PERSPECTIVE

Enhancing NPPMT&BI at the Grassroots: Synergizing CHWs and AB-HWCs for Trauma and Burn Injury Prevention

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ABSTRACT

Trauma and burn injuries represent a major public health challenge in India, causing substantial morbidity, mortality, and economic burden. The National Program for Prevention & Management of Trauma and Burn Injuries (NPPMT&BI) was initiated to address this, but its potential at the grassroots level remains underexplored. This article argues that the program's success is contingent upon a focused paradigm shift: a deep integration of community-level prevention and first aid, led by Community Health Workers (CHWs), with the primary care preparedness of Ayushman Bharat Health and Wellness Centres (AB-HWCs). The article critically analyses the rationale for this synergistic model, identifies existing operational gaps in service delivery, and examines significant implementation challenges, including CHW workload and resource constraints. We propose specific, actionable recommendations focused on policy integration, primary facility strengthening, and the establishment of clear operational protocols. Fostering this integrated continuum of care is not only a programmatic necessity but also a critical step for India to reduce preventable mortality from injuries and achieve Sustainable Development Goal 3.

Keywords: Trauma and Burn Injuries, NPPMT&BI, Community Health Workers (CHWs), Ayushman Bharat Health and Wellness Centres (AB-HWCs), Health Systems Integration

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INTRODUCTION

Trauma and burn injuries pose a major public health challenge in India, causing substantial morbidity, mortality, and economic burden at individual and systemic levels.[1,2] It is estimated that millions of individuals in the productive age group are commonly affected with these leading to significant functional and disabling outcomes. In 2022 alone, India reported over 168000 deaths due to accidental injuries, with road traffic accidents being a primary contributor.[3] Furthermore, a Delphi analysis of injury-related mortality in India determined that more than half of the deaths were preventable.[4]

The burden of burns is similarly severe. While global estimates point to a high burden in low- and middle-income countries, India-specific data is stark. In 2019, more than 23 000 fire-related deaths were estimated in India, which is about 20% of the global mortality burden.[5] Burns are a major cause of nonfatal paediatric injuries and a significant cause of death among children. The resulting morbidity from deformity often leads to profound emotional anguish, stigma, and a substantial loss of disability-adjusted life years (DALYs).[6]

In response to this growing concern as well as a public health challenge, the Government of India initiated the National Program for Prevention & Management of Trauma and Burn Injuries (NPPMT&BI). The program aims to reduce the incidence, mortality as well as morbidity due to these injuries by strengthening and upgrading trauma and burn care facilities in government health care facilities across the country. This includes multipronged strategies focusing on enhancing pre-hospital, hospital-level, and post-hospital care, alongside capacity building of healthcare professionals and promoting prevention through awareness activities.[7]

However, for NPPMT&BI to achieve its full potential, it is important to have a focused paradigm shift towards a deeply integrated model. This model must cohesively combine proactive community-based prevention and first-aid mechanisms leveraging ASHAs and AWWs, with strengthened primary healthcare services provided through Ayushman Bharat Health and Wellness Centres. This article critically analyses this synergistic model, examining its rationale and the existing operational gaps, while proposing strategic recommendations for its implementation.

The Untapped Potential of Community Health Workers in NPPMT&BI

The vast network of community health workers (CHWs) in India, particularly Accredited Social Health Activists (ASHAs) and Anganwadi Workers (AWWs), serves as a considerable yet largely underutilized asset for localized prevention and early intervention in trauma and burn cases. The unique capacity of these front-line health workers for community engagement even in under privileged and isolated areas positions them in a level to spread initiatives for health locally. They hold considerable promise in the delivery of IEC programs related to burns and injuries in the grass root level like that aimed to reduce road traffic accidents, minimising the risk of fire in households as well as other domestic accidents that often culminate in serious injuries.[8,9]

In addition to prevention parts, these CHWs can be trained to function as essential first responders.[10,11] If we provide suitable and standardized training, they will be able to deliver basic life support, offer proper initial care for typical injuries as well as burns, and hence reducing further harm and enable prompt referrals to the higher facilities.[12] Given that a Delphi analysis determined more than half of injury-related deaths in India are preventable, the potential impact of capacitating CHWs in basic life support and timely referral is substantial. The existing involvement of CHWs in the structure of NPPMT&BI seems to be insufficiently backed as well as outlined as there is frequent lack of clarity regarding the specific roles and responsibilities related to trauma and burns treatment. There are also short comings in the delivery of this program which include lack of organized training activities, availability of critical resources like first aid kits and effective motivation to handle these supplementary responsibilities. This scenario portrays the effective missed chance to utilise the existing resources to improve the scope and reach of this trauma and burn management initiative.

AB-HWCs: The Initial Clinical Stronghold for NPPMT&BI

With the aim to provide accessible and universal medical services, Ayushman Bharat Health and Wellness Centres (AB-HWCs) were designed strategically as an essential component of India's comprehensive primary health care system. The effective functioning of these facilities is of paramount importance for the program as they serve as the initial clinical point of contact for the community[13], hence their swift intervention can reduce the impact or fatality of such incidents by providing suitable initial assessments, first aid care and stabilization of patients with burns and trauma before transporting them to a higher centre for further advanced management. Patients presenting with minor degree of burns or trauma can be managed at the centres itself thus reducing the burden of patients at the tertiary or secondary level health facilities. This indirectly enhances that resources at higher centres to be diverted to the neediest patients and hence helping in overall outcomes of the patients.[14]

The expansion of AB-HWCs have resulted in enhancement of access to crucial health care services for communities across different geographic regions. In spite of that, there are significant silos and operational challenges exist, particularly related to preparedness for trauma and burn care.[15] Compounding to these is the lack of standard evidence-based guidelines created for the management of burns and trau-

ma at these facilities as well as inadequate access to essential equipment, medications, and supplies required for an effective emergency response. More over the training criteria for the staffs at HWCs including the CHO is not uniform and largely inadequate when it comes specifically to the management of these injuries. Ambiguous or inadequately defined referral links also obstruct the continuity of care delaying the access to definitive treatment.[16]

Forging Essential Synergy: Integrating Community Action with HWC Preparedness

The successful execution of the NPPMT&BI at the primary healthcare level relies greatly on creating smooth operational connections between community health workers (CHWs) and Ayushman Bharat Health and Wellness Centres (AB-HWCs). An integrated model of service delivery counteracts the fragmentation that is typically found between facility-based and community-level care. Under this suggested model, CHWs act as a direct extension of Health and Wellness Centre (HWC) teams, thus creating a continuous and coordinated care continuum.[17]

Key Integration Pathways

A systematic method of integration can further the effectiveness of this program by establishing formal links between ASHA and AWW with their local HWCs particularly for the treatment of trauma and burn injuries. This requires crafting specific protocols that outline their responsibilities in identifying and referring impacted individuals to the HWC, along with their active involvement in ensuring proper essential follow-up care. Capacitating AB-HWCs to act as resource and training centres for these CHWs, enhancing their expertise in prevention methods, proficient first aid application, and suitable referral choices. Creating clear, two-way communication paths and referral guidelines between CHWs and HWC personnel, which is essential for prompt and organized responses.

Role of Technology in Facilitating Synergy

Technology plays a central role in facilitating this collaboration. Mobile health (mHealth) applications have the potential to offer CHWs standardized checklists for assessment, digital referral systems, and health promotion platforms.[18] HWCs may be equipped with facilities for telemedicine to facilitate specialist consultations in complicated cases. Such an integrated, technology-enabled system will ensure that the full patient pathway from the point of injury until definitive care is coordinated within a harmonized network.[19]

CHALLENGES AND THE WAY FORWARD

While the proposed integration of Community Health Workers (CHWs) and Ayushman Bharat Health and Wellness Centres (AB-HWCs) into the NPPMT&BI framework offers substantial promise, its implementation is not without significant challenges. A primary concern is the existing high workload of CHWs, particularly ASHAs, who are already tasked with a wide array of public health duties.[20] Expanding their role to include trauma and burn care, without commensurate support and incentivization, could lead to resistance, overburden, and compromised quality of care. Furthermore, the logistical scale of uniformly training hundreds of thousands of CHWs in first aid and standardizing the trauma/burn care proficiency of Community Health Officers (CHOs) at HWCs presents a formidable operational hurdle. Finally, sustainable funding for essential resources, such as first-aid kits, training modules, and mHealth technologies, must be secured, which remains a persistent constraint in many public health programs.

To mitigate these challenges, a phased implementation strategy is advisable, perhaps prioritizing high-risk districts identified by NPPMT&BI. The role expansion for CHWs must be linked to clear, performance-based incentives, as our recommendations suggest, rather than being an unfunded mandate. Leveraging digital platforms for scalable, cascaded training can help overcome logistical barriers.

It is crucial to recognize that CHWs have previously demonstrated their capacity for rapid adaptation and mobilization during national health emergencies. The successful engagement of ASHAs in India's COVID-19 response performing community surveillance, contact tracing, and facilitating testing and vaccination provides a powerful precedent.[21] This experience illustrates that when provided with clear guidelines, necessary resources, and adequate support, the CHW network can be effectively leveraged to address new and complex public health challenges. Applying these lessons to the NPPMT&BI can help translate the proposed integrated model from a strategic vision into a practical, life-saving reality.

RECOMMENDATIONS

Rollout of this unified care system calls for the following actionable steps:

Policy and Staff Integration: The Ministry of Health and Family Welfare (MoHFW), in collaboration with State Governments, should issue formal policy directives to officially integrate ASHAs and AWWs into the NPPMT&BI framework. This must entail support through uniform training modules (developed nationally, adapted locally), provision of standardized first-aid kits, and the creation of clear performance-based incentive mechanisms.

Primary Health Facility Strengthening: State Health Missions must lead dedicated efforts to increase the operational readiness of AB-HWCs. This requires focused capacity development of CHOs and HWC teams, utilizing continuous training modules

(potentially supported by bodies like NHSRC) on standardized treatment protocols for first aid and stabilization, complemented by requisite infrastructure and a consistent supply chain for essential equipment and drugs.

Operational Protocols Establishment: Clear Standard Operating Procedures (SOPs) must be developed and rolled out via MoHFW guidelines, with a target implementation timeline of the next 12-18 months. These SOPs are essential for creating coordination frameworks, building effective patient referral systems, and establishing formal feedback loops between CHWs and their respective HWCs**.**

Monitoring and Evaluation: MoHFW and State Health Departments should promote community-based monitoring and commission operational research, ideally conducted by independent public health institutions or academic partners. These processes are necessary for ongoing evaluation, validation, and iterative improvement of the integrated care model.

The use of this broad, multi-strategy framework is critical to preventing the substantial public health burden of burn and trauma injuries in India. (Box 1)

Key Recommendations

Box 1: Key Recommendations

1. **Policy and Staff Integration:** Formally integrate ASHAs and AWWs into the NPPMT&BI framework through MoHFW and State Government policies. This must include standardized training, first-aid kits, and clear performance-based incentives.
2. **Primary Health Facility Strengthening:** Increase the operational readiness of AB-HWCs, led by State Health Missions. This requires continuous training for CHOs on standardized protocols and ensuring a consistent supply chain for essential equipment and drugs.
3. **Operational Protocols Establishment:** Develop and roll out clear Standard Operating Procedures (SOPs) via MoHFW guidelines, targeting implementation within 12-18 months. These SOPs must create effective referral pathways and feedback loops between CHWs and HWCs.
4. **Monitoring and Evaluation:** Promote community-based monitoring and commission operational research, ideally through independent academic partners, to ensure ongoing evaluation and iterative improvement of the integrated model.

CONCLUSION

The effective implementation of the National Program for Prevention & Management of Trauma and Burn Injuries (NPPMT&BI) depends on the establishment of this solid, integrated continuum of care that can seamlessly incorporate community efforts into primary healthcare services. A model of synergy is needed to unlock the full potential of the program to significantly decrease the burden of these injuries in India. Implementing, evaluating, and iteratively improving this integrated care model is not merely a programmatic upgrade; it is a critical step toward fulfilling India's commitment to the Sustainable Development Goals (SDGs). By strengthening health systems at the grassroots and directly addressing preventable mortality and morbidity from injuries, this approach directly supports the achievement of SDG 3, ensuring healthier lives and promoting well-being for all at all ages.

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