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Sumatera Task Force - A Field Report of Final-Year Medical Student Deployment in Flash Flood Disaster Response

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Abstract

Background: Flash floods are a recurrent public health crisis in Indonesia, causing acute morbidity in communities with limited healthcare access. Final-year medical students represent a potentially valuable yet underutilized workforce in disaster response. This study describes the deployment of the Padang Task Force—25 final-year medical students from Universitas Pertahanan Republik Indonesia (UNHAN)—during flash flood response in Aceh Tamiang, Aceh (11–18 December 2025).

Methods: A qualitative descriptive field report with narrative literature review. Data were obtained from patient records, operational logbooks, and field observations during the 7-day deployment. Clinical activities were supervised by specialists from the National Defense Central Hospital (RSPPN) and Tri Matra military physicians.

Results: Approximately 240 patients were treated daily (estimated 3,840 total encounters). Predominant conditions included upper respiratory tract infections (URTIs), dermatophyte infections, scabies, acute diarrhea, and traumatic wounds. Key challenges included infrastructure collapse, medication shortages, absent laboratory support, and regulatory gaps regarding unlicensed student practice.

Conclusion: Supervised deployment of final-year medical students is feasible and effective in resource-constrained disaster settings. Formal regulatory frameworks, improved logistics planning, and integrated disaster medicine curricula are needed to optimize future responses.

Keywords: Flash flood, disaster medicine, medical students, humanitarian health response, Indonesia.

Background

Indonesia is among the most disaster-prone nations globally, positioned at the convergence of the Eurasian, Indo-Australian, and Pacific tectonic plates within the Pacific Ring of Fire, rendering it highly vulnerable to both geological and hydrometeorological hazards.[1]

Flash floods are among the most frequent and destructive hydrometeorological disasters in Aceh Province, where mountainous terrain, extensive river networks, and high annual rainfall converge to produce recurrent inundation events. Climate change-driven intensification of rainstorms further increases their frequency and severity.[2]

Beyond physical destruction, flash floods impose substantial public health consequences. These include traumatic injuries, disruption of healthcare services, interruption of medication supply chains, and elevated incidence of communicable diseases in displacement settings.[3] Population displacement severely restricts access to health facilities, increasing risks of delayed diagnoses, complications, and mortality.[4] The 2025 Aceh disaster exemplified this: 192 health facilities were damaged, including 65 hospitals, and an estimated 300 additional physicians were urgently required, with diarrhea, acute respiratory infections, and skin diseases dominating the health burden among displaced populations.[5]

Growing evidence supports the meaningful contribution of medical students to disaster operations through triage,

health education, community engagement, and supervised clinical care.[6] Advanced clinical-year students have demonstrated disaster triage performance comparable to emergency physicians, representing an underutilized surge capacity resource.[7] However, field reports describing structured, frontline deployment of final-year medical students in real disaster settings, particularly in low-resource, infrastructure-disrupted environments, remain scarce, leaving a critical evidence gap.

This study describes the deployment of Satgas Padang, 25 final-year medical students from UNHAN, during flash flood response operations in Aceh Tamiang (December 2025), documenting clinical activities, operational challenges, and interprofessional coordination to provide evidence supporting integration of supervised student deployment into Indonesia's national disaster health response architecture.

Methods

Study Design

This qualitative descriptive field report, supplemented by a narrative literature review, documents real-world humanitarian operations and is suited to capturing operational dynamics, clinical challenges, and lessons learned during disaster deployments.[8] Data were derived from patient service records, daily operational logbooks, and direct field observations throughout the 7-day deployment period.

Deployment Context and Settings

Satgas Padang comprised 25 final-year UNHAN medical students, mobilized under a directive from the Minister of Defense. The three joint task forces (Satgas Padang, Satgas Sibolga, Satgas Aceh) departed Kolinlamil, Tanjung Priok, Jakarta, on 2 December 2025 aboard KRI dr. Radjiman (Indonesian Navy). Following a sea voyage to Sibolga and operational reassessment revealing a critical healthcare worker shortage in Aceh Tamiang, the Padang Task Force was redirected via military air transport and arrived in Aceh Tamiang on 11 December 2025, operating continuously until 18 December 2025.

Figure 1. The condition of Palembayan, West Sumatera, upon the Arrival of the Unhan task force

Arrival conditions were severe: complete absence of electricity and telecommunications, no prior health team handover, and no baseline health data. The team operated as the first organized medical response at this location, providing 24-hour health post services and mobile community outreach under zero-infrastructure conditions.[9]

Participants and Clinical Supervision

All 25 participants had completed core preclinical and clinical rotations. As they lacked formal registration (STR) or practicing licenses (SIP), all clinical activities, diagnoses, treatment decisions, referrals, and procedures, were conducted under direct specialist supervision from RSPPN and Tri Matra military

physicians, in accordance with supervised medical practice principles.[10] Specialist reinforcement from Tri Matra (internal medicine, pediatrics, pulmonology, orthopedics, anesthesiology, and obstetrics-gynecology) arrived on deployment day 2, substantially augmenting clinical capacity.

Interventions and Activities

Humanitarian health services included:

1. Triage, health assessment, and primary clinical care for URTIs, dermatophyte infections, scabies, acute diarrhea, leptospirosis (clinical screening), traumatic injuries, and helminthiasis
2. Pediatric care, maternal and child health (MCH) screening, nutritional assessment, and antenatal support
3. Mobile health services, ambulance runs, and medical evacuations for hard-to-reach areas
4. Medical referral facilitation for secondary and tertiary care
5. Health education on waterborne disease prevention, wound care, and hygiene[7]
6. Humanitarian logistics distribution (food, clean water, medical supplies, emergency stockpile coordination)
7. Mental health and psychosocial support (MHPSS) for displaced adults and structured recreational activities for children at evacuation centers.

Ethical Considerations

This report describes humanitarian activities conducted under an official mandate from FK UNHAN and the Ministry of Defense. Patient data are reported in aggregate form only; no individually identifiable information is included. Institutional ethical approval was obtained from FK UNHAN. The report adheres to humanitarian principles of Humanity, Neutrality, Impartiality, and Do No Harm.[11]

Results

Deployment Trajectory and Operational Overview

The deployment followed a non-linear, command-responsive trajectory across multiple provinces and transport modalities over 16 operational days (2–18 December 2025). A mean of approximately 240 patient encounters per day was recorded, totaling an estimated 3,840 encounters. Health post operations ran 24 hours daily with rotational staffing shifts to ensure continuous coverage while mitigating personnel fatigue. *Table 1* presents the complete deployment chronology.

Table 1. Deployment Timeline — Satgas Padang, FK UNHAN, December 2025

Date	Event / Activity
1 Dec 2025	Planned departure — delayed due to vessel readiness
2 Dec 2025	Departed Kolinlamil, Tanjung Priok, Jakarta aboard KRI dr. Radjiman (TNI AL); 75 students total (3 satgas): Satgas Padang, Satgas Sibolga, Satgas Aceh
4 Dec 2025	Arrived Sibolga; teams separated — Satgas Aceh deployed via C-130 Hercules to Aceh; Satgas Padang assisted Sibolga briefly (wound care, therapy, logistics distribution)
4–6 Dec 2025	Satgas Padang: medical assistance at Sibolga health post; logistics offloading from vessel to community (rice, instant noodles, basic foodstuffs)
7 Dec 2025	Departed Sibolga toward Padang
9 Dec 2025	Arrived Padang; received at Kodam XX (Tuanku Imam Bonjol)
10 Dec 2025	Deployed to disaster site in Palembayan, West Sumatra; operation reassigned — redeployed by command order to Aceh Tamiang due to critical health worker shortage
10 Dec 2025	Departed Padang to Medan via C-130 Hercules (helicopter transfer from Medan faster than overland route to Aceh Tamiang)
11 Dec 2025	Arrived Aceh Tamiang — NO electricity, NO mobile signal; team was the first non-local health workers to reach the site; commenced health post operations immediately
11–12 Dec 2025	Core health post operations with RSPPN specialist physicians as supervisors; primary management of URTI, skin infections, diarrhoea, traumatic wounds
13 Dec 2025	Reinforcement arrived: Tri Matra (Army, Navy, Air Force) physicians + additional RSPPN specialists in internal medicine, paediatrics, surgery, and obstetrics-gynaecology
11–18 Dec 2025	Continued operations: health post, MCH screening, medical referral, trauma healing, paediatric recreational activities, logistics coordination
18 Dec 2025	End of 16-day operational deployment 18 Dec arrived at Halim Perdanakusuma

Source: FK UNHAN Satgas Padang field logbooks, December 2025

Arrival Conditions at Aceh Tamiang (11 December 2025)

Upon arrival, the vulnerable population included displaced persons, children, the elderly, pregnant women, and patients with disrupted chronic disease medications, alongside frontline responders (TNI, POLRI, BNPB, local volunteers) who themselves faced physical exhaustion and pathogen exposure. Environmental threats included waterborne pathogens (Vibrio cholerae, E. coli, Leptospira) and physical hazards embedded in flood debris. These risks were compounded by total infrastructure collapse, forcing the team to operate with autonomous generator power and independent clinical judgment.

Figure 2. The condition of Aceh Tamiang upon the Arrival of the Unhan task force

Patient Volume and Health Post Operations

A mean of approximately 240 patient encounters per day was recorded across the 16 operational days, yielding an estimated total of 3,840 patient encounters. Health post operations were conducted daily on a 24-hour basis to ensure continuous access to emergency and essential services. To maintain this uninterrupted coverage while mitigating staff fatigue, the healthcare personnel were organized into multiple rotational shifts. While the daytime saw a high volume of routine consultations and triage-managed patient flow, several critical emergency cases occurred during the night hours, requiring immediate stabilization under constrained conditions.

Table 2. Summary of Humanitarian Medical Activities - Satgas Padang

Domain	Activity	Location	Volume
Clinical	Triage & general health assessment	Health post, Aceh Tamiang	~240/day
Clinical	URTI management (antibiotics, antihistamine, symptomatic)	Health post	Predominant caseload
Clinical	Skin disease treatment (tinea pedis, scabies, wound infections); topical antifungal/antibiotic shared per-family due to supply constraints	Health post	High volume
Clinical	Diarrhoeal disease management bacterial; leptospirosis screening; paediatric diarrhoea with ORS/zinc shortage management	Health post	Moderate–High
Clinical	Traumatic wound & laceration care (injuries from manual debris/mud removal)	Health post	Moderate
Clinical	Helminthiasis management (anamnesis: per-anal worm passage; empirical anthelmintic therapy)	Health post	Moderate
Clinical	Uncontrolled hypertension & chronic disease management	Health post	Moderate
Preventive	MCH screening: paediatric nutrition, antenatal care, infant assessment	Health post + community	Regular
Preventive	Health education: hand hygiene, waterborne disease prevention, wound care at home	Health post + community	Daily
Psychosocial	Psychosocial support & trauma healing sessions for displaced adults	Evacuation centres	Daily
Logistics	Humanitarian logistics distribution (rice, noodles, foodstuffs)	Landing site / community	Periodically

Source: FK UNHAN Satgas Padang activity logbooks, December 2025

Figure 3. Activities at the Aceh Tamiang Health Post

Health Conditions Encountered

The clinical spectrum encountered was consistent with established patterns of flood-related morbidity, with several conditions of particular operational concern:

Table 3. Health Conditions Encountered — Satgas Padang, Aceh Tamiang

Diagnosis / Condition	Frequency	Notes / Contributing Factors
Upper Respiratory Tract Infection (URTI)	Most prevalent	Exposure to moisture, overcrowded shelters, disrupted immune status
Tinea pedis & other dermatophytoses	High	Prolonged floodwater contact; topical and oral antifungal
Scabies & secondary skin infections	High	Overcrowding, limited hygiene facilities in evacuation shelters
Traumatic wounds & lacerations (include the wounds caused by chronic disease)	Moderate–High	Manual mud/debris removal from homes without protective equipment
Acute diarrhoeal disease	Moderate–High	Contaminated water sources; sanitation infrastructure collapse
Leptospirosis (suspected)	Moderate (clinical screening)	Floodwater contact with rat urine contamination — actively screened
Helminthiasis (per-anal worm passage reported)	Moderate	Pre-existing or exacerbated by post-flood environment; limited lab confirmation
Paediatric diarrhoea with dehydration risk	Moderate (high concern)	ORS/zinc supply critically insufficient; infants could not receive standard adult formulations
Nutritional risk - children <5 years	Moderate	Food supply disruption; formula/breast milk substitution concerns
Uncontrolled hypertension / NCD exacerbation	Moderate	Medication loss in flood, psychosocial stress, cold chain disruption
Acute stress reaction / psychological distress	Moderate	Displacement, property and livelihood loss, family separation

Source: FK UNHAN Satgas Padang patient registry, December 2025

Upper Respiratory Tract Infections (URTIs)

Upper Respiratory Tract Infections (URTIs) emerged as the most prevalent clinical condition managed by the medical team. In the pediatric cohort, URTIs demonstrated the highest absolute prevalence frequently manifesting as acute rhinopharyngitis and bronchitis, driven by children's susceptibility to shelter overcrowding, poor thermal regulation, and rapid aerosol transmission. Conversely, the high adult burden was characterized by prolonged secondary complications, such as acute sinusitis or exacerbations of chronic respiratory conditions. This adult prevalence was heavily linked to physical overexertion and the continuous inhalation of airborne irritants as receding floodwaters left drying mud that turned into pervasive, dust-laden debris.

Dermatophyte Infections and Skin Morbidities

Tinea pedis and other dermatophyte diseases represented a significant portion of the post-flood morbidity spectrum. The high prevalence of these skin conditions was directly fueled by prolonged dermal contact with contaminated floodwaters and the subsequent inability of both residents and rescue workers to maintain dry skin hygiene. This risk was acutely elevated among adults actively engaged in manual mud clearance and debris removal from damaged structures without protective footwear. The warm, humid microenvironment created by wearing damp, occlusive footwear for extended periods accelerated fungal proliferation. Consequently, the medical team managed a substantial volume of acute tinea pedis, which was frequently complicated by secondary bacterial infections due to compromised skin integrity and continuous exposure to environmental pathogens.

Traumatic Wounds and Lacerations

Beyond infectious diseases, traumatic wounds and lacerations including acute ulcerations secondary to pre-existing chronic conditions represented a prominent category of acute medical demand. This high morbidity was primarily driven by residents and rescue personnel engaging in manual debris clearance and mud removal without adequate personal protective equipment (PPE) in an environment littered with sharp structural fragments. Furthermore, individuals with underlying chronic illnesses, particularly diabetes mellitus, suffered from compromised tissue integrity and heightened risks of rapid ulceration. Because these open wounds were continuously exposed to heavily contaminated floodwaters, the medical team prioritized aggressive irrigation, debridement, tetanus prophylaxis, and targeted antimicrobial therapy to prevent severe secondary complications.

Acute Diarrheal Disease

Diarrheal disease represented a critical waterborne morbidity managed during the deployment. The sudden inundation of flash floods compromised local sanitation systems, leading to widespread fecal contamination of primary drinking water sources and wells. This environmental breakdown, combined with displaced families living in crowded temporary settings with limited clean water for handwashing and food preparation, facilitated the rapid transmission of enteropathogens like *Vibrio cholerae* and *Escherichia coli*. The clinical team encountered a high volume of acute watery diarrhea across all age groups, with pediatric patients experiencing the highest risk of rapid dehydration. Operations prioritized aggressive oral rehydration therapy (ORT), selective intravenous fluid resuscitation for severe dehydration, and strict public health education on water boiling to mitigate further outbreak propagation. Stocks of oral rehydration salts (ORS) and zinc supplementation the WHO-recommended cornerstone of paediatric diarrhoea management were critically insufficient relative to demand.[12]

Scabies and Secondary Skin Infections

Scabies infestations and associated secondary bacterial skin infections constituted a significant dermatological burden. The crowded conditions of temporary evacuation shelters, paired with severely compromised hygiene and limited clean water, facilitated the rapid, direct transmission of *Sarcoptes scabiei*. Intense pruritus led to widespread scratching, breaking the skin barrier and creating ports of entry for opportunistic pathogens like *Staphylococcus aureus*. Consequently, the clinical team frequently managed scabies heavily complicated by secondary bacterial infections including impetigo and superficial pyoderma requiring concurrent antiparasitic and antimicrobial interventions.

Environmental and Public Health Observations

Field observations documented several systemic public health vulnerabilities:

- Universal contamination of household water sources (wells, piped water) secondary to floodwater inundation
- Inadequate sanitation facilities in evacuation centres
- Disruption of pharmaceutical distribution and cold-chain logistics, resulting in non-availability of chronic disease medications
- Food supply interruption and nutritional vulnerability, particularly among children under five

- Widespread lack of personal protective equipment among community members engaged in manual debris and mud removal from flood-damaged structures

Operational Challenges

- Complete absence of electricity and mobile network connectivity for the initial deployment period limiting communication, documentation, and remote consultation
- Status as the sole organised health team on-site at arrival, with no prior health worker handover or baseline health data
- Critical supply shortages in high-demand items (ORS, zinc, topical antifungals, paediatric formulations) requiring adaptive prescription strategies
- Limited scope of on-site diagnostic capability (no laboratory, no imaging), necessitating empirical clinical management for multiple condition categories
- The closest referral hospital to the health post at the disaster point is 2 hours away by car
- Command-directed redeployment mid-mission (Padang to Aceh Tamiang), requiring the team to adapt to a new operational context with minimal transition time
- Multi-leg, multi-modal transport (vessel, Hercules aircraft, helicopter) to reaching the principal deployment site

Reinforcement and Capacity Building (arrived on deployment day 2)

The arrival of Tri Matra military physicians (Army, Navy, Air Force) and additional RSPPN specialists substantially augmented team capacity, enabling subspecialty consultation in internal medicine, paediatrics, surgery, anesthesia and obstetrics-gynaecology. This reinforcement alleviated pressure on the student team and allowed more complex cases including those with surgical implications and high-risk obstetric presentations, to receive appropriate specialist assessment. The team regards this reinforcement as a critical turning point in the quality of care that could be delivered at the field health post level.

Discussion

Post-Flood Morbidity Patterns: Literature Alignment and Field Diagnostic Complexities

The clinical spectrum in Aceh Tamiang—dominated by URTIs, infectious skin diseases, and acute diarrhea—is consistent with established post-flood morbidity patterns in tropical low- and middle-income countries, driven by crowded shelters, damp environments, and compromised sanitation.[3,13] This predictable pattern provides an empirical foundation for pre-positioned pharmaceutical planning in future responses.

However, diagnostic predictability introduces cognitive anchoring risks in field settings. With 240 daily patients and no laboratory support, clinicians may reflexively attribute every febrile presentation to expected flood-related infections. Leptospirosis overdiagnosis is well-documented: Gasem et al. described a double paradox wherein the disease is simultaneously overdiagnosed in non-specific febrile illness and underdiagnosed in atypical presentations.[14] Without Microscopic Agglutination Testing (MAT) or rapid IgM serology, empirical doxycycline or penicillin G carries unmeasurable diagnostic uncertainty.

Dengue fever, highly prevalent in Aceh, shares an early clinical presentation nearly identical to leptospirosis. Without NS1 antigen testing or serial platelet counts—unavailable due to power outages—clinicians faced genuine diagnostic dilemmas. Similarly, helminthiasis species differentiation (Ascaris lumbricoides, Strongyloides stercoralis, Enterobius vermicularis) requires stool microscopy unavailable in the field; misidentification carries distinct therapeutic implications.[15,16] These diagnostic constraints constitute epistemological limitations that should be explicitly documented in field clinical data.

Medical Students as First Responders: Evidence, Limitations, and Policy Implications

The UNHAN Task Force demonstrated that final-year medical students can function as primary responders rather than delayed auxiliary assets. Arriving as the first organized health team on 11 December, the 25 students, supervised by RSPPN specialists, immediately partnered with local military medical personnel and managed 240 patients daily from day one.

Comparative evidence supports this model. Systematic reviews following the 2010 Haiti and 2015 Nepal earthquakes confirmed that supervised senior medical students effectively deliver primary care in austere field settings.[17] Başer and Sofuoğlu (2025) demonstrated that structured disaster medicine training significantly enhances clinical decision-making under resource-constrained conditions among advanced medical students.[18] The UNHAN military education framework confers additional operational advantages: students demonstrate superior readiness in degraded environments, responsiveness to command structures, and competence in non-clinical roles including logistics and community facilitation.

Nevertheless, critical legal boundaries were exposed. As documented during the COVID-19 pandemic, involving

medical students in crisis healthcare creates a discrepancy between factual competence and formal credentialing, generating legal gray areas.[19] UNHAN students lack STR and SIP as required by Indonesian Health Law No. 17 of 2023. While RSPPN specialist supervision provided de facto clinical oversight, the legal protection remains presumptive without a formalized mandate mechanism.

Regulatory Gaps and Policy Recommendations

Indonesia's disaster health legislation contains a structural gap: Health Law No. 17 of 2023 mandates STR and SIP for all practicing medical personnel,[10] yet Government Regulation No. 28 of 2024 provides no explicit emergency exemptions for supervised senior medical students. Comparatively, US state-level Emergency Medical Powers Acts authorize licensing waivers during declared emergencies, and Australia's Medical Board permits supervised emergency registration during national crises. Indonesia currently lacks an equivalent mechanism.

Three structural recommendations are proposed: (1) the Ministry of Health should issue regulations governing Supervised Emergency Medical Practice for final-year students during declared disasters, defining competency thresholds, supervision ratios, and legal protections; (2) a formal MoU between the Ministry of Defense and Ministry of Health should codify UNHAN student deployment, ensuring legal certainty; (3) BNPB should integrate supervised medical student teams as official components of the National Disaster Management Plan (Renas PB). BNPB data confirms a sustained rise in hydrometeorological disasters in Indonesia, with floods being the most frequent;[20] relying solely on licensed healthcare workers in large-scale disasters is not sustainable.

Medical Logistic Analysis

Resilient healthcare supply chains are fundamental to crisis response effectiveness, as logistics failures directly compromise population health outcomes.[21] The Padang Task Force deployment illustrates how military medical logistics perform under real disaster conditions. The initial pharmaceutical inventory, calibrated for the original Padang deployment, was not recalibrated for Aceh Tamiang's distinct clinical demands after the mid-mission command-directed relocation, making initial ORS, zinc, and antifungal shortages inevitable.

Three military transport modalities were used: (1) KRI dr. Radjiman (maritime, Kolinlamil–Sibolga) provided substantial storage but exposed temperature-sensitive items to tropical thermal degradation risk; (2) C-130 Hercules (Sibolga–Aceh, Medan–Jakarta) allowed access to short, unpaved runways but limited precise temperature control; (3) last-mile helicopter transport into Aceh Tamiang imposed severe payload restrictions, forcing personnel and compact medications to be prioritized, directly causing the ORS and antifungal shortages.[22]

WHO and UNICEF mandate ORS and zinc as non-substitutable cornerstones for acute childhood diarrhea in resource-limited settings.[12] Under WHO Emergency Medical Teams (EMT) Type 1 standards, a flood response kit should supply sufficient ORS and zinc for at least 1,000 pediatric diarrhea episodes per operational week.[23] For the Padang Task Force managing ~240 patients daily, the initial inventory fell short of this benchmark. Bridging the gap between international EMT standards and domestic military logistics kits is essential for future deployment planning.

Specialist Deployment Sequencing

The most operationally significant finding concerns specialist reinforcement timing. The Padang Task Force managed the full clinical workload with only a general RSPPN supervisor during the first two days in Aceh Tamiang; pediatric and internal medicine specialists arrived only on day 2 post-arrival. Operating at high volume without pediatric specialists increases the risk of preventable adverse outcomes. Per the WHO EMT framework, core specialists (internal medicine, pediatrics, general surgery, obstetrics-gynecology) should be deployed in the first response wave alongside general practitioners, not as subsequent reinforcement.[23,24] Given the predictability of tropical flood morbidity patterns, the expertise required to manage them must be available on day one.

Disaster Medicine Education

The deployment revealed a sharp mismatch between academic training and field demands. While FK UNHAN curriculum covers risk mitigation, the Incident Command System, triage concepts, and inter-institutional coordination, a critical gap exists in disaster clinical reasoning, specifically, managing pediatric diarrhea without first-line medications or establishing referral criteria without laboratory support.

A scoping review by Batt et al. (2024) across 32 studies noted that most humanitarian education programs lack standardized competency frameworks and validated evaluation tools.[25] Başer and Sofuoğlu (2025) demonstrated that scenario-based training significantly enhances disaster literacy among medical students.[18] Shah et al. (2024) argued that integrating disaster medicine as a core medical competency is increasingly urgent given rising global disaster frequencies.[26] FK UNHAN should therefore develop a complementary module utilizing simulation-based learning and OSCEs

tailored to resource-constrained disaster scenarios, bridging systemic disaster management understanding and patient-level clinical response.

Psychosocial Support

Integrating MHPSS into the task force mandate aligns with Inter-Agency Standing Committee (IASC) emergency principles.[27] Flood-affected populations face severe psychosocial disruptions, asset loss, displacement, trauma exposure, alongside physical health burdens. Children in evacuation centers are particularly vulnerable to acute stress reactions and post-traumatic sequelae without structured support. By providing structured play activities and adult psychosocial support sessions, the task force applied the holistic health model consistent with Sphere Humanitarian Standards,[28] demonstrating that disaster clinicians must function simultaneously as biomedical providers and community recovery agents.

Toward an Integrated National Deployment Model

The Padang Task Force offers a replicable template comprising three interdependent components: final-year medical students with scenario-based pre-deployment clinical training; a core specialist team (pediatrics, internal medicine, general surgery, obstetrics-gynecology) co-deployed on day one; and a WHO EMT-calibrated logistics chain integrated within military supply lines. Formalization through binding regulations—rather than ad hoc institutional policy—is essential for this model to function as a reliable national safeguard.

Limitations

This descriptive single-team report precludes causal analysis. Clinical diagnoses relied on supervised assessment rather than laboratory confirmation. The 7-day window captures only the acute disaster phase, and the absence of baseline population data limits morbidity prevalence interpretation. Future studies should implement standardized field data collection tools, pre-deployment baselines, and longitudinal follow-up at 30 and 90 days.

Conclusion

The deployment of the Padang Task Force in response to the flash floods in Aceh Tamiang demonstrated that senior medical students working under the direct supervision of medical specialists can make an effective contribution to emergency health care in disaster situations with limited resources. During the assignment, the team successfully provided primary health care, health education, psychosocial support, medical referrals, and humanitarian aid to the affected communities despite facing various challenges, including infrastructure damage, communication disruptions, and limited health facilities.

Field findings indicate that the post-disaster disease pattern was dominated by acute respiratory infections, skin infections, and acute diarrhea, consistent with the post-flood morbidity patterns reported globally. However, limited diagnostic and laboratory facilities posed significant challenges in establishing diagnoses and making clinical decisions, making adaptive clinical reasoning skills crucial in disaster healthcare.

This experience also revealed gaps in disaster health management, particularly regarding regulations governing the supervised assignment of medical students, the need for specialist doctors to be deployed from the early stages of the response, and the readiness of the health logistics system in emergency situations. Furthermore, the implementation of mental health and psychosocial support demonstrated that disaster health responses must be conducted holistically, focusing not only on clinical aspects but also on the psychosocial recovery of affected communities.

Overall, the Padang Task Force's deployment model demonstrates that the integration of supervised senior medical students, teams of specialist physicians, and a standardized health logistics system has the potential to become a vital component of Indonesia's national disaster health response architecture. Strengthening regulations, disaster medicine education, logistics systems, and mechanisms for deploying healthcare personnel is necessary to improve the effectiveness and sustainability of health responses to future disasters.

The findings support the integration of disaster medicine competencies into undergraduate military medical education and highlight the need for regulatory, logistical, and command-level reforms to optimize future military-supported disaster health respons.

Recommendation

For FK Unhan and Military Medical Institutions

- Propose the formalization of a flood-, earthquake-, and tsunami-specific disaster medicine framework within the clinical curriculum, moving away from generic overviews.
- Recommend the integration of mandatory pre-deployment certification in tactical field skills and non-medical logistics to ensure team self-sufficiency.
- Standardise pre-deployment protocols covering field triage, disaster-specific diagnoses, paediatric emergency care, and empirical treatments.
- Establish standing supervisory agreements with

RSPPN and Tri Matra health corps to guarantee specialist presence from Day 1 of deployment.

For Ministry of Defense and TNI

- Respectfully recommend the optimization of emergency mobilization SOPs to streamline cross-Kotamaops TNI administrative procedures, enabling immediate tactical air deployment from Day 1.
- Advise the development and pre-positioning of tailored tactical medical containers; flood-specific kits could pivot from standard combat rations to include specialized stocks of ORS, zinc, antifungals, and leptospirosis prophylaxis optimized for helicopter transport.
- Create a standing Rapid Medical Student Response Cadre with pre-calibrated equipment kits and clear command-chain integration protocols.
- Include core specialist physicians (internal medicine, paediatrics, surgery, ob-gyn) in first-wave deployments alongside student teams.
- Develop inter-service protocols for rapid student medical team transport using military assets (TNI AL vessels, Hercules, helicopters).

For BNPB, BPBD, and Ministry of Health

- Respectfully propose a joint MoH-BNPB regulatory framework to establish temporary "Emergency Disaster Practice Licenses," providing necessary legal coverage for final-year students operating under military health supervision.
- Integrate supervised defence university medical student teams into provincial and district Health Emergency Response Plans as recognized augmentation forces.
- Mandate pre-positioning of disaster-specific kits (ORS, zinc, antifungals, anthelmintics, and leptospirosis stocks) in all Level-1 field health posts.

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Author Contributions

All authors act as the guarantor of the manuscript. AA is the main investigator of this study. AA, AAMI, HFS, MRK, and RM participated in the conception, data acquisition, data interpretation, and writing of the study. AA, AAMI and HFS participated in data analysis and statistical analysis of the study.

Conflict of Interest

All authors declare no conflict of interest. No author has received payment, honoraria, speaker fees, consultancy fees, or any other financial benefit from any pharmaceutical company, medical device manufacturer, or commercial entity in connection with the subject matter of this manuscript. No pharmaceutical company sponsored the medications, medical supplies, or interventions described in this field report; all medical supplies were procured through institutional and governmental channels as part of the official disaster response operation.

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