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Viewpoints

Madhesh at Public Health Crossroads: Health Equity, System Strengthening, and the Role of the Global Madhesi Diaspora

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ABSTRACT:

Madhesh Province occupies a distinctive geographic and demographic position in Nepal. Its flat terrain, dense population, expanding transportation networks, and proximity to major service centers should support effective delivery of essential healthcare. Yet maternal and neonatal risks, childhood undernutrition, anemia, adolescent pregnancy, delayed referral, and unequal access to quality care remain important concerns. This view grew from a public interaction organized by the Madhesi diaspora in the United States during the visit of Honorable Manish Jha, Member of the Federal Parliament of Nepal. During that exchange, I raised health-system challenges affecting Madhesh and emphasized the need to place public health within the wider development agenda. Drawing on professional experience as a district public health officer in rural Nepal, a nonprofit health program manager in New York, a collaborator in community health research, and a respiratory therapist in a Level I trauma and academic medical center, I argue for a measurable agenda centered on maternal and newborn survival, nutrition, primary care,

emergency referral, workforce competency, quality improvement, and accountable use of data. The Madhesi diaspora can contribute through sustained institutional partnerships rather than occasional charity. Madhesh has the human capacity and geographic advantages to improve rapidly, but progress requires coordinated leadership, locally grounded research, community trust, and a commitment to treating preventable illness and death as system failures that demand correction.

Keywords: Madhesh; Nepal; health equity; maternal health; neonatal health; primary care; health systems; diaspora engagement

INTRODUCTION

Madhesh is Nepal's most densely populated province and extends across the southern plains along the border with India. It comprises eight districts and is central to the country's agriculture, trade, transportation, labor force, and cultural diversity. Its public-health performance is therefore not a regional matter alone; it is a national development concern. Nepal has improved maternal and child health, immunization, and service access, but national averages conceal important provincial inequities. In the 2022 Nepal Demographic and Health Survey, 29% of children under five in Madhesh were stunted compared with 25% nationally, 10% were wasted compared with 8% nationally, and 23% were underweight compared with 19% nationally. Anemia affected approximately 52% of women aged 15–49 in Madhesh compared with 34% nationally, while teenage pregnancy was 20% in Madhesh compared with 14% nationally. [1,4] These differences demonstrate the need for provincial and local strategies that complement national policy.

I was further motivated by an interaction program organized by members and organizations of the Madhesi Diaspora in the United States during the visit of Honourable Manish Jha, Member of the Federal Parliament of Nepal. His engagement with the social and developmental concerns of Madhesh created an opportunity to raise public health as a priority. I discussed maternal and newborn survival, malnutrition, anemia, uneven access to timely care, weaknesses in referral systems, and the need for evidence-based accountability. That conversation reinforced the value of dialogue among policymakers, professionals, researchers, civil society, and diaspora communities. This article is not intended as a political endorsement or a proposal to import another country's healthcare model. It is a practitioner's perspective on universal health-system principles: prevention, early recognition of risk, competent clinical care, reliable referral, respectful treatment, multidisciplinary teamwork, quality improvement, and honest measurement of outcomes.

Why I Write from a Cross-System Perspective?

My understanding of these issues has been shaped by work across very different healthcare environments. While serving as a district public health officer in Nepal, I encountered the practical realities of delivering services in rural communities. Programs can be weakened by staff shortages, interrupted supplies, limited transportation, inadequate supervision, and difficulty reaching marginalized families. Community trust and local leadership often determine whether policy becomes meaningful service. That experience taught me that public health means identifying who is missed, why patients arrive late, whether families understand danger signs, and

whether surveillance leads to action. Rural service also showed me the value of adapting interventions to local language, culture, household economics, and geography.

Later, as Program Manager of Health at the South Asian Council for Social Services, a nonprofit organization in New York, I worked with immigrant and underserved communities facing different but familiar barriers: language, health literacy, insurance complexity, fear, social isolation, transportation, and difficulty navigating fragmented systems. Community-based education and culturally responsive outreach were essential for connecting people with preventive care. This work confirmed that access requires people to understand, trust, reach, and use services effectively.

I also had opportunities to collaborate with researchers connected with Memorial Sloan Kettering Cancer Center and the New York State Department of Health on health-related issues. These experiences deepened my appreciation for ethical research, careful data collection, community partnership, and translation of evidence into practice. Research is most valuable when it answers local questions and returns useful knowledge to participating communities.

The Madhesh Public-Health Paradox

Madhesh presents a health-system paradox. Compared with many geographically remote Himalayan communities, much of the province has relatively flat terrain and extensive road connectivity. In theory, these characteristics should facilitate antenatal outreach, immunization, nutrition screening, ambulance transport, and referral to higher levels of care.

Yet physical proximity does not guarantee functional access: facility surveys show that service availability can coexist with gaps in trained personnel, medicines, diagnostics, basic equipment, blood services, oxygen, and referral readiness [4]. A nearby facility may still lack trained staff, essential medicines, diagnostics, blood, oxygen, or reliable transfer systems.

Effective access is a chain involving recognition, household decisions, affordability, transport, respectful assessment, stabilization, referral, and follow-up. Failure at any point can turn treatable illness into tragedy. For that reason, health planning should evaluate the patient's complete journey rather than count buildings, beds, ambulances, or training sessions in isolation.

Madhesh needs district- and municipality-level health profiles that identify differences within the province. Data should be disaggregated by sex, age, location, socioeconomic status, and relevant social groups. Local authorities should identify communities with poor antenatal attendance, anemia, delayed immunization, outbreaks, or referral delays and direct resources according to need.

Maternal and Newborn Survival as a Test of the System

Maternal mortality is one of the clearest indicators of whether a health system can recognize and respond to time-sensitive emergencies. Nepal's Maternal Mortality Study 2021 estimated a national maternal mortality ratio of 151 deaths per 100,000 live births.[2] Each death may reflect delays in recognizing danger, seeking help, obtaining

transport or blood, and reaching definitive care.

Madhesh would benefit from clearly defined maternal emergency pathways. Birthing centers, primary hospitals, district hospitals, and referral institutions should use practical escalation criteria for hemorrhage, severe hypertension, sepsis, respiratory compromise, altered mental status, and other clinical deterioration. Municipalities and provincial authorities should maintain updated information on ambulance availability, emergency obstetric capacity, blood resources, and referral beds. High-risk pregnancies should be identified during antenatal care and linked in advance to appropriate delivery facilities. Maternal and perinatal death reviews should be confidential, multidisciplinary, and focused on preventability. Their purpose should be correction, not blame.

As a registered respiratory therapist at Albany Medical Center, I observe coordinated care in an academic Level I trauma center. In neonatal intensive care, survival depends on rapid assessment, resuscitation, thermal protection, infection prevention, respiratory support, vigilant nursing, diagnostics, and continuous reassessment. Obstetric, anesthesia, neonatal, respiratory, nursing, blood-bank, and critical-care teams function as an interconnected system.

Madhesh need not reproduce an American NICU; it should adapt the principles of defined care levels, competent staff, early recognition, coordinated referral, and safely supported technology. A pulse oximeter without interpretation, oxygen without a dependable supply, or a ventilator without competent clinicians and maintenance does not create safe critical care. Strategic investment should begin with reliable newborn resuscitation, stabilization, oxygen systems, infection prevention, referral communication, and regional centers capable of caring for high-risk mothers and newborns.

Nutrition, Anemia, and the Life-Course Approach

Malnutrition and anemia should not be treated as isolated findings or minor program indicators. They influence physical growth, cognitive development, school performance, maternal health, productivity, and the health of the next generation. Causes include food insecurity, maternal nutrition, infection, unsafe water, poor dietary diversity, poverty, gender inequality, early marriage, and inadequate preventive care.

The 2022 NDHS reported that 25% of children under five were stunted, 8% were wasted, and 19% were underweight, while 34% of women aged 15-49 were anemic. Teenage pregnancy was reported at 20% in Madhesh, the second-highest provincial level in the survey.[1] When an adolescent enters pregnancy while anemic, undernourished, and insufficiently connected to antenatal services, risk may be transmitted across generations.

An integrated strategy should connect adolescent health, school-based education, maternal nutrition, antenatal screening, infant feeding, growth monitoring, infection control, and social protection. An anemia program should not be judged only by the number of iron tablets distributed. Screening coverage, adherence, side effects, follow-up testing, and improvement in hemoglobin levels matter. Nutrition screening should identify children before severe wasting becomes an emergency. Local data should

distinguish whether food insecurity, infection, feeding practices, sanitation, or care barriers are driving poor outcomes.

Primary Care, Chronic Disease, and Emergency Readiness

Madhesh must address a dual burden. Maternal, neonatal, infectious, and nutritional priorities remain urgent, while noncommunicable diseases are increasing. The World Health Organization reported in 2024 that an estimated 71% of deaths in Nepal were due to noncommunicable diseases.[3] Hypertension, diabetes, cardiovascular disease, cancer, and chronic respiratory illness require prevention and long-term management close to where people live.

Primary-care services should therefore combine maternal and child health with screening for blood pressure, diabetes risk, tobacco use, chronic respiratory symptoms, and common mental-health conditions. Care should include counseling, essential medicines, follow-up, and referral. Respiratory health deserves greater attention because household and ambient air pollution, tobacco exposure, occupational risks, infection, asthma, and chronic obstructive pulmonary disease can place a growing burden on families and hospitals.

Emergency readiness should be strengthened at selected facilities rather than scattered through unsupported equipment purchases. Staff need competency-based education in triage, resuscitation, sepsis recognition, oxygen safety, stabilization, and transport. Referral hospitals need dependable laboratories, imaging, blood services, infection-prevention systems, and critical-care capacity. Simulation, case review, and quality-improvement cycles can help convert training into reliable practice.

Research, Governance, and Accountability

Public-health policy cannot be guided by good intentions alone. Madhesh needs a research and accountability agenda that asks practical questions: Where do maternal and newborn delays occur? Which communities have the highest nutrition risk? Why are patients lost to follow-up? Which facilities lack essential readiness? Are programs reducing disparities, or are they reaching mainly those already closest to services?

Existing information systems should be improved for accuracy, timeliness, and local use. Digital health can support referral communication, remote consultation, registries, supply monitoring, and continuing education, but technology should solve defined problems rather than become an end in itself. Data should return to local decision-makers in usable form, with clear responsibility for responding to identified problems.

Accountability should include measurable indicators, named institutional responsibility, realistic timelines, and public reporting. Maternal and perinatal death surveillance, facility readiness assessments, essential medicine availability, referral intervals, nutrition outcomes, and continuity of chronic-disease care are examples of indicators that can reveal whether systems are improving. Progress should be judged not only by money spent or activities completed, but by safer care, reduced preventable mortality, and narrower inequities.

The Role of the Global Madhesi Diaspora

The global Madhesi diaspora forms part of a broader Nepali diaspora with substantial professional skills and experience across healthcare, public health, research, administration, engineering, technology, education, and other sectors. Recent diaspora mapping has highlighted both this reservoir of expertise and strong interest in contributing to Nepal through knowledge and skills transfer.[5] This expertise should not remain disconnected from Madhesh. However, engagement should evolve beyond occasional donations or short visits toward sustained, locally led institutional partnerships.

Diaspora professionals can support collaborative research, mentorship, virtual education, clinical simulation, quality-improvement projects, curriculum development, data analysis, teleconsultation, grant writing, and connections between institutions. Partnerships should begin with priorities identified by local professionals and communities. They should include clear objectives, shared responsibility, ethical governance, and evaluation of measurable benefit. The aim is capacity building, not dependency or replacement of local expertise.

The interaction with Honorable Manish Jha in the United States demonstrated the value of bringing policymakers and diaspora professionals into the same conversation. I expressed my willingness to contribute my public-health training, rural Nepal experience, nonprofit program-management background, research collaborations, respiratory and critical-care expertise, and professional network. Such commitments should become organized channels through which diaspora knowledge can support provincial and national plans.

A Practical Agenda for Madhesh

A focused public-health agenda for Madhesh should begin with a limited number of priorities that are feasible to measure. First, maternal and newborn rescue systems should connect antenatal risk identification, skilled delivery, emergency transport, stabilization, blood availability, and referral care. Second, maternal, adolescent, and child nutrition programs should use surveillance and follow-up to demonstrate improvement rather than report only commodities distributed. Third, primary care should integrate prevention and management of infectious disease, chronic disease, mental health, and reproductive health.

Fourth, strategically selected hospitals should receive coordinated investment in emergency, obstetric, neonatal, respiratory, and critical-care readiness. Fifth, workforce development should use competency-based continuing education linked to supervision and patient outcomes. Sixth, every municipality and district should use a small public scorecard of meaningful indicators. Finally, Madhesh should establish a formal platform for collaboration among provincial authorities, universities, hospitals, community organizations, and diaspora professionals.

These priorities require continuity beyond election cycles, reliable supply chains, retained staff, repeated training, consistent data, and trust. Sustainable routine improvements are more valuable than projects that cannot be maintained.

CONCLUSIONS

My professional journey has moved from rural public health in Nepal to community-based nonprofit work, research collaboration,

and acute and critical care in the United States. Across these settings, the central lesson has remained consistent: health outcomes improve when systems recognize vulnerability early, bring competent services close to people, coordinate care across levels, learn from failures, and treat every patient with dignity.

The discussion with Honourable Manish Jha during his visit to the United States offered an important opportunity to place these lessons before a national policymaker and the Madhesi diaspora. Public health should become a central measure of Madhesh's development. Behind every maternal mortality statistic is a family that lost a mother; behind every neonatal death is a life that ended before it had a fair beginning; and behind every malnutrition statistic is human potential placed at risk.

I remain eager to support Madhesh in any constructive public-health capacity through research, education, mentorship, technical consultation, health-system planning, and collaboration. Madhesh has the potential to become a leader in equitable public-health improvement in Nepal. Achieving that potential will require evidence, accountable institutions, competent professionals, community participation, and sustained partnership with the global Madhesi diaspora. Preventable suffering should never become normal. The next phase of development in Madhesh should be defined by measurable health equity, clinical quality, and collective action.

address this issue and preserve the power of medicines.

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