ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF GLASGOW

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SECTION 1 | PERSONAL AND AWARD DETAILS			
Title	Mr	**PID**	6921
Surname	Paterson	**Forename(s)**	Andrew
Scholarship/award awarded	Volunteering Award	**Amount awarded**	£2,500.00

SECTION 2 | PROJECT/VISIT DETAILS	
Name/Title	Bridge2Aid, Dental Volunteering Programme
Location	Chato District, Geita Region, United Republic of Tanzania [9-22 September 2018]
Aims and objectives	**The main aim of this Dental Volunteering Programme was to train six Tanzanian rural Clinical officers in emergency dentistry & oral health promotion within Chato District so that they could serve their communities:** Chato District has a population of 365,000 people. There are two fully trained dental staff within Chato, the District Dental Officer and a Dental therapist. Additionally there are five clinical officers trained by Bridge2Aid in 2016 to provide oral health education and emergency dentistry. The District Dental officer and the Dental therapist have no functioning dental drills and no access to any Restorative materials including no instruments to undertake the Atraumatic Restorative Technique. In Rural parts of the developing world, such as Chato, lack of access to emergency dental care leaves many with constant debilitating pain and infection which can affect livelihoods and lives. With significant intra country inequality access to safe dental care is almost non-existent in rural areas in many sub-Saharan African countries like Tanzania. The WHO recognizes oral disease as a major public health problem[1]. In addition oral health is worsened in rural areas as multinational companies such as CocaCola provide cheap sugared carbonated drinks where there is lack of access to safe drinking water. UNICEF statistics indicate that suggest basic safe drinking water is available to only 50% of Tanzanians and 37% of rural Tanzanians.[2] Patients in rural areas are in most instances unaware of the benefits of toothbrushing[3] and use of a fluoride toothpaste. There is thus a dire need to train rural health workers in the delivery of appropriate Oral Health Education and emergency dentistry to their rural communities. In this instance one of the six clinical officers was the clinical officer for Chato Prison. The additional benefit of this programme was that with the training of this clinical officer for the first time prisoners in the District would have access to emergency dentistry and oral health promotion.

[1] Petersen, P. (2008). World Health Organisation global policy for improvement of oral health - World Health Assembly 2007. *International Dental Journal*. 58, pp. 115-121.

[2] UNICEF. (2017). *Water and Sanitation.* Available at: https://data.unicef.org/topic/water-and-sanitation/drinking-water/ [Accessed 19th October 2018].

[3] Some patients use a wooden stick for oral hygiene known as a "Mswaki".

The secondary aim was the relief of pain for the patients who attended the programme.

In Chato district access to safe, basic dental care for the majority of the rural population is impossible unless they happen to live next to a health centre or dispensary where a clinical officer has been previously trained. These largely subsistence farmers simply do not have the means to travel to areas where access to care is possible. Many patients present to the programme for treatment having suffered with dental pain for over 10 years.

The tertiary aim was to provide a positive volunteering experience for team members and to give them additional problem solving skills back for use in the developed world whilst as team leader this was likely to enhance my leadership skills and as a trustee and member of the NGO's Clinical advisory group to inform strategic planning for further programmes and a pilot scheme in Malawi.

It is recognized that individuals who volunteer can acquire personal and professional skills that are transferable to the NHS.[4] A Department of Health report indicates that volunteers return *inter alia* with a wide range of skills and a better ability to work in challenging environments for a minimal cost to the organisation, leadership skills, cultural competence, a greater understanding of social and cultural diversity and of global health issues.[5]

Bridge2Aid is considering putting the Tanzanian training model into Malawi in 2020 so this programme was important to develop strategy around the advisability of a pilot programme to Malawi.

Finally as a PhD student studying volunteering phenomena by looking at qualitative observational data the programme presented an opportunity for data collection.

My PhD involves an ethnographic qualitative, empirical study of healthcare volunteering with the phenomena being studied by the principles of hermeneutic phenomenology using a *novel* approach of examining volunteering not solely from a volunteers perspective but from the perspective of host communities and Governments. An aim was to collect observational data during this volunteering trip to Tanzania.

[4] Machin, J. (2008). *The impact of returned international volunteers on the UK: A scoping review.* [pdf]. Institute for Volunteering Research, London. http://www.build-online.org.uk/documents/Impact%20of%20International%20Volunteering%20on%20the%20UK%20VSO%20Machin%202008-1.pdf [Accessed 31st October 2018].

[5] Department of Health. (2010). *The Framework for NHS Involvement in International Development*. [pdf]. Available at: http://www.severndeanery.nhs.uk/assets/Internationalisation/TheFrameworkforNHSInvolvementinInternationalDevelopmenttcm79-26838.pdf [Accessed 31st October 2018].

Summary

Include methodology, results and conclusions if applicable

This volunteering programme was a Phase 1[6] Dental Volunteer Programme run by the UK charity *Bridge2Aid*. *Bridge2Aid* has a Memorandum of Understanding with the Tanzanian Ministry of Health to support Tanzanian Regional and District Dental Officers to train rural clinical officers in the WHO's Basic Package of Oral Care[7] which includes Oral Urgent Treatment (simple tooth extractions carried out by the clinical officers who are non-dental personnel) and Oral Health Promotion. They were also trained in the care, decontamination and sterilisation of dental instruments via a World Health Organisation approved method. This requires significant "task shifting"[8] and training of the Clinical officers[9].

My role was as the Site Clinical Lead. I taught, led teaching and assessed a competency based training programme which trained six Tanzanian Clinical officers together with the assistance of their District Dental Officer. The team consisted of seven UK and US dentists and 3 members of the Oral Health Team together with 2 Tanzanian Staff. I was responsible for all aspects of the management and direction of the Programme together with acting along with the District Dental Officer as an immediate referral service to deal with difficult clinical problems. Section 3 (Images) of this report details more information on the Programme.

All six Clinical officers were deemed competent by the District Dental Officer, myself and the team so they received a basic instrument kit to provide the Basic Package of Oral Care to their community. They will receive follow up for 18 months from *Bridge2Aid's* Tanzanian team and their District Dental Officer after which they will be the sole responsibility of the District Dental Officer. In addition 1,021 patients received dental care through the Programme. One of the Clinical officers was based at Chato prison and with this Clinical officer being deemed competent this enables access to safe emergency dental care and oral health education for inmates at the local prison service for the first time.

During the course of the 9 days of the Programme (1 day of theory delivered by the District Dental Officer and 8 days of clinical training) the six Clinical officers extracted an average of 122 teeth (Range 93-137). It is worthy of note that a UK dental graduate extracts an average of 31 teeth during 5 years of training. Additionally relationships with host Governments and communities were enhanced during the Programme and the profile of oral health raised as I was able to meet and discuss issues with the local District Executive Director, District Commissioner, District Medical Officer and the head of the prison service for North-West Tanzania. This is important as oral health has been seen as a lesser health priority in many developing world low and middle income countries.

This programme was located in two remote and rural clinics (Nyambugera Dispensary and Kachwamba Health Centre) within Chato district with access problems to the clinics, poor communications and supplies and lack of basic facilities such as running clean water and electricity which necessitated ongoing problem solving to deliver a successful programme.

The visit of three UK visitors to the Programme enhanced the reputation of *Bridge2Aid* within the UK as

[6] Phase 1 involves UK dentists training rural Clinical officers; Phase 2 trains Tanzanian District Dental officers to run their own programmes.

[7] van Palenstein, W., Helderman, W. and Benzian, H. (2006). Implementation of a Basic Package of Oral Care: towards a reorientation of dental NGO's and their volunteers. *International Dental Journal*. 56, pp.44-48.

[8] **Task shifting** is the name given to a process of delegation whereby **tasks** are moved, where appropriate, to less specialized health workers.This is what *Bridge2Aid* is doing in training rural Clinical officers in emergency dentistry and oral health promotion. The principles are supported by the World Health Organisation to deal with shortages of trained health care workers and to address health inequalities. WHO guidelines are available at http://www.who.int/healthsystems/TTR-TaskShifting.pdf?ua=1 [Accessed 31st October 2018].

[9] Wilson. K., Wilson, I. and Holmes, R. (2012). Oral urgent treatment (OUT) - a volunteer led training programme in North West Tanzania. *British Dental Journal.* 212, pp.443-448.

all three appeared to have a positive experience and have subsequently published very positive blogs[10] [11] [12]which is helpful for funding, raising awareness of the Programme and influence within the volunteering sector.

One of the visitors, Professor Jeremy Bagg, Vice Dean of the Dental Faculty, Royal College of Physicians & Surgeons of Glasgow is the lead involved in setting up a Dental school for Malawi[13]. This visit enabled Professor Bagg to see at first hand the difficulties of oral health in rural sub-Saharan Africa and in the very near future *Bridge2Aid* (represented by myself and the Chief Executive), Professor Bagg, another UK charity *Smileawi* and those involved with *Childsmile* plan to meet to discuss collaboration possibilities for dental and oral health in Malawi.

Observational data for my PhD was collected and will be analysed/published in due course. As Professor Bagg (who visited the Programme) is a supervisor for my PhD this was an added benefit to have a supervisor see the difficulties in ethnographic observation that rural Africa imposes and this will undoubtedly help further understanding of the volunteering phenomena.

In conclusion, of the many volunteering trips that I have been involved with this was by far the most successful in terms of training, numbers of patients treated, data collection, reputation enhancement for *Bridge2Aid*, networking with local Government and volunteer/visitor experience.

Learning outcomes

Detail here how the aims and objectives were met

The main aim of this Dental Volunteering Programme was to train six Tanzanian rural Clinical officers in emergency dentistry & oral health promotion within Chato District so that they could serve their communities:

This outcome was met. Six rural Clinical Officers were trained and deemed competent and each have already commenced providing emergency dentistry and oral health education to their communites (On average 10,000 people each) namely the wards of Kibumba, Kasenga, Kachwamba, Katete, Kinsabe and Mkiu/Chato prison within Chato District. They are mentored by their District Dental Officer.

The secondary aim was the relief of pain for the patients who attended the programme:

This outcome was met. 1021 patients were treated in the programme. This is the highest number in 94 *Bridge2Aid* programmes over 14 years. 2 of those patients received life-saving treatment in Chato District Hospital for dental infection funded by *Bridge2Aid*. 1 patient was sent to Mwanza for management of oral cancer funded by *Bridge2Aid*. All patients received group and individual oral health education and free toothbrush/fluoride toothpaste. 514 patients at Nyambugera Dispensary received education in TB and HIV prevention from a local health worker.

The tertiary aim was to provide a positive volunteering experience for team members and to give them additional problem solving skills back for use in the developed world whilst as team leader this was likely to enhance my leadership skills and as a trustee and member of the NGO's Clinical

[10] Bagg, J. (2018). *To Tanzania with Bridge2Aid* [online]. Available at: https://themaldentproject.com/ [Accessed 31st October 2018].
[11] Mander, L. (2018). *A week in the life of an SEO Account Manager in Tanzania* [online]. Available at: https://dental-design-products.co.uk/a-week-in-the-life-of-an-seo-account-manager-in-tanzania/ [Accessed 19th October 2018].
[12] Mehra, A. (2018). *Dental Volunteering with Bridge2Aid (B2A)* [online]. https://www.samera.co.uk/samera-blog/dental-volunteering-with-bridge2aid-b2a/ [Accessed 31st October 2018].
[13] Bagg, J. (2018). The Maldent Project [online]. Available at: https://themaldentproject.com/ [Accessed 31st October 2018].

advisory group to inform strategic planning for further programmes and a pilot scheme in Malawi.

This outcome was met. All volunteers rated their experience positively. One volunteer wrote a post programme Blog which was published on a UK dental corporate's website and was extremely favourable.[14] During the course of the Programme several volunteers were interviewed on site and their video logs are available on *Bridge2Aid's Facebook* site, all of which were very positive.[15]

Since the programme finished (22nd September 2018) one volunteer has agreed to become a trustee of *Bridge2Aid* and two to help develop their communications strategy. Another volunteer has signed up already to return to Tanzania in 2019[16] as an assistant site clinical lead. One volunteer has decided to change career from being a private cosmetic dentist to dealing with dental emergencies in a deprived area of England as a direct result of seeing the health inequality in Tanzania.

Undoubtedly this programme improved my problem solving and leadership skills which I can take back to the University of Dundee and NHS Tayside as a Senior Clinical Lecturer/Honorary Consultant. In particular I hope that it will inspire others, including undergraduates considering electives, to consider volunteering in sustainable programmes in the developing world to be part of their social responsibility as ethical clinicians.

Subsequent to the programme I was able to proactively push forward *Bridge2Aid's* expansion of the Programme into Malawi gaining approval from both the charity's Clinical Advisory Group and my fellow trustees with a planned pilot programme in 2020. This will undoubtedly involve much collaboration, problem solving and discussions with other colleagues (as described in the "Summary" in the previous section of this report).

Finally as a PhD student studying volunteering phenomena by looking at qualitative observational data the programme presented an opportunity for data collection.

This outcome was met. I collected much multi-source triangulated observational data which will require significant data analysis over the near future. I had the additional benefit of the presence of one of my supervisors as a visitor to the Programme for a short time.

Evaluation

How has this scholarship/award impacted on your clinical/NHS practice or equivalent?

- Given me an even greater understanding of the issues involved in global health inequality which I hope will lead me to write up a high quality PhD so that these views can be widely disseminated/published.
- Improved my robustness, resilience, leadership and team working skills which are applicable in my many roles as a University Senior Clinical Lecturer, Honorary Consultant, Clinical Lead in Tanzania, Trustee of a dental development charity, adviser of studies to students, teacher of ethics law & professionalism and trainer to postgraduates (both NHS and University).
- Allowed me to pro-actively lead the charity to trying to pilot this very sustainable training model in another country (Malawi) in collaboration with others.

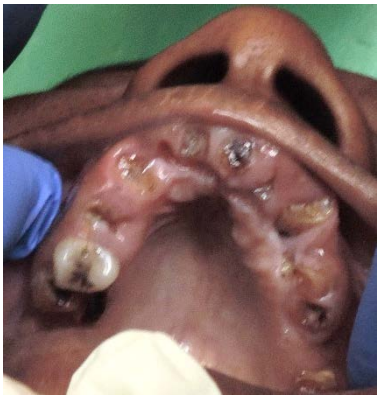
[14] Patel, A. (2018). *Dr Amit Patel's life-changing trip to Tanzania.* [online]. Available at: https://www.mydentist.co.uk/big-smiles-blog/article/the-dental-blog/2018/10/08/dr-amit-patel-s-life-changing-trip-to-tanzania [Accessed 31st October 2018].

[15] Bridge2Aid. (2018). *Videos*. Available at: https://www.facebook.com/pg/bridge2aid/videos/?ref=page_internal [Accessed 31st October 2018].

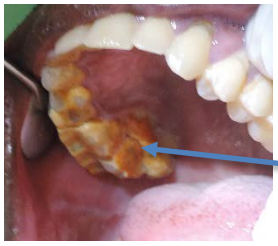
[16] This volunteer was mentored by the author during the trip as a potential site lead.

SECTION 3 | IMAGES

Patients queueing at Nyabugera Dispensary – About 100-120 would queue from early morning



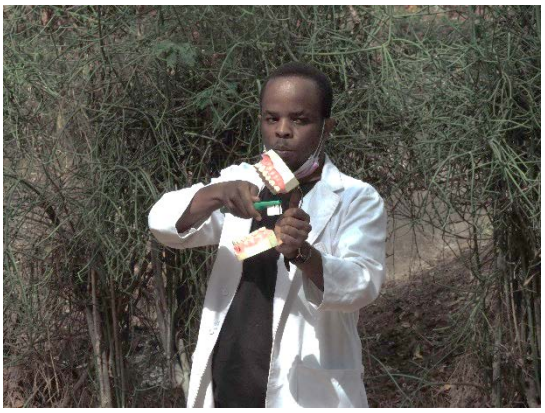
Oral health in Chato was the worst the author has ever seen anywhere in over 30 years as a clinical dentist – here a mouth destroyed by caries; carbonated drinks are cheaper than clean drinking water



Oral health in Chato: Massive calculus deposits on teeth from no oral hygiene; most patients were simply unaware that teeth require brushed.

All waiting patients received Oral health talks. Initially by the volunteers but from Day 2 the clinical officers were giving the talks following teaching by oral health team volunteers. Here we see Bridge2Aid Site administrator, Innocent translating into Swahili an oral health talk by volunteers Holly and Julie.

As soon as possible the clinical officers were taught basic oral health so they can transfer this knowledge to their communities. Here we see oral heath team volunteer Lavada teaching clinical officer Japhet these messages and how to apply them in his community.



Clinical officer Edwin demonstrating toothbrushing to the patients

Individual toothbrushing instruction from the clinical officer supervised by a volunteer

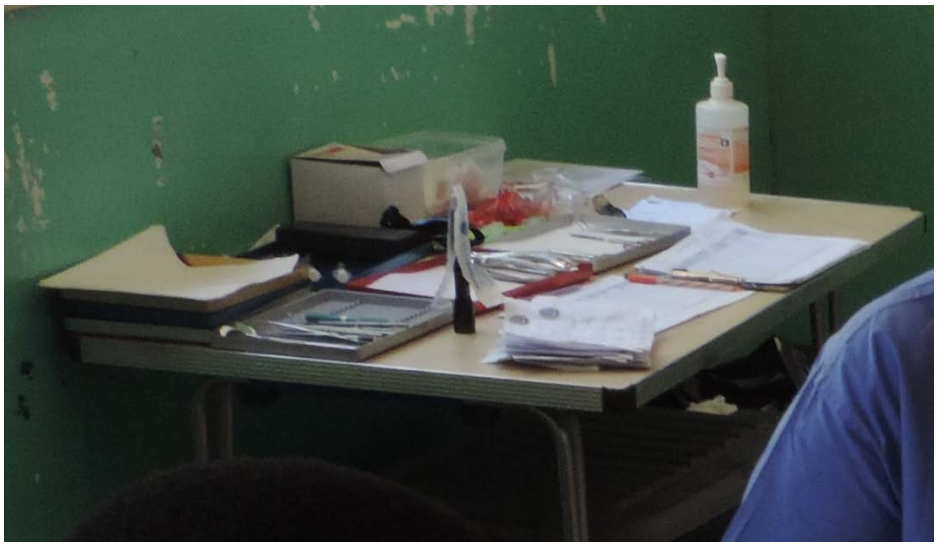
As a "spin off" from the Programme here a local health worker is taking the opportunity of having a large number of patients from his community to deliver TB and HIV prevention advice.

Clinical officer's competence was assessed using the recognised educational tool the "LiftUpp" system used widely in Dental education in the UK. Here clinical officer Lucas's ability to deliver appropriate oral health messages is being assessed by volunteer Holly with interpretation of Swahili messages being delivered by Lucas to the patients from Bridge2Aid staff member Emmanuel.

Teaching clinical officers emergency dentistry was on a one-to-one basis. Here volunteer dentist Gurrinder is teaching clinical officer Michael local anaesthesia. All techniques were assessed by "LiftUpp".

Additional teaching was by seminars. Here volunteer dentist and assistant site clinical lead Kirsty is teaching all the six clinical officers dental anatomy

Dentist volunteer Gurrinder giving individual feedback to clinical officer Magreth

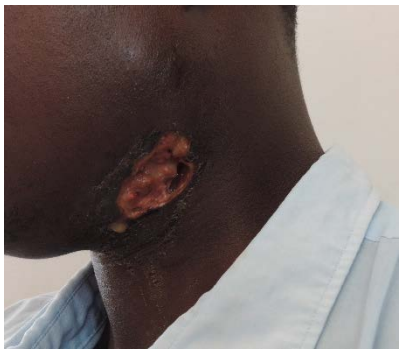


The training model does not seek to impose a Developed World Model of dentistry but involves simple equipment using locally sourced materials appropriate to the surroundings (rural dispensary with no electricity or running water). ***Above*** *is a typical workstation with hand extraction and examination instruments and* ***(see Below);*** *Local anaesthetic is drawn up individually into readily available syringes and wider gauge needles as these are available throughout Tanzania rather than a dental syringe, cartridges and narrow gauge needle (unavailable in rural Tanzania).*

Oral health team volunteer Julie drawing up local anaesthetic

The Programme was visited by three UK visitors. One of the visitors was Professor Jeremy Bagg, Vice Dean of the Dental Faculty, Royal College of Physicians & Surgeons of Glasgow, and the Clinical Officers were privileged to receive a seminar from him in his capacity as a Clinical Microbiologist on management of dental abscesses and antibiotic stewardship.

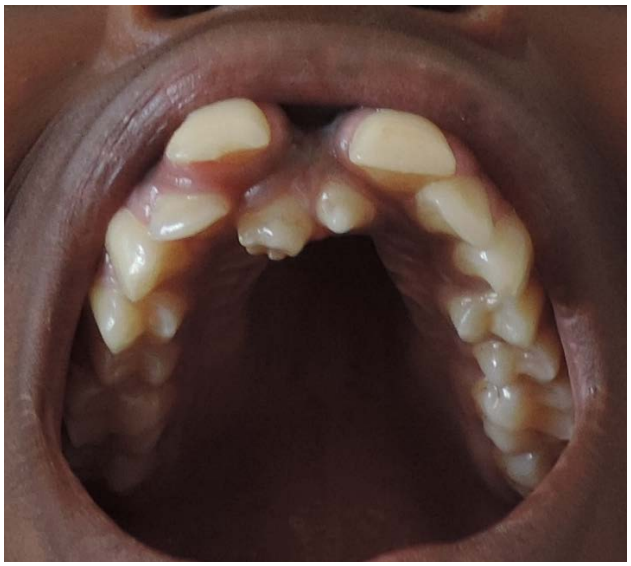
The Clinical officers were trained in a WHO approved decontamination and sterilisation process for use in health centres and dispensaries without electricity or running water. Dirty instruments enter the room on the left hand side and pass to the right along the various stages of the decontamination cycle. [Photo credit: Professsor Jeremy Bagg].



Untreated Pathology was not uncommon

Left : This man had a large extra-oral sinus down to the mandible, trimus, pyrexia and breathing difficulties from a carious lower left third molar tooth. This was a life threatening situation that required admission to the District Hospital and was funded by Bridge2Aid.

Right: This lady had not sought advice regarding her thyroid goitre (present for 10 years) other than using some local herbs. She presented with unrelated toothache and had not sought treatment of her neck swelling as she was afraid. Signposting to medical services for management of the neck swelling was an added benefit of her visit for a tooth extraction.

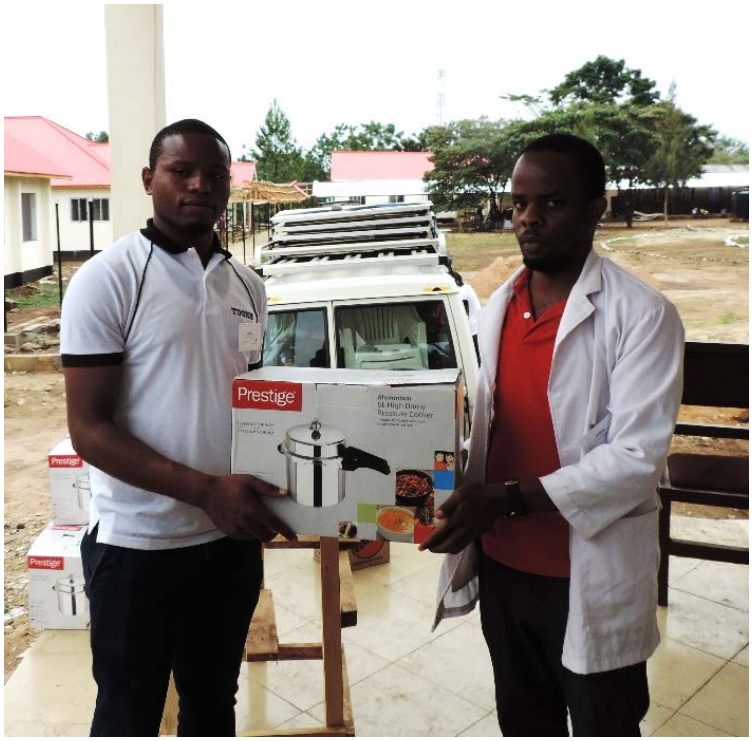


Children with malpositioned and/or extra teeth was commonplace. Orthodontic treatment is not an option here.

Within 9 days of training clinical officers were independently and competently dealing with most dental emergencies. Here clinical officer Magreth is elevating a carious lower right first molar tooth.

Theory was also assessed by pre and post course written examinations.

All six clinical officers were deemed competent by the District Dental Officer(DDO), the author (the Site Clinical Lead) and the rest of the volunteer team. Here they are receiving their certificates at the end of the Programme.



As well as the training the clinical officers received a pressure cooker steriliser and basic examination and extraction instruments and an oral health education toolkit to provide this treatment for their communities. Here the DDO, Dr David Ngata is presenting clinical officer Edwin with his instruments. The DDO will mentor and act as a referral service for the clinical officers. Bridge2Aid will follow up the clinical officer's progress for 18 months.

The Bridge2 Aid team
Back row (L to R): David (Dentist), Amit (Dentist), John (Dentist), Innocent (Site Administrator), Andrew Paterson (the author, Dentist & Site Clinical Lead), Jack (Dentist), Kirsty (Dentist & Assistant Site Clinical Lead), Gurrinder (Dentist)
Front row (L to R): Emmanuel (Communications Officer), Holly, Julie and Lavada (All Oral Health Team)

SECTION 4 | EXPENDITURE	
Breakdown of expenditures *Please demonstrate how the scholarship/award funding was used to support your project/visit*	Travel to/from Tanzania from London (Emirates): £603.62 Internal flights in Tanzania (Air Tanzania):£109.50 Travel to/from Scotland-London: £150 Bridge2 Aid charges (Accommodation & Travel in Tanzania): £950 Visa for Tanzania: £180 Antimalarials: £60 PPE: £50 Other subsistence in Tanzania: £300 TOTAL:£2,403.12 [The award was for £2,500.00. As you can see the expenditure was an underspend of £96.88. Please advise what you wish me to do with this underspend. I am happy to put this towards my next volunteering trip (November 2019, Shinyanga Region, Tanzania – same purpose as this trip) or return it as you deem appropriate].

SECTION 5| PUBLICATION	
Scholarship/award reports may be published in College News. Please tick here if you agree to your report being published.	☒ I give permission for my report to be published in College News *If your report is selected for publishing, the editor of College News will be in touch to discuss this with you.*

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