered vaginally and 12% through a cesarean section.

Home deliveries are more than 10% according to SRH WG data and cesarian sections dropped from 40% to 24.2% by 2021, this concludes an important gap in access and quality.

According to data issued by Health Cluster for August 2021 in Northwest Syria (*Turkey*, 2021):

- Over 1,060,515 outpatient consultations provided by the health partners.
- 10,385 deliveries assisted by skilled birth attendants. Out of them 2,518 (24.2%) cesarean section.
- 8.3% of assisted deliveries for females under 18 years.
- 87845 antenatal care visits (*EWARN* , n.d.).

2.2.2. Maternal and neonatal deaths

The total number of neonatal deaths was 37. Early deaths (from day 0 – 7 after birth) were documented at 36 and 1 was late death (from day 8 to day 27 after birth). Among the early neonatal

deaths, there were 20 cases that occurred during the 1st 24 hours after birth and 12 cases after the first 24 hours to the day 7 after delivery. NMR Neonatal Mortality Rate = 3.4 (it is not that accurate when calculated for one month, so the more data and time we have the more accurate this ratio be). During July 2021, there were 2 maternal deaths reported. MMR Maternal Mortality Rate = 5 this represents the data collected from February 2020 to July 2021.

24 BEmONC facilities, 34 CEmONC facilities, and 11 general hospitals participated in providing neonatal and maternal mortality data for July 2021 (*EWARN* , n.d.). 7. Near to the absence of specific services, tools, and consumables: In northwest Syria, there are 4300 active cases of cancer now. Breast cancer (13%), lung cancer (11%), blood cancer (10%), colorectal cancer 7%), prostate cancer 6%), and stomach cancer 4% are the most frequent cancers. Children with blood cancer make up more than 15% of such patients. The primary reason behind the demise of these cancer patients is their incapacity to afford costly medications and therapies (*Cancer Patients in Northwest Syria - UOSSM USA*, 2023).

3. CONCLUSION

In conclusion, expenditure on health is still low in Northwest Syria and this was exacerbated by the shrinking of funds allocated for Syria according to the prioritization of the crisis by the international donors. This makes millions of people suffering and in bad health conditions in the already limited resources area in Northwest Syria. Also, women's access to healthcare services is still challenging, financial dependence, availability, and quality of services are the most challenging barriers to seeking healthcare services in the area. Women are in bad conditions relating to sexual violence, reproductive health

services (antenatal and postnatal care), deliveries, family planning measures, abortion, and female cancers. On the other hand, armed conflicts and the poor governance and health system are still negatively affecting the population's health because of social instability and bad humanitarian conditions they live in, poverty, camps, and disabilities, besides poor planning for the health sector and fragmentation of the context due to the large number of influencing actors and lack of coordination/collaboration.

Finally, the continuous catastrophic war in Syria destroyed health infrastructures and forcibly displaced most people internally and externally, the consequences on women and motherhood services were horrible, and related gaps are very huge, which explains the high rates of morbidities and mortality. Base on the conclusion we came up some recommendation; 1) Initiating national programs for mother health is essential to developing standard operational procedures to meet women's health requirements and needs, 2) Working on the protection of women by leading and regulations for their access to health services regarding rape, sexual violence and exploitation, 3) Financing: Investment in health results in increased health services vertically and horizontally and improved access to health care for all groups, thus, we can build a strong health system that can respond effectively to all emergencies and provide advanced healthcare to mitigate the consequences of diseases and decreasing rates of morbidities and mortalities, 4) Ensuring women's participation in health leadership: enhance the ability to implement gender-transformative policy guidelines and overcome gender biases and inequalities in the global health and social workforce to support the effective participation of women in global health and the implementation of the Global Strategy on Human Resources for Health, 5) Intensify intersectoral policy discussions about female security and education, as well as a

human rights-based strategy for maternity, new born, and sexual and reproductive health.

Enhancing women access to clean water and sanitation is crucial to preventing communicable diseases and pandemics. Also, improving conditions of shelter and the nutritional status of mothers help in the protection of mother and child health.

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MEASLES - GLOBAL FACTS & THE CONTEXT OF NORTHWEST SYRIA

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1. INTRODUCTION

Measles constitutes a significant public health challenge in countries that lack the capacity to maintain fully operational routine immunization systems. This deficiency places a substantial burden on healthcare infrastructures whenever an outbreak transpires.

The measles vaccination prevented the loss of 57 million lives from 2000 to 2022. Despite the availability of a safe and affordable vaccine, approximately 136,000 deaths were recorded globally in 2022, predominantly among children under the age of 5 who were either unvaccinated or under-vaccinated. By 2022, only about 83% of the world's children had received one dose of the measles vaccine by their first birthday through routine health services, marking the lowest coverage since 2008 (WHO, 2024).

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In 2022, about 33 million children missed a measles vaccine dose, of whom 22 million missed their first dose and 11 million missed their second dose. Since around 7% of children who receive vaccinations do not develop immunity from the first dose and 3% of those who receive two doses may contract measles if they are exposed to the virus, receiving two doses of the vaccine is advised to ensure immunity and prevent outbreaks (CDC, 2021).

1.1. World Health Organization Response and Initiative

WHO is leading the coordination to achieve the Measles elimination goals, they launched 2 initiatives, in World Health Assembly 56 (Reducing global measles mortality) in 2003, and World Health Assembly 70 (Strengthening immunization to achieve the goals of the global vaccine action plan) in 2017 (WHO, 2003).

In 2010, the World Health Assembly set three benchmarks for the measles eradication strategy: (Perry et al., 2015).

- Dramatically increase first-dose coverage of the measles, mumps, and rubella (MMR) vaccine to over 90% nationally and at least 80% in every district. This ensures widespread protection against these diseases.
- Significantly reduce and maintain the number of new measles cases each year to less than 5 cases per million people. This signifies effective control of measles transmission.
- Achieve a substantial reduction in measles deaths, aiming for a decrease of over 95% compared to the estimated mortality rate in the year 2000. This highlights the program's focus on saving lives.

The global laboratory network is being supported and strengthened by WHO continuously to ensure timely diagnosis and to monitor the worldwide spread of Measles, in order to allow more coordination within the country, and within the regions (WHO, 2018).

The Measles & Rubella Initiative: Established in 2001, the Measles & Rubella Initiative (M&R Initiative) unites leading organizations like the American Red Cross, UN Foundation, CDC, UNICEF, and WHO. This powerful partnership works to eliminate measles and rubella as threats to children's health. Their mission is to prevent child deaths from measles and congenital rubella syndrome by supporting countries in planning, funding, and evaluating their measles and rubella control programs (WHO, 2023).

1.2. Measles as a Disease

Measles is a very contagious illness caused by a viral infection; with symptoms including fever, cough and rash, it is a highly transmissible disease from person to person by air when the infected person sneezes or coughs (CDC, 2024).

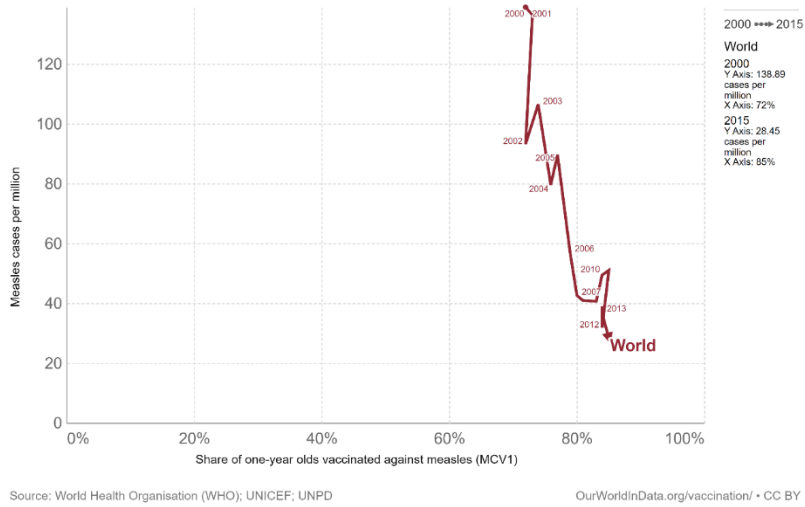
It is classified as a vaccine preventable disease VPD. Luckily there is a safe and very effective vaccine to prevent this disease. Clinical description: is an acute illness characterized by Generalized, maculopapular rash lasting ≥3 days; and Temperature ≥101°F or 38.3°C; and Cough, coryza, or conjunctivitis (CDC, 1983).

1.3. History of Measles

Historically the first evidence of measles was found in the 7^{th} century. In the 10^{th} century Measles was described by a Persian physician called Rhazes as “more to be dreaded than smallpox (CDC, 2021). Immunity of measles after infection is lifelong, and the incubation period of measles was issued by Peter Panum in

1846. The first isolation of Measles virus was performed by John Enders and Thomas C. Peebles in 1954.The virus was cultured not only from humans, but also from the tissues of a monkey's kidney (Berche, 2022). The first live attenuated vaccine for measles - which was Edmond C strain - was certified to use for humans in 1963 in USA. After about eight years; the combined Measles, Mumps and Rubella (MMR) vaccine, by Dr Maurice Hillman was certified to use in 1971 in USA (Philadelphia C.H.O, 2023).

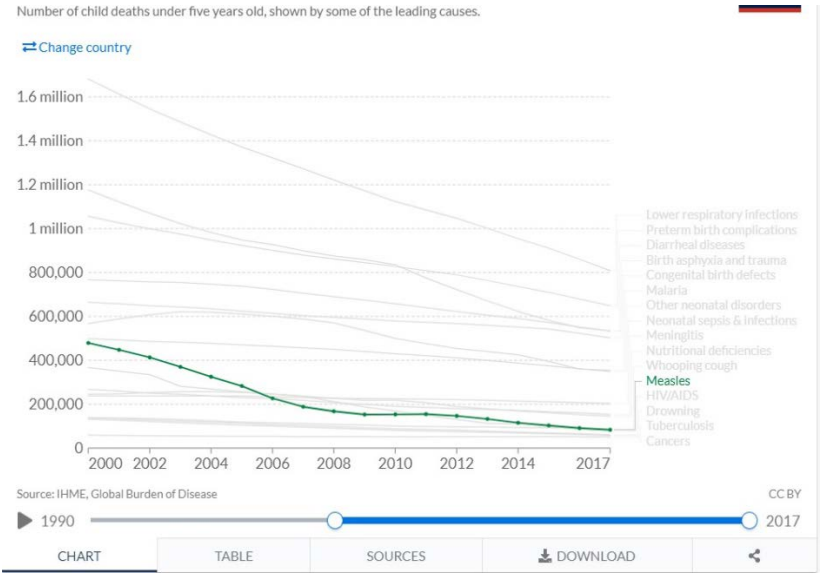
Figure 1. Measles Vaccine Coverage Worldwide vs Measles Cases Worldwide



Source: (Measles Vaccine Coverage vs. Measles Cases Worldwide, N.D.)

The chart above showing the relationship between the measles vaccine coverage improvement and the obvious effect on the number of measles cases worldwide. The first chart (Fig1) shows a sharp decline in the number of cases of measles from 2000 to 2012 affected by improved coverage of vaccine from (65-85%).

Figure 2. Causes of Death in Children Under Five Years Old, World, 2000 To 2017



Source: (Childhood Deaths from the Most Lethal Infectious Diseases, World, n.d.)

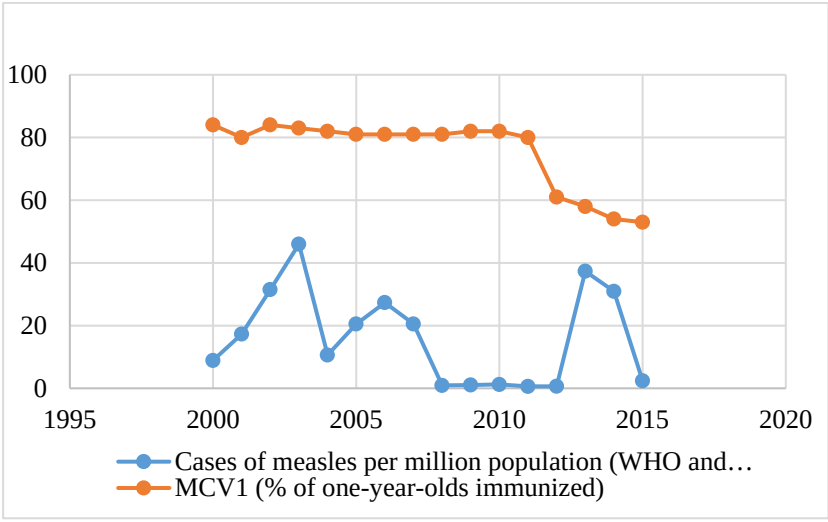
The chart above (Fig2) shows global measles deaths in children under the 5 age group, data reveals a significant decline in global measles deaths among children under 5 from 2000 to 2017. Over this period, the number of deaths nearly halved, dropping from over 400,000 in 2000 to less than 200,000 in 2017.

2. MEASLES IN SYRIA AFTER CRISIS

The Centers for Disease Control and Prevention (CDC), World health organization (WHO) and EWARN (Early Warning Alert and Response Network) provide case definitions for measles, including clinical descriptions, probable cases, confirmed cases, and discarded cases. These definitions help in the identification and reporting of measles cases, but issues persist in diagnosis, epidemiologic linkage, and laboratory testing (WHO, 2022). Even though vaccination efforts have led to a

remarkable 73% decrease in measles deaths among children under five globally between 2000 and 2018, measles remains a major cause of child mortality. Tragically, over 140,000 people, with over 95% in developing countries with limited healthcare access, still died from measles in 2018. Efforts led by the World Health Organization (WHO) aim to reduce global measles mortality and strengthen immunization to achieve elimination goals. However, challenges remain in increasing vaccination coverage and maintaining immunization rates. (WHO, 2019)

Figure 3. Measles Vaccination Coverage vs. Measles Case in Syria



The chart above illustrates the significant changes in Measles vaccination coverage over years which affects the reported cases of confirmed Measles cases, between 2008 – 2011 there was a political stability where the vaccination coverage was about 80% in 2011, and the confirmed cases were the lease reported over the history of Syria.

In 2011 the Syrian crisis started, and unfortunately, even after 13 years of the crisis, the humanitarian needs of people are still significant and exacerbating. 3.4 million people (which approximate the population of Oklahoma) are forced to change

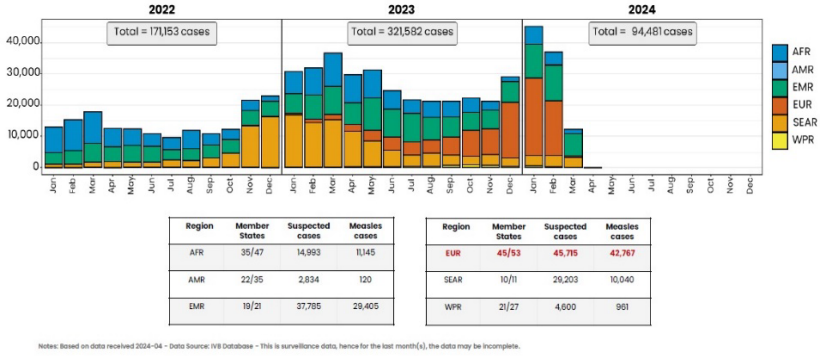
their residence frequently and became internally displaced people IDPs, this represents one of the most significant population displacements witnessed globally from those 2.9 million people were internally displaced last year.

Children constitute about almost 50% of the 4.2 million people who are in need, the majority of them residing in a precarious and very crowded camps.

About 89 percent of children living NWS are in need for continuous protection.

Active hostile actions taking place in NWS against innocent civilians have led to the death of at least seven civilians, including one child, and affected 31others with different injuries in January and February of 2024, reported by the local authorities. Work is continuing with Early recovery support to establish a solution for the most urgent needs for people living in NWS. Over 31,000 families have been transferred from camps to more suitable shelters during the last two years (UNOCHA, 2024).

Figure 4. Measles Cases Distribution by Month and WHO Region (2022-2024)



Region	Member States	Suspected cases	Measles cases
AFR	35/47	14,993	11,145
AMR	22/35	2,834	120
EMR	19/21	37,785	29,405

Region	Member States	Suspected cases	Measles cases
EUR	45/53	45,715	42,767
SEAR	10/11	29,203	10,040
WPR	21/27	4,600	961

Notes: Based on data received 2024-04 - Data Source: IVB Database - This is surveillance data, hence for the last month(s), the data may be incomplete.

In 2011 after the onset of the Syrian crisis, the health system started to be affected starting from the rural areas due to the access challenges, and gradually all the health system around

the country was affected and eventually the routine immunization program collapsed completely especially in NW Syria. In the first three months of 2013, the number of laboratory-confirmed measles cases in Syria reached 139, while no cases were reported in 2010 and 2011, and from those cases 71% of them were not taken the vaccine at all. National campaigns to vaccinate children below the age of 5 have been hindered due to accessibility and security issues, resulting in high numbers of unvaccinated children in inaccessible areas (WHO,2013).

A measles and rubella vaccination campaign launched in 2014 in Idleb governorate aimed to address outbreaks in refugee camps and schools. However, the campaign was tragically halted after the deaths of 15 children. The cause was a misunderstanding: a medication called Atracurium was mistakenly used as a vaccine diluent. This incident shattered public trust in vaccine safety, creating a significant obstacle to future immunization efforts. (Cousins,2014)

Early Warning Alert and Response Network (EWARN) reported 10,322 cases from the beginning of 2014 to the end of 2016 in areas outside the control of the Syrian regime. The most measles cases were less than 5 years old and not vaccinated. Only Fifty-four cases of them were confirmed by the laboratories (EWARN, 2016).

Efforts to rebuild public trust in vaccines after the 2014 incident proved successful. Through community engagement initiatives involving various stakeholders, confidence was restored. This paved the way for a renewed vaccination campaign in 2015. In the previous decade before the crisis, the number of reported suspected cases of measles was 3193 cases from all over the country, in comparison, during the crisis, between January 2015 and June 2019 this number increased dramatically to 30241 cases (Mehtar et al.,2021).

Figure 5. Incidence of Measles by Governorate-2014-2015-2016 (up to EW22)

Governorate	2014		2015		2016 up to week 22	
	Measles Cases	Incidence Rate for 100,000 pop.	Measles Cases	Incidence Rate for 100,000 pop.	Measles Cases	Incidence Rate for 100,000 pop.
Aleppo	1779	46	641	15	354	7.9
Al-Hasakeh*	544	211	389	102	42	4.0
Ar-Raqqa	708	46	665	44	791	46.1
Dar'a	5	1	20	4	6	0.6
Deir-ez-Zor	1958	109	280	13	317	14.5
Hama	209	78	20	7	4	1.3
Homs	0	0	0	0	36	9.5
Idleb	1237	77	175	10	83	3.9
Lattakia	0	0	0	0	0	0.0
Quneitra	0	0	2	2	4	13.5
Rural Damascus	29	13	17	7	3	0.4
Total	6469	62	2209	19	1640	11.6

Figure 6. Quarterly Distribution of Suspected Measles Cases Per Subdistrict -2015 and 2016 to EW

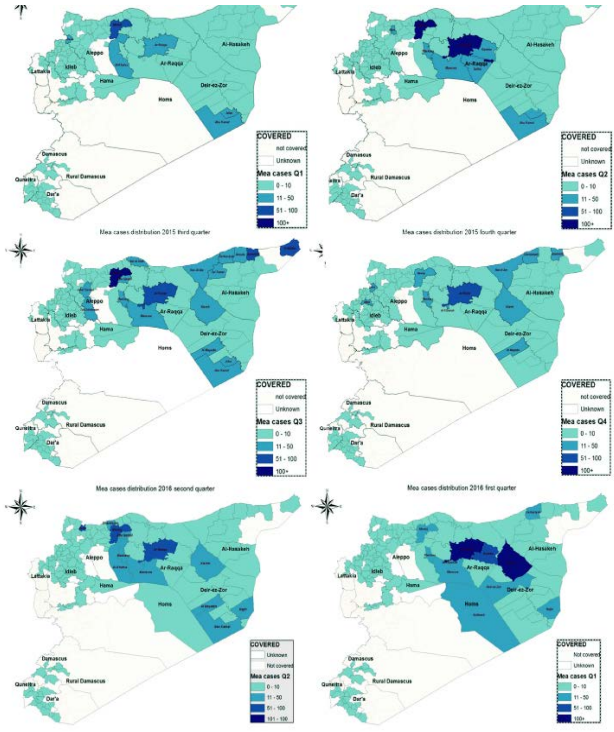


Figure 7. Measles Cases Distribution 2016 up to Week 22

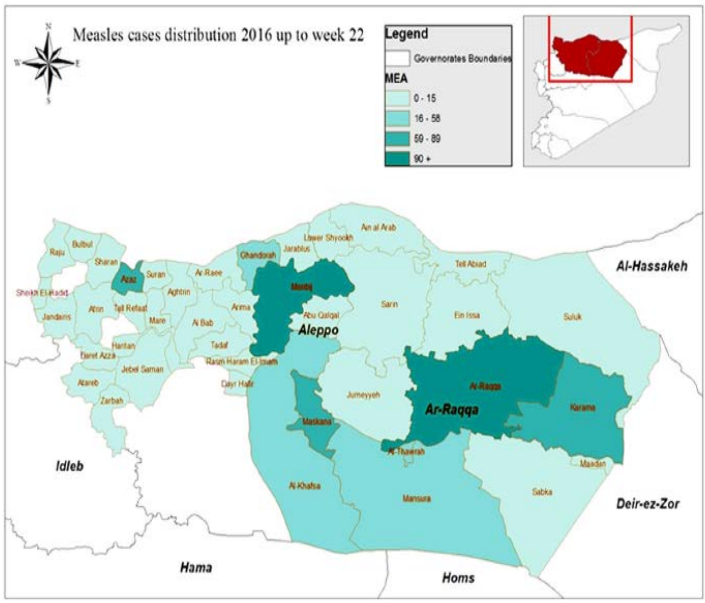


Figure 8. Comparison Between Aleppo and Idleb Governorates' Suspected Measles Cases Considering Vaccination Intervention

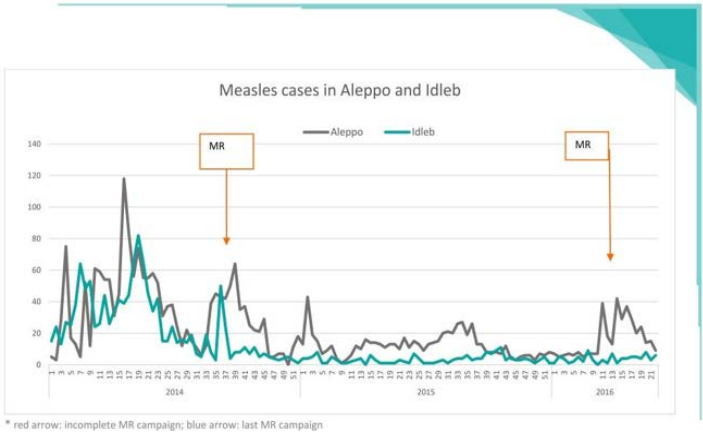
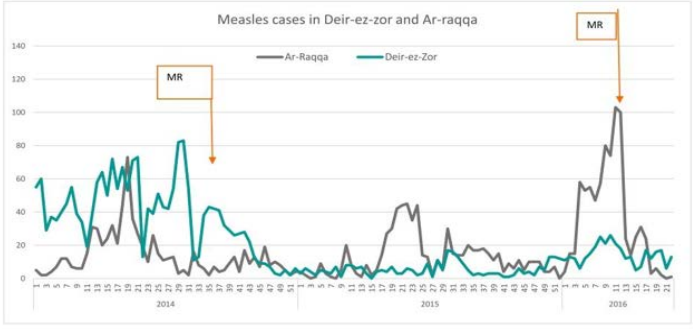


Figure 9. Comparison Between Deir-Ez-Zor and Ar-Raqqa Governorates' Suspected Measles Cases Considering Vaccination Intervention



* red arrow: incomplete MR campaign; blue arrow: last MR campaign

With the re-launch of the EPI in NW Syria in 2017, the vaccination coverage started to increase, supported by the campaigns, the coverage started to increase gradually, but the reported cases were still not under control, according to the EWARN reporting system in 2017, 2551 confirmed cases were reported, in 2018, 7072 cases were reported. The significant change was in 2019 where the reported cases decreased to only 556 cases, and finally in 2021 there was 326 cases (Power BI Report, n.d.).

Figure 10. Suspected Measles Cases EPI curve Week 51-2018-Northwest Syria

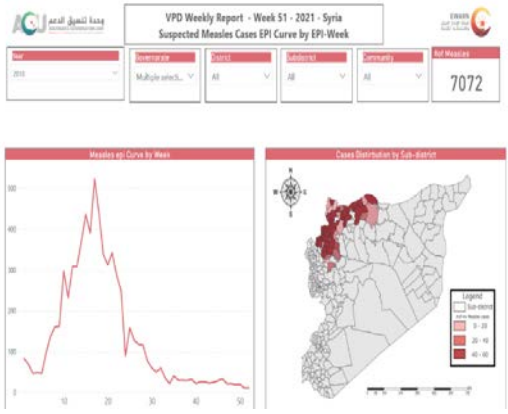
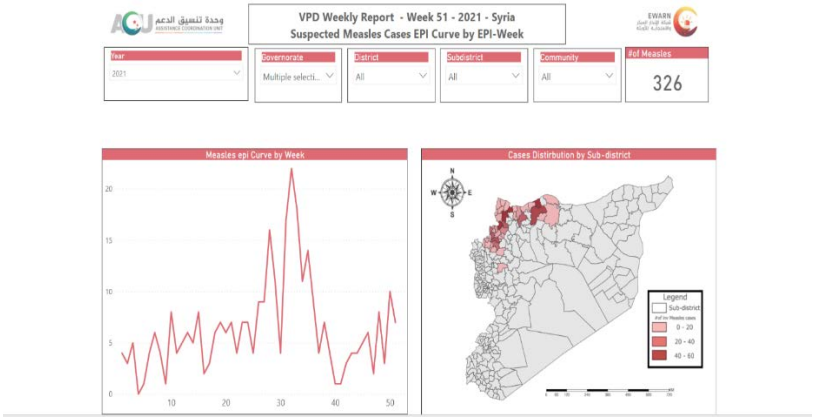


Figure 11. Suspected Measles Cases EPI curve Week 51-2021- Northwest Syria



2.1. Challenges

In northwest Syria, there are numerous challenges associated with measles. These challenges encompass various aspects;

1. **The continuous displacement**: due to the war which leads to relocating the EPI centers, which requires continues changing in the service mapping and housing within the camps, that complicates both the vaccination process and the social mobilizing activities and adds extra difficulty to the whole process which is already difficult.
2. **Absence of IDs**: In northwest Syria, people mostly do not have ID cards which were lost during the displacement trip, and there was no address system even when there was a functional government (A lot of people live in unorganized random camps) which creates difficulty in following-up people, especially the defaulters, in addition

to loss of contact and change of addresses continuously, which makes the defaulter tracing extremely difficult.

3. **Fear of communication**: many people are afraid to communicate with any health authority outside the control of the regime, which sometimes forces them to give fake names, which poses a big problem with tracking, especially when the vaccine card is lost.
4. **Vaccine refusal**: People refused the vaccine because of despair, ignorance, safety and the source of the vaccines, besides living in difficult conditions.
5. **Loss of communication**: between people with their doctors and the primary health care.
6. **Security situation**: frequent switch of access maps, some vaccination centers were out of service due to direct targeting by airstrikes, some sessions were postponed, cancelled, or interrupted which led to loss of data.
7. **The absence of governance:** powerful government bodies, health strategies, health policies, public health specialties, and health priorities.
8. **Lack of self-funding:** no self-resources to support a stable and sustainable EPI program as the medical organizations support most of EPI centers, and therefore there are frequent interruptions to support some EPI teams depending on the availability of the fund at the supporting organizations.
9. **Logistic issues:** such as providing a permanent and alternative source of electricity, the needs of logistical services in case of relocating and difficulties in securing diesel and cars for the teams to conduct outreach vaccination sessions

3. CONCLUSION

In conclusion, measles remains a significant public health issue in northwest Syria. To address these challenges and enhance vaccination coverage, the following recommendations are proposed;

I. Emergency Funds and Mobile Teams: Allocate emergency funds and deploy mobile immunization teams immediately following displacement to ensure continuous vaccination services and facilitate the relocation of EPI centers.

II. Issuing ID Cards: Collaborate with local authorities to issue ID cards containing unique national identity numbers, facilitating better tracking and follow-up of individuals, particularly children.

III. Promotion Activities: Invest in promotional campaigns to bolster public confidence in vaccine safety and efficacy, thereby increasing vaccination uptake rates.

IV. Strengthening PHC Centers: Augment the capacity of primary healthcare centers and invest in general practitioners and family doctors to enhance healthcare delivery.

V. Establishing a Database Network: Develop a robust database network connecting all EPI facilities to streamline data management and coordination efforts.

VI. Empowering Local Health Authorities: Provide support to local health authorities to build internal resources, thereby reducing dependency on external funding and fostering more independent decision-making capabilities.

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