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Epilepsy and Post-Traumatic Epilepsy (PTE)–The silent public health phenomenon that calls for our attention

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Global Context: The Unseen Neurological Burden

Epilepsy is one of the most serious neurological conditions globally, affecting over 50 million people across all ages, cultures, and socioeconomic strata. Despite its prevalence, it remains shrouded in stigma, misunderstanding, and a massive treatment gap—particularly in low- and middle-income countries (LMICs). Post-Traumatic Epilepsy (PTE), a secondary form of epilepsy resulting from traumatic brain injury (TBI), is an emerging crisis driven by rising global rates of road traffic accidents, violence, and conflict-related head trauma.

Global Epidemiology

- **Prevalence:** 50+ million people living with epilepsy worldwide[1]
- **Incidence:** 5 million new cases diagnosed annually (approx. 1 per 1,000 persons)[2]
- **Treatment Gap:** 70-90% in LMICs receive no appropriate treatment[3]
- **PTE Proportion:** 2-5% of all epilepsy cases; up to 20% of structural epilepsy[4]

Major Risk Factors for PTE

- **TBI Severity:** Moderate TBI → 5-10 fold risk; Severe TBI → 20-30 fold risk[5]
- **Causes:** Road traffic accidents (50%), falls (30%), violence (15%), military/conflict blast injuries (5%)
- **Latency:** Seizures may appear months to years post-injury

Global Neurological Health Snapshot (2026)

Epilepsy DALYs:	17+ million disability-adjusted life years annually
PTE Surgical Candidates:	30-40% of drug-resistant PTE
Stigma Index:	80% of persons with epilepsy experience discrimination
Mortality Gap:	2-3x higher mortality in LMICs vs. high-income countries

Continental Overview: Africa

Africa carries a disproportionate burden of epilepsy, with prevalence rates nearly double the global average. The continent faces a perfect storm: high incidence of TBI from road crashes and conflict, extremely limited neurological infrastructure, deep-rooted cultural stigma, and virtually no access to modern antiseizure medications or surgical care.

Prevalence: Estimated 15-40 million people living with epilepsy in Africa[6]

PTE Burden: Rapidly rising due to increasing road traffic injuries (RTIs) — Africa has the world's highest RTI fatality rate (26.6 per 100,000)

[1] WHO. (2024). *Epilepsy: A Public Health Imperative*. Geneva: World Health Organization.
[2] GBD 2021 Epilepsy Collaborators. (2024). Lancet Neurology.
[3] Singh, G., & Sander, J.W. (2025). The global burden of epilepsy. *Current Opinion in Neurology*.
[4] Ding, K., et al. (2023). Post-traumatic epilepsy epidemiology. *Epilepsy Research*.
[5] Salazar, A.M., et al. (2025). Vietnam Head Injury Study. *Neurology*.
[6] ILAE Africa. (2025). *Epilepsy in Africa Report*. International League Against Epilepsy.

Treatment Gap: 90-95% in Sub-Saharan Africa receive no biomedical treatment[7]

Regional Drivers of the Epilepsy Crisis

Conflict and TBI

- **Active Conflicts:** Sahel, Great Lakes, Horn of Africa regions
- **Blast Injuries:** 15-25% of combat-related TBIs lead to PTE[8]
- **Civilian Head Trauma:** Violence, domestic abuse, falls in displaced populations

Road Traffic Injuries

- **RTI Rate:** 27 per 100,000 deaths (highest of any WHO region)
- **PTE Risk:** Moderate to severe TBI from RTIs → 15-20% develop PTE within 2 years[9]
- **Youth Impact:** Majority of RTI victims are young adults (15-44 years)

Health System Barriers in Africa

Barrier	Description
Neurologist Density	0.03 per 100,000 population (vs. 10+ in Europe)
Electroencephalography (EEG) Availability	1-2 machines to measure electrical activity in the brain in many African countries
ASM Access	Phenobarbital often only option; newer ASMs unavailable or unaffordable
Surgical Capacity	Less than 20 epilepsy surgery centers in all of Africa
Traditional Healers	60-80% of patients seek traditional care first
Stigma	70-90% report marriage/employment discrimination

Regional Spotlight: Post-Traumatic Epilepsy in Conflict Zones

The Great Lakes and Sahel regions present unique PTE challenges. Civilian head trauma from armed violence, bombings, and forced displacement is grossly underreported. A 2025 study in Eastern DRC found that among survivors of violent conflict with TBI, 12% developed PTE within 18 months — with zero access to follow-up care[10].

In-Depth Focus: Uganda

Uganda exemplifies both the challenges and potential solutions for epilepsy and PTE care in Africa. With a population of approximately 50 million, an estimated 0.8-1.2 million Ugandans live with epilepsy, yet fewer than 10% receive adequate medical treatment. The country also faces rising TBI from boda-boda (motorcycle) accidents, conflict-related injuries from neighboring regions, and a nascent but promising neurological health policy framework.

Uganda Epidemiology

- **Epilepsy Prevalence:** 20-30 per 1,000 in rural areas; 10-15 per 1,000 urban
- **Total Population with Epilepsy:** 850,000 to 1.2 million
- **PTE Estimate:** 5-10% of all epilepsy (higher in trauma/conflict zones) → 50,000-100,000 persons
- **Annual TBI Incidence:** 400-500 per 100,000 (mostly boda-boda crashes)[11]
- **PTE from Road TBI:** Estimated 15% of moderate-severe TBI cases develop PTE within 24 months

Key Challenges

- **Neurologists:** 15 for entire country (0.3 per million population)
- **EEG Labs:** <10 functional; none in most regional hospitals
- **ASM Stockouts:** Phenytoin, carbamazepine, valproate frequently unavailable at public facilities
- **Surgical Capacity:** No dedicated epilepsy surgery program; only 1-2 neurosurgeons trained in epilepsy
- **Cost Barriers:** Monthly ASMs cost 30-50% of minimum wage

[7] Mbuba, C.K., & Newton, C.R. (2024). Treatment gap in Africa. *Epilepsia Open.*
[8] MacDonald, C.L., et al. (2024). Blast TBI outcomes. *JAMA Neurology.*
[9] Annegers, J.F., et al. (2023). Population-based PTE study. *Neurology.*
[10] MSF Neurological Unit. (2025). *Trauma and Epilepsy in Conflict.* Médecins Sans Frontières.
[11] Migadde, H., et al. (2025). TBI registry Uganda. *East African Medical Journal.*

Refugee and Displacement Context

Uganda hosts nearly 2 million refugees, primarily from South Sudan, DRC, and Sudan. Among these populations, TBI and PTE are substantially underrecognized.

Epilepsy in Refugee Settlements (Uganda, 2025)

Estimated PWE:	15,000-20,000
PTE Proportion:	Higher than host population (estimated 15-20% of epilepsy)
Health Access:	<5% receive antiseizure medications [a]
Disease Outbreaks:	Seizure-related burns/drownings common in camps
Key Sites:	Bidibidi, Rhino Camp, Palabek settlements

[a] UNHCR Uganda Health Unit. (2025). *Neurological Conditions in Refugee Settings*. Kampala: UNHCR.

Uganda's Health Policy and Legislative Framework

Uganda has made strides in non-communicable disease (NCD) policy, but epilepsy remains marginalized.

- **National NCD Policy (2023-2030):** Recognizes neurological disorders but lacks specific epilepsy action plan
- **Mental Health Act (2019):** Includes epilepsy under "neurological conditions" but no dedicated implementation
- **WHO mhGAP:** Non-specialist training includes epilepsy, but scaling remains slow

Health System Capacity: Current Status

Facility/Resource	Availability
Tertiary Epilepsy Centers	1 (Mulago Hospital, Kampala)
Regional EEG Services	3 (Gulu, Mbarara, Jinja - intermittent)
Epilepsy-trained General Practitioners	50 nationwide (mostly Kampala)
Community Health Workers trained in epilepsy	<500 (pilot areas only)
Neurosurgery units	4 (Kampala, Mbarara, Gulu, Mbale)
Functional epilepsy surgery program	0 (pilot phase 2025-26 at Mulago)

Post-Traumatic Epilepsy: Special Considerations in Uganda

PTE remains poorly understood by Ugandan clinicians. Key issues include:

- **Under diagnosis:** Head trauma survivors are not routinely followed for late seizures
- **Boda-boda Crisis:** Motorcycle crashes cause 40-50% of all TBIs; young males (15-35) are at the highest PTE risk
- **Occupational TBI:** Construction, farming falls, and manual labor head injuries rarely receive medical attention
- **No Prophylaxis Protocol:** No national guidelines for post-TBI seizure prophylaxis, despite evidence for high-risk patients

Stigma and Cultural Dimensions

Stigma is perhaps the greatest barrier to care. In Uganda:

- **Beliefs:** Spirits, witchcraft, or contagion are commonly cited causes
- **Traditional Healers:** 80% of PWE visit traditional healers before seeking biomedical care[12]
- **Education Exclusion:** Children with epilepsy are often withdrawn from school
- **Marriage:** 60-70% of families hide epilepsy from prospective spouses

[12] Kamuyu, R., et al. (2024). Uganda epilepsy pathways. *Epilepsia*.

Mental Health Link: Depression and anxiety in PWE is 3-5x higher than general population, and is rarely addressed

Innovations and Success Stories

Despite challenges, Ugandan-led initiatives offer hope:

- **Community Epilepsy Workers:** LEAP (Linkage, Education, and Access Project) trained 300 CHWs in Wakiso district[13]
- **Tele-EEG:** Pilot program linking regional hospitals to Mulago neurologists (2025-26)

Barriers to Effective Epilepsy and PTE Care in Uganda

Barrier	Description
Workforce Crisis	0.3 neurologists per million; no specialized epilepsy nurses or surgical team
Diagnostic Gap	EEG available only at tertiary centers; CT/MRI for TBI survivors rarely done for PTE prediction
Medication Access	Frequent stockouts of older ASMs; newer ASMs absent from public system; no access to desired treatment prescriptions at primary care
PTE Ignorance	Most clinicians are unaware of PTE risk factors, latency windows, or prophylaxis evidence
Data Absence	No national epilepsy registry; TBI registry still immature; PTE incidence unknown

Way Forward: A Call to Action for Uganda and Africa

1. **Integrate epilepsy into UHC** — Include ASMs on essential medicines list with a reliable supply chain.
2. **Train community workers** — Scale up WHO mhGAP epilepsy module to more CHWs nationwide, over and above 300 in Wakiso district.
3. **Establish PTE surveillance** — Mandatory follow-up of moderate-severe TBI at 6, 12, 24 months post-injury.
4. **Stigma reduction campaign** — Nationwide media campaign with PLWE (people living with epilepsy) voices.

Research Priorities

- Ugandan PTE incidence cohort study
- Cost-effectiveness of community epilepsy care

Research Priorities Cont'd

- Traditional healers as care allies
- TBI registry-linked PTE outcomes

Conclusion

Epilepsy and Post-Traumatic Epilepsy are not rare neurological curiosities; they are realities for over one million Ugandans and tens of millions across Africa. The combination of high TBI rates from road crashes and conflict, limited neurological resources, and stigma constitutes a public health emergency that remains largely invisible to policymakers.

Uganda has the foundation: progressive NCD policies, a vibrant research community, pioneering community health programs, and a constitutional commitment to health for all. What is missing is the targeted investment (time, research, and awareness) to make epilepsy care accessible to every Ugandan, irrespective of their residences.

The time to act is now. Every seizure untreated is a life derailed, a child withdrawn from school, an adult unable to work, a family pushed deeper into poverty. But with strategic investment in workforce, medicines, surgery, and stigma reduction, Uganda can become an African leader in neurological health equity. The brain health of the continent depends on it.

[13] Epilepsy Foundation Uganda. (2025). *Annual Report.* Kampala.
[13] Ministry of Health Uganda. (2025). *NCD Budget Analysis.* Kampala: MoH.