


TeleEEG

Epilepsy Diagnosis by Telemedicine for the Developing World

Together we aim to close the Epilepsy Treatment Gap

“40 million people live a lifetime on the epilepsy world-health waiting list, unseen for proper epilepsy disease diagnosis”





65,000,000
**MORE THAN
65 MILLION PEOPLE**
ARE LIVING WITH EPILEPSY WORLDWIDE



80%

Live in low and middle
income countries



75%

Do NOT receive
treatment

Epilepsy Diagnosis by Telemedicine for the Developing World

1. Problem

Global Health Issue
Under-resourced Countries
75% Epilepsy Treatment Gap

2. Solution

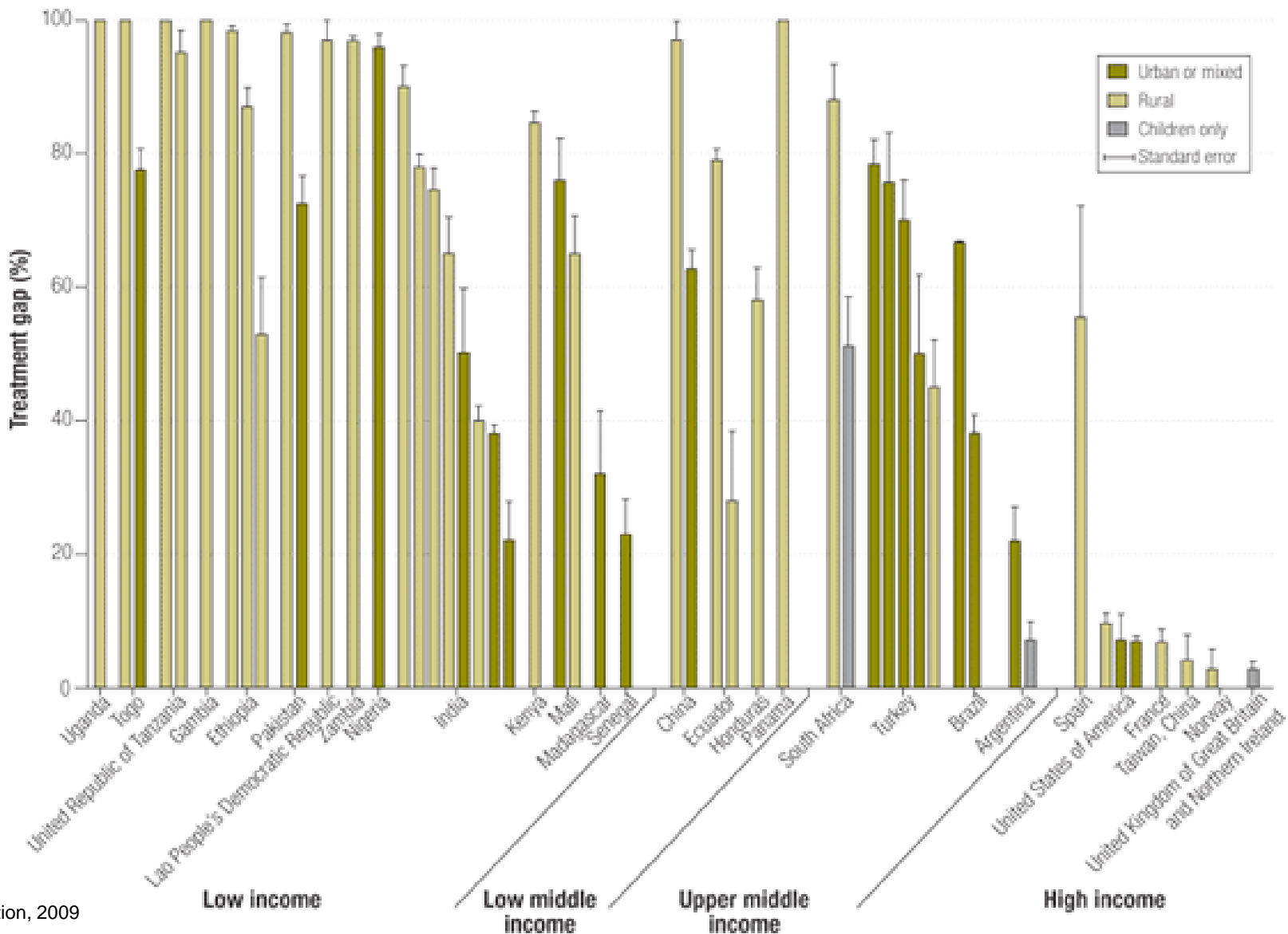
Innovation
Technology
Communications
Train - Support – Enable
Virtual Team
TeleEEG

3. Goals & Vision

2 Year Plan
Build for Scale & Automation
10 Year Vision
TeleEEG Enabled
Clinics in 139 Countries

World Health Organisation (WHO): Epilepsy Treatment Gap (%)

Fig. 2. Epilepsy treatment gap (%) and standard errors, by country and World Bank income category



Source: World Health Organization, 2009

Our story so far:

38 clinics in **18** countries

Supported by our virtual global team of **72** volunteer Neurophysiologists



Democratic Republic of Congo, Guatemala, Guinea, Haiti, India, Kenya, Mali, Myanmar, Nepal, Nigeria, Pakistan, Rwanda, Sudan, Swaziland, Uganda, Zambia, Zimbabwe

TeleEEG, founded in 2011 to address the epilepsy treatment gap, became a **registered charity in 2016**.

TeleEEG **establishes and supports epilepsy medical clinics** in under-resourced countries to properly diagnose epilepsy and develop treatment plans using a low-cost, replicable approach.

TeleEEG's reach has grown from a single clinic in Nepal in 2012 to clinics throughout Central and South America, Africa and Asia.

What we are able to do for each clinic



1. Provide an EEG machine and necessary equipment to properly diagnose epilepsy.
2. Train local health care professionals in the skill of competently performing EEG tests.
3. Provide ongoing interpretation of EEG test results through our global virtual team of volunteer Consultant Neurophysiologists, Neurologists, Paediatric Neurophysiologists and Paediatric Neurologists.

Each EEG machine can service an estimated 10,000 patients over the 10-year life of the equipment, serving a catchment population of up to 500,000.



15,000+ EEGs interpreted

Since opening our first clinic in Nepal in 2012;

We have remotely diagnosed and reported on over **15,000 EEGs**.



Average response 3.8 days

We have an average response time of **3.8 days** (test to diagnosis).

24-hour response for urgent cases.

5 days for routine cases.



Median patient age 14 years

As we support a large number of Paediatric Hospitals, our median patient age is currently **14 years old**

Though our patients are of all ages.

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Epilepsy affects more people than Multiple Sclerosis, Cerebral Palsy, Muscular Dystrophy and Parkinson's Disease **combined**.

Yet epilepsy receives fewer research funds per patient than each of these.

Epilepsy Stigma Awareness

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Partner Organisations

Our Partners donate equipment and software to enable the setting-up and running of clinics, notably including our benevolent founder Dr Coates and the goodwill of all consultant time volunteered.

Together they have gifted over **£1million** in equipment, cash and donations of specialist medical and technological intervention.





Supply chain of quality medication

Through partnership with the **ROW Foundation**, ROW can offer grants of Roweepra® (levetiracetam USP) to qualified recipients via **OWP Pharmaceuticals**.

Levetiracetam is the number one generic anti-seizure medication in the United States, but often not available in under-resourced areas.

For patients that are non-responsive to locally available medication, ROW can often provide a sustainable supply of Roweepra®

In 2018, ROW gifted \$4.175 million in grants of AEDs to ROW projects.

>63,000 prescription months of Roweepra® (levetiracetam)

ROW Foundation partnered with TeleEEG in 2019.



One World.
One Standard.™



The Pharmaceutical
Social Enterprise



The Epilepsy Treatment Gap in Under-Resourced Regions

The problem centers on a very large treatment gap in low- and low-middle income countries (LMICs).

- This treatment gap can be truly devastating for individuals and families. Uncontrolled seizures mean both **risk of physical and material harm** as well as **severe social stigmatization** and **discrimination**.
- **Human rights violations are widespread among individuals with epilepsy**, including being denied an education, employment and the right to marry.²
- Furthermore, persons with seizures are often assumed to be “**possessed**” and are cut off by their community.³
- **Children are particularly vulnerable** as poor and delayed recognition of seizures has the potential to lead to significant developmental impairments.

Source² Epilepsy: A Public Health Imperative (World Health Organization, International League Against Epilepsy, International Bureau for Epilepsy), 2019.

³Media Centre, “Epilepsy” (World Health Organization, February 2016), <http://www.who.int/mediacentre/factsheets/fs999/en/>.

Zinhle from Eswatini:

Zinhle was 4 years old when she was first diagnosed with epilepsy. She was having daily seizures despite drug treatment.

She could not attend her local school and was getting injured from falls during her seizures.

On one occasion she narrowly missed being severely burned after she fell onto the fire in her home.

However, after an EEG was carried out the type of epilepsy was established, and the appropriate medication given making her now seizure free.

She now loves attending her local school and is playing in the girls' soccer team.



Our work to help close the epilepsy treatment gap, in under-resourced countries, is increasingly commended around the world, and **we want to do more**

Today hospitals in over **30 countries** **await our help** in providing TeleEEG.

Including:

- Benin
- Colombia
- Dominican Republic
- El Salvador
- Ethiopia
- Mozambique
- Myanmar
- Namibia
- Nepal
- Paraguay
- Philippines
- Sierra Leone
- Trinidad & Tobago
- Uganda
- Zanzibar.



It costs **£6,000** to enable each new clinic with an EEG machine, in-person training for 3+ healthcare staff and ongoing remote support technologies.

All EEG interpretation, diagnosis and reporting is provided to clinics at **zero cost** by our team of volunteer consultant Neurologists.

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Innovations in Global Mental Health

The ultimate resource for psychiatrists, psychologists, primary care physicians, hospitalists, policy makers, and all medical professionals at the forefront of global mental health and its implications for the future.

Chapter: Role of Technology

'Helping Epilepsy Diagnosis in the Developing World Through TeleEEG'

<https://link.springer.com/referencework/10.1007/978-3-319-70134-9>

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2 YR PLAN - FUNDING SUMMARY



2 year plan to establish partners and funders to enable the charity to achieve the goal of **41** TeleEEG clinics by **2021** in 20 developing countries to:

Funding Required	£59,208
2 Year Period	2019 - 2021

TeleEEG Clinics in Developing World (30 supported, 10 added)	40
Population Served by 40 TeleEEG Clinics	20,000,000
People with Epilepsy in Service Coverage: Undiagnosed	666,667
Treatable Epilepsy Cases 70%	466,667
Epilepsy Cases to be Diagnosed by TeleEEG @1	20,376
Total Epilepsy Cases Diagnosed by TeleEEG	30,376
Volunteer Doctors - Consultant Physicians	60
Total Delivery Value	£918,456

Set-up & Enablement Cost Per Clinic	£5,921
Cost per diagnosed patient	£2.91

Reducing the Epilepsy Treatment Gap by 7%

10 YR VISION - FUNDING SUMMARY



10 year vision to achieve diagnostic **coverage** capability **throughout** the developing world in **139** countries with **2,400** TeleEEG clinics by **2031**:

Funding Required	£10,800,000
10 Year Period	2021 - 2031

TeleEEG Clinics Established in Developing World	2,400
Population Served by 2,400 TeleEEG Clinics	1,200,000,000
People with Epilepsy in Service Coverage: Undiagnosed	40,000,000
Treatable Epilepsy Cases 70%	28,000,000
Total Epilepsy Cases Diagnosed by TeleEEG	6,000,000
Consultant Physicians	3,600
Total Delivery Value	£55,107,360

Set-up & Enablement Cost Per Clinic	£6,000
Cost per diagnosed patient	£1.80

Reducing the Epilepsy Treatment Gap by 21%

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Epilepsy is one of the world's oldest recognized conditions, with written records dating back to 4000 BC.

World Health Organisation

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www.teleeeeg.org