

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

A neurological letter from Zimbabwe

Arjune Sen¹, Sloan Mahone^{1,2}, Taurai Kadziti³, Ingrid Landman⁴,
Gwendoline Kandawasvika^{5,7}, Andrew Mataruse^{6,7} and Gift Ngwende^{6,7}

- 1. Oxford Epilepsy Research Group, NIHR Biomedical Research
Centre, John Radcliffe Hospital, Oxford. OX3 9DU. United Kingdom
- 2. Faculty of History, University of Oxford, George Street, Oxford
- 3. Epilepsy Support Foundation, Harare, 9990. Zimbabwe
- 4. College of Primary Health Care Physicians of Zimbabwe, MASH
Faculty, Harare, Zimbabwe
- 5. Department of Paediatrics, University of Zimbabwe College of
Health Sciences, Harare, Zimbabwe
- 6. Department of Medicine, University of Zimbabwe College of
Health Sciences, Harare, Zimbabwe
- 7. International League against Epilepsy, Zimbabwe Chapter, Harare,
Zimbabwe

Introduction:

Zimbabwe is, fundamentally, not what you think. This southern African country has a rich and proud heritage best exemplified by the 12th century Munhumutapa kingdom, which was flourishing when Europe was still in the Dark Ages. Trade thrived and an ordered, hierarchical, religious society constructed 'Great Zimbabwe' – a vast complex of structures built with hand-cut stone near Masvingo. The extensive ruins, still remarkably intact, are the country's second greatest tourist attraction after Victoria Falls. This sacred site is the spiritual heart of the country and gives modern Zimbabwe its name (Figure 1).

More recently, conditions have changed dramatically for the country. Colonisation by Cecil Rhodes and the creation of Southern Rhodesia meant that minority white rule, with all of its oppression, took root. Then, in 1965, the Prime Minister, Ian Smith, signed a unilateral declaration of independence from the United Kingdom. In some ways, that the white Rhodesians felt able to sever ties with England underscores the wealth and natural resource to which they had access. However, the declaration led to the 14 year Bush War (the second

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Chimurenga War- War of Liberation) and the forging of violent and powerful black opposition. It was from this that Robert Mugabe emerged as a nationalist hero. The white minority were overthrown and the peace deal signed at Lancaster House in 1979 led to independence in 1980. Mugabe and his ZANU (Zimbabwean African National Union) party won the independence elections and Mugabe was sworn in as president beginning 37 years of uninterrupted, unrepentant, contested rule.

However, that rule would come to an end – quietly but resolutely—in a military take-over in late 2017 that shocked a global audience as much for its bloodlessness as for the fact that Robert Mugabe was effectively under house arrest.

As part of an Africa-Oxford Initiative (AfOx) collaborative grant we (AS, SM) visited Zimbabwe in August 2017 where we were wonderfully hosted by the Epilepsy Support Foundation, headquartered in Harare but with a few satellite chapters throughout the country (Figure 2). We spent a week examining the stigmatisation of epilepsy in urban and rural Zimbabwe through a series of focus groups, community meetings, and interviews with clinicians, health ministers, and activists.

Neurology in Zimbabwe

By arriving in Zimbabwe, we doubled the number of full-time neurologists – to two (AS, GN; Figure 3). Medical students seem to enjoy their neurological attachments, but in Southern Africa formal neurology training is only available in South Africa. Those who return to Zimbabwe almost universally practice in Harare where there remains good camaraderie between colleagues, neuro-imaging is accessible and there are regular continuing medical education (CME) sessions. Medical availability outside of Harare is sparse and there is no specialist neurological input.

The incidence of neurological illness is very high. For example, from a population of around 16.5 million there are 500,000 people with epilepsy (by comparison: UK population 65million with 603,000 people with epilepsy) and the consequences and risks of a neurological illness are also magnified. For example, only 15% of people with epilepsy are on any anti-epileptic medication. Epilepsy also associates with high mortality and morbidity particularly through burns, from falling into

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

cooking fires, and drowning as a result of experiencing a seizure when washing clothes in, or near, a river.

Neurology is practised in public hospitals and a small number of patients are seen in the private sector. Dedicated neurology clinics in Zimbabwe consist of the weekly adult neurology clinic (run by GN and AM) and the fortnightly paediatric neurology clinic (run by GK), at Parienyatwa Central Hospital in Harare. Given the prevalence of neurological disease, only the most complex cases can be cared for in these more specialised settings. On average, 30 challenging patients will be seen per clinic and, as can be imagined, the variety of cases is staggering (Table 1). As well as beds for neurology in-patients, a dedicated 8-bedded Stroke Care Unit was established at Parienyatwa Hospital in 2013. Supervised by GN and AM, around 1000 patients have been admitted to the Stroke Care Unit to date.

Investigations available in Zimbabwe include relatively complex blood tests, EEG (8 machines in the country of which 4 are in Harare) and MRI with good quality imaging (6 machines in the country; all in the private

1
2
3 sector, 5 in Harare). However, the costs are high and impose difficult
4
5 choices.
6
7
8
9

10
11 Similarly treatment options are limited. The only widely available anti-
12
13 epileptic medications are carbamazepine, phenobarbitone and
14
15 valproate. Lamotrigine can be bought, but the cost is around six times
16
17 that of carbamazepine and therefore out of the reach of most.
18
19 Moreover, given the risks from seizures, people who are rendered
20
21 seizure free will continue life-long therapy with all of the potential
22
23 cumulative side effects that taking older anti-epileptic medications
24
25 entails.
26
27
28
29
30
31
32
33
34

35 The compact Zimbabwean formulary (Essential Drug List in Zimbabwe;
36
37 EDLIZ) also explores drug therapy for meningitis (suggests
38
39 benzylpenicillin, chloramphenicol or ceftriaxone), generalised weakness
40
41 (recommends IvIG and plasma exchange for Guillan Barre Syndrome),
42
43 peripheral neuropathy (amitriptyline), headache (amitriptyline,
44
45 propranolol and mentions ergotamine) and stroke (prevention of
46
47 complications). Thrombolysis is impractical and conditions such as
48
49 multiple sclerosis and myasthenia, both of which are rare in Zimbabwe,
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

are not included. Recommendations in EDLIZ include transfer to tertiary care for complex cases although most patients with significant neurological illness will now need to travel to South Africa or to India.

Conclusions:

Zimbabwe remains a fascinating place and one which leaves a searing impact on many levels. Neurological care is helped by keen, compassionate doctors and stoical patients, although both can be hamstrung by the lack of even basic medications. We must surely hope that the new dawn heralds true improvements in the health and care of all Zimbabweans.

Word count: 941 words

Panel 1:**Zimbabwe fast facts:**

Zimbabweans are amongst the most highly educated of African populations (89% literacy rate; 44% of eligible youngsters going to secondary school)

In 2008, the inflation rate reached an eye watering 79.6 billion per cent leading to abandonment of the Zimbabwean dollar. The official currency of Zimbabwe is now the US Dollar

The people remain impoverished with 74% of the population living on less than \$5.50 per day

Despite this mobile phone ownership is high at around 90 mobile phones per 100 population owing to the need to pay by 'mobile money' as the banks have extremely limited hard currency.

The rate of HIV infection was almost 25% in the mid 1990s, but is now below 15% of the population aged between 15 and 49

Consequent to HIV infection, life expectancy in Zimbabwe was 43.1 years in 2003 although this has now risen again to around 60 years

Adapted from World Bank data and personal communications

Table 1: Summary of the first five cases seen in Dr Ngwende and Dr Mataruse’s General Neurology Clinic

Case summary	Point(s) of note	Learning point(s)
Middle aged woman with progressive bulbar dysfunction	MRI demonstrates high signal in corticospinal tracts Diagnosis of motor neurone disease given	Clinical diagnosis made and corroborated by MRI Only supportive treatment options available. No access to Riluzole or specialised SALT input
Elderly lady with progressive paraparesis and weight loss	MRI confirms large extra-axial compressive lesion. More likely tumor than tuberculosis	MRI cost the Family, ‘a couple of cows’ Referred on to Neurosurgeons
Daughter of elderly patient attended explaining that her Mother was not tolerating low dose Carbamazepine for focal epilepsy	Anti-epileptic drug options are very limited – Carbamazepine, Phenobarbitone, Valproate and possibly Lamotrigine	Lamotrigine suggested, but costs of this explained. Patient’s daughter was a nurse which might enable her to obtain the drug a little more easily
Young woman with multi-modal neurological symptoms including diffuse weakness, mild encephalopathy, weight loss and possible ovarian tumor	Thought likely paraneoplastic syndrome. Basic panel of antibody testing can be performed in Zimbabwe Patient admitted from clinic for further tests	Although difficult, the treating physicians did not compromise approach to care. All appreciated costs may be significant and also that it was worthwhile trying to confirm a diagnosis and at least consider steroid therapy
Middle aged woman with longstanding HIV, spinal difficulties and painful neuropathy	Although many reasons for neuropathy were evident (not least HIV and its treatment), basics were not omitted. Patient was found to be B12 deficient and this was treated. Gabapentin suggested for pain	Patients with HIV in Zimbabwe adhere closely to medication regimes and are very conscious of their health with consequent improvement in life expectancy and, also, associated longer term complications of the condition



Figure 1: Zimbabwe is a land-locked country in Southern Africa (a, b) with a rich cultural heritage. Although famous for Victoria Falls (c), the spiritual heart of the nation lies in Great Zimbabwe (d) where an ancient, powerful civilisation thrived for around three hundred years (approximately 1100 to 1400 AD). Soapstone birds found at Great Zimbabwe provide evidence for a ordered hierarchical structure and an example features on the modern Zimbabwean flag (f). The famous golden rhinoceros of Mapungubwe , which dates from around 1100-1200 AD (g), was found close to the South African border with Zimbabwe



Figure 2: The Epilepsy Support Foundation (ESF) has branches throughout Zimbabwe and hosts multiple meetings to help educate people about epilepsy as well as providing treatment and outreach to rural communities. The ESF main branch is in Harare (a) with strategic meetings being held, for example, at The Bronte Hotel, Harare (b) and branch meetings in Marondera (c). The ESF also has one of the few EEG machines in Zimbabwe (d)



Figure 3: Dr Gift Ngwende (left) and Dr Arjune Sen outside the Neurology Out-patient clinics in Harare. Dr Ngwende is the only full time neurologist in Zimbabwe. He is also Chief of Medicine at the University of Zimbabwe and Head of the Zimbabwe Chapter of the International League Against Epilepsy