



الهيئة النقابية للأطباء السودانيين

بالمملكة المتحدة

**SUDAN DOCTORS' UNION**

**U.K. BRANCH**

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Project Title:

**December Revolution Centre for Rehabilitation of Traumatic Spinal Cord and Brain Injuries**

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Applicant:

Sudanese Doctors Union – United Kingdom (SDU – UK).

Proposal:

We propose development of a 16 bedded specialist neurological rehabilitation centre in Khartoum for rehabilitation and medical management of traumatic spinal cord injuries (SCI) and traumatic brain injuries (TBI). The primary funding for this project is charity money gathered through crowdfunding for the purpose of supporting the victims injured during the revolution. Therefore, the primary aim of the proposed centre is to develop a specialist neurological centre that provides free lifelong medical follow-up and rehabilitation services for those who suffered long term disability as a result of their injuries during the December Revolution. The secondary aim is to develop the first specialist multi-disciplinary neurological rehabilitation centre in Sudan for rehabilitation and medical management of non-progressive spinal cord and brain diseases as a result of infectious, inflammatory,

vascular or tumour insults. The idea is to develop this centre, as a separate entity, within an established hospital in Khartoum with interests in such a project but also has the infrastructure facilities (or capacity) and specialties including ITU, neurology, neurosurgery, trauma and orthopaedics surgery, plastics surgery and urology. The proposed title for this specialist centre is:

### **“December Revolution Centre for Rehabilitation of Traumatic Spinal Cord and Brain Injuries”**

#### Rationale:

Since the start of the latest Sudanese Peoples’ Uprising in December 2018 (later crowned as Revolution), the former regime led by Omar El-Bashir used brutal force and weapons against the unarmed protestors. This has resulted in at least 300 deaths (or so) from direct gunshot, beating and stabbing injuries as well as all sorts of poly-trauma including traumatic brain injuries, spinal cord injuries, traumatic amputations, ruptured eyes, burns and multiple limb injuries. Indeed, as a result, a major gap in the health services in Sudan has been highlighted particularly the lack of integrated Major Trauma and Rehabilitation services. Most of the injured protestors have been treated through initiatives and good will of people inside and outside Sudan. Tents to hundreds of patients were sent for expert surgical and rehabilitation treatment in Russia, Turkey, India and Egypt with the help of charity funds whilst most of the initial injuries were managed in private hospitals. However, the costs of treatment abroad and inside Sudan are huge, resulting in considerable debts (hundreds of millions of Sudanese pounds). Several poly-trauma patients required multiple surgical and re-constructive procedures whereas others such as traumatic brain injuries and spinal cord injuries required months of rehabilitation followed by relocation in the community.

The ongoing costs of medical management and rehabilitation of spinal cord and traumatic brain injury patients is gigantic compared to management of other poly-trauma injuries because these injuries result in disability and handicap usually requiring complex health and social care set-up to meet their needs. Furthermore, the age group of 8 spinal cord – injured patients, during the December Revolution, is 17 – 23 years which means that the cost of the cumulative annual consumption of healthcare services by these patients throughout their lives will be astronomic. If we factor in the number and complexity of traumatic brain injury patients, then we will be talking about millions of USD.

However, all the costs will be inflated if SCI and TBI patients continue to be treated outside Sudan adding unnecessary costs of flights and living expenses on top of the healthcare costs abroad. To give you an example, two of our heroes who suffered traumatic SCI during the December 2018 Revolution went to a specialist rehabilitation centre in India for a period of 4 months (June to October 2019) and the costs incurred were 20, 000 – 25, 000 USD each (including flights, living expenses, rehabilitation, wheelchairs etc.). These patients require regular annual health check including renal surveillance investigations, neurogenic pain and spasticity management, seating and posture assessments top-up rehabilitation and all other medical issues that arise whether related to tetraplegia or not. Traumatic brain injury on the other hand may incur costs depending on the complexity of injury and whether the consciousness level was affected or not. Based on 7adhreen Initiative, the estimated number of SCI and TBI patients since December 2019 is around 30 including:

- 20 TBI patients (including 3 severe TBI with prolonged disorder of consciousness)

- 11 SCI patients (including 1 patient who died recently in September 2019 and another patient associated with TBI and died in early 2019)

Although epidemiological data regarding SCI and TBI patients in Sudan nationwide is very limited, the global literatures suggest that the costs of severe TBI to the patients, their families and the society are considered to be extremely high with 1.4 million visits to accident and emergency departments are estimated to take place annually in the UK due to TBI . Furthermore, data from the UK suggest that the daily cost of a bed in a specialist spinal cord injury rehabilitation centre ranges from £495 - £554 with 40,000 people are estimated to be affected by SCI in the UK (Total population about 65 million).

For all the above, it is clear that our injured heroes during the December 2018 Revolution will benefit from a considerable investment of money to build a specialist SCI and TBI Rehabilitation Centre in Khartoum and prepare it with all the necessary staff and equipment to a good standard level.

#### Scope:

The main mandate and scope of practice for the proposed “December Revolution Centre for Rehabilitation of Traumatic Spinal Cord and Brain Injuries ”is to provide free holistic inpatient and outpatient medical rehabilitation services and life-long follow-up for the SCI and TBI patients as a result of direct injuries related to the December 2018 Revolution. For the purpose of this document, traumatic spinal cord injury rehabilitation also includes traumatic cauda equina syndrome rehabilitation.

Furthermore, this scope of practice can be widened to include similar injuries as a result of:

- Injuries related to the September 2013 Uprising.
- Injuries related to the previous regime militias crackdown against civilians in Darfur, Nuba Mountains and elsewhere in Sudan.
- Injuries related to domestic accidents such as falls and road traffic accidents.

Once up and running, the scope of practice of this specialist centre could be widened more to include rehabilitation of non-progressive spinal cord compression (due to disc prolapse, infection, inflammation, cord infarction, haematoma etc) and cerebral stroke patients. The scope of practice does not include multiple limb injuries and amputee & prosthetics patients unless these are part of poly - trauma including TBI and/or SCI.

The proposed centre will be equipped to provide specialist acute and long-term rehabilitation for patients who are medically stable and could be managed at the skills level of ward staff nurses. This means that patients who require assisted ventilation or have tracheostomy tubes will not be suitable for rehabilitation in this centre.

#### Rehabilitation Centre structure:

- Staffing:

The British Society of Rehabilitation Medicine (BSRM) recommends the following minimum staffing provision for every 20 specialist rehabilitation beds including outreach duties (Whole Time Equivalent):

- 2 Consultants in Rehabilitation Medicine.
- 2-3 trainees/ junior doctors.

- 24 – 30 nurses with at least 1/3 having specific rehab training.
  - 4 Physiotherapists.
  - 4 Occupational therapists.
  - 2 – 2.5 Speech and Language therapists.
  - 1.5 - 2 Clinical psychologists/ Councillors.
  - 1 Dietitian.
  - 3 Clerical staff.
  - 1.5 Discharge coordinator.
- We therefore recommend the following level of staffing for the proposed 16 bedded unit. However, please note that some severe TBI patients may require 1:1 supervision or specializing by nursing staff due to challenging behaviour. This is not accounted for in this estimate:
    - Medical Department
      - Rehabilitation Medicine Consultant (2 consultants)
      - Neurology Consultant (1 consultant)
        - Resident medical team (2 doctors)
      - Visiting Neurosurgeon, Urologist, Orthopaedic and Plastics Surgeons
      - Visiting Psychiatrist
    - Nursing Team (2 ward sisters, 12 nurses – 6 each ward)
    - Dietetic Team (1 Dietitian)
    - Physiotherapy Team (3 therapists)
      - Orthotics clinic
    - Occupational Therapy Team (3 therapists)
    - Psychology Team (2 psychologists/ councillors)
      - Family counselling
      - Patient Education
    - Speech and Language Therapy Team (2 therapists)
    - 2 Clerical staff.
    - 1 Discharge Coordinator.
    - Wheelchair Services Department
    - Pharmacy Department
- Buildings:
 

We propose that there should be a purpose-built building to accommodate this centre within an established hospital in Khartoum. It would preferably be a separate building to the main hospital but within the same premises to provide privacy and space for these types of patients as well as maintain the necessary service links. An ideal building would be a 2 – storey square/rectangle shape building with a space in the middle of it to accommodate a garden which is essential for occupational therapy, socialization and psychological rehabilitation. An immediate access to imaging facility is essential as described below. The main components of the building would be:

    - 1 x 8 – bed ward for TBI
    - 1 x 8 – bed ward for SCI
    - Outpatient Department
    - Physiotherapy gym
    - Hydrotherapy pool
    - Occupational therapy lab
    - Orthotics clinic.

- Psychology Department rooms
- Wheelchair services rooms
- Pharmacy
- Immediate access to a radiology department (X-ray, US scan, CT scanner, MRI scanner).
- Equipment:
  - Wards:
    - Specialist hospital beds with pressure relieving mattresses
    - Patients transfer equipment:
      - Built-in hoist machines
      - Mobile hoist machines
      - Rota-stand Patient Turners
      - Commodes
      - Abdominal binders
      - Thromboembolic-deterrent (TED) stockings
  - Physiotherapy gym:
    - Built-in hoist machines
    - Mobile hoist machines
    - Pool hoists
    - Rota-stand Patient Turners
    - Tilt table
    - Plinth table
    - Parallel walking bars
    - Slide boards
    - Adjustable Rehabilitation Corner Steps
    - Exercise bike
    - Mounted Wall Mirrors
    - Functional Electrical Stimulation bike
    - Wheelchairs (manual and electric)
    - Oswestry Standing frames.
    - Gutter frame walker.
    - Zimmer frame walker.
  - Other equipment:
    - All medical equipment (such as for monitoring vital signs etc.)
    - OT lab equipment
    - Patient orientation charts.
    - Cognitive assessment tools (Westmead , Addenbrookes etc.)

Financial cost:

- Costs of building
- Costs of equipment
- Annual costs of staff salaries
- Costs of medication
- Costs of training

Location:

The ideal location would be a purpose-built rehabilitation centre with all its necessary facilities and equipment, within a hospital that has all the necessary staffing from other specialties and allied health professions as detailed above. However, we understand that developing a new building will incur huge costs that could be saved at this stage. Therefore, we suggest that the centre is developed through re-furbishing a building within an established hospital in Khartoum with interests in such a project but also has the infrastructure facilities (or capacity) and specialties including ITU, neurology, neurosurgery, trauma and orthopaedics surgery, plastics surgery and urology. In addition, it will be desirable to have established services in this hospital from allied health professionals (AHPs) such as physiotherapy and psychology. The exact location will be determined in discussion with the Federal Ministry of Health in Sudan following business case proposals from hospitals in Khartoum based on their interest, infrastructure, availability of specialties, AHPs and costing.

#### Stakeholders:

For the purpose of translation of this project to reality, we suggest forming an advisory committee from the following groups:

- Sudanese Doctors Union – United Kingdom (SDU – UK)
- Sudan Federal Ministry of Health
- UK (and other countries) Expatriate Rehabilitation Medicine Consultants experts in SCI & TBI rehabilitation.

#### Funding:

Funding could be sought from the following sources:

1. SDU – UK
2. Federal Ministry of Health
3. WHO
4. International Spinal Cord Society (ISCoS)
5. International Committee of the Red Cross
6. Crowd Funding

#### **Executive Committee** **SDU UK**

#### **Rehabilitation Medicine Advisory Committee:**

Mr Wail A E M Ahmed  
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Consultant in Spinal Cord Injuries

Mr Raef Dahab  
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Mr Aheed Osman  
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