

The impact of trauma on the health security in Nigeria by the year 2050

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Abstract

Introduction: Trauma is the leading cause of death in adolescents and young adults. More people died from trauma in 2010 than from malaria, TB and HIV combined. Nearly a third of trauma deaths are from violence and nearly a quarter are from road traffic accidents.

Situation Analysis: Nigerian population demographics is very fluid. Communal clashes, acts of terrorism, road traffic accidents and violent crimes are major contributors to trauma. The severity and complexity of injury patterns are unpredictable. Motorcycle road traffic accidents are on the increase. The use of psychoactive drugs plays a role in the occurrence of injuries.

Forecast: Desertification and increasing demands on dwindling water supplies will fuel more communal clashes. Improvements in emergency services will allow survival of more severe and complex injuries and the presentation of these to health care facilities will necessitate improvement in personnel numbers, training and competence as well as facilities and infrastructure to cope with the care of the patients. Improvement in communication and social media use will be a major tool in information dissemination and public enlightenment.

SWOT Analysis: Strengths include the opportunities to utilise available expertise for tailor made solutions. Social media and the influence of traditional and religious leaders are major opportunities. Weaknesses include the poor road network and instability in the worst hit regions while threats include the cost, anti-orthodox cultural beliefs and the risk to personnel.

Keywords: Health security, Nigeria trauma

Abstrait

Contexte : Le traumatisme est la cause principale de décès chez les adolescents et les jeunes adultes. Plus de personnes sont décédées des suites d'un traumatisme en 2010, que du paludisme, de la tuberculose et du VIH combinés. Près d'un tiers des décès par traumatisme sont dus à la violence et près d'un quart à des accidents de trafic routier.

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Analyse de la situation : La démographie de la population nigériane est très fluide. Les affrontements communautaires, les actes de terrorisme, les accidents de trafic routier et les crimes violents sont des facteurs majeurs de traumatisme. La gravité et la complexité des types de blessures sont imprévisibles. Les accidents de trafic routier des motocyclettes sont en accroissement. La consommation de drogues psychoactives joue un rôle dans la survenue de blessures.

Prévisions : La désertification et la croissante demande en fourniture de ressource d'eau déclinante alimenteront de nouveaux affrontements entre communautés. L'amélioration des services d'urgence permettra la survie de blessures plus graves et complexes et leur présentation aux établissements de santé nécessitera une amélioration en nombre de personnel, formation et compétence, ainsi que des installations et des infrastructures permettant la prise en charge des patients. L'amélioration de la communication et de l'utilisation des médias sociaux constituera un outil majeur de diffusion de l'information et de la sensibilisation du public.

Analyse SWOT : Les points forts comprennent la possibilité d'utiliser les compétences disponibles pour des solutions sur mesure. Les médias sociaux et l'influence des chefs traditionnels et religieux sont des opportunités majeures. Les faiblesses incluent le mauvais réseau routier et l'instabilité dans les régions les plus touchées, tandis que les menaces incluent le coût, les croyances culturelles anti-orthodoxes et le risque du personnel.

Mots-clés : Sécurité sanitaire, traumatisme au Nigeria

Introduction

Trauma is currently the leading cause of death in adolescents, young adults, and the middle aged across the globe. According to the World Health Organization, as at 2010, about 5.8 million people die each year from injuries. This accounts for 10% of the world's deaths, 32% more than the number of fatalities that result from malaria, tuberculosis and HIV/AIDS combined. Nearly one third of the 5.8 million deaths from injuries are the result of violence and nearly one quarter are the result of road traffic crashes with over 3,400 people dying on the road each day and tens of millions injured or disabled each year. As the health care for major diseases

improves and survival increases with increasing technology, the proportion of deaths due to trauma is steadily in the increase. Other causes of trauma also include injuries from natural disasters, domestic and intimate partner violence among others.

Situation analysis

Nigerian population demographics constitute a very fluid milieu. Rural-Urban migration, increasing life expectancy, displacement by conflict and occupational mobility contribute to constant changes in population demographics from region to region. With improvement in transportation, increasing population mobility, increasing pressure on the available transport facilities and large volumes of people relocating because of increased conflict and natural disasters, the incidence of road traffic accidents is on the increase.

This is more pronounced in low and middle-income countries where the road infrastructure, quality of vehicles, traffic regulations and driver training and certification are often sub-optimal. In Nigeria, this is further compounded by “commercial motorcycles” many of the drivers of which are untrained youth without other means of income who often ride under the influence of alcohol and other psychoactive drugs with pre-trauma alcohol use in as high as 41% [1, 2]. The risk of dying for every kilometre travelled from a motorcycle crash is 20 times higher than from a motor vehicle crash [3]. This risk is heightened by the fact that aggressiveness on the part of the riders has been found to be one of the contributors to increased income despite the increased risk of injury [4]. Majority of accident victims in urban areas are from motorcycle accidents. The incidence varies from city to city with low incidence in cities that have legislation enforcing the use of helmets and limiting motorcycles to side roads.

Desertification in the northern part of the country is leading to dwindling average land holdings per family, chronic food shortages and food insecurity, increasing food prices and rising pressure on the land [5]. Competition for resources and potable water, grazing land and farmland, resources which are dwindling because of deforestation and desertification, is also fuelling communal clashes between herdsmen and farmers in the middle belt and other parts of the nation [6]. These clashes have recently escalated into full blown battles with heavy casualties. Terrorist activities in the North Eastern part of the country have also contributed to the heavy toll of trauma with complex, extensive and severe injuries from bomb blasts by suicide bombers, heavy

artillery and hand-held weapons. A lot of victims who manage to survive are often unable to immediately assess healthcare with the resultant complications from infection and other challenges of delayed access to optimal care. The demographic pattern of trauma in communal conflicts and terrorist attacks is also unpredictable and often includes the young and the elderly who tend to have a higher mortality rate and place particularly heavy burdens on insufficient resources when they do survive. The elderly because their care is complicated by the delayed healing and recovery, presence of comorbidities and reduced mobility and access to finance, while the children are faced with a lifetime of resultant deformities and social and economic dependence because of disabilities resulting from major trauma.

There is also a rising trend in domestic violence and assault. This is partly fuelled by substance abuse which increases the likelihood of violence within couples, violent robberies as well as social violence [7]. These often give rise to bizarre forms of injuries especially when domestic violence is fuelled by spite and passion and aggravated by substance abuse. Gang wars and cult clashes, especially in educational institutions and low-income neighbourhoods, are also fuelled by drugs and substance abuse. Such clashes often have innocent bystanders caught in the cross fire and thus the demographic distribution of victims may be unpredictable, although the demographics in campus-based cult clashes is usually limited to the student population.

Forecasts for 2050

There are estimates that the population of Nigeria will double by the year 2050, making Nigeria the third most populous nation in the world. If the foregoing is left unchecked, with the rising population, dwindling resources, deforestation and desertification from the North, loss of arable land in the Delta in the South from pollution and oil spills, the competition for land-based resources will surely increase. Water will also become a critical resource. Already, as at March 2018, the Ministry of Water Resources estimates that only 57% of Nigerians have access to potable water. This has the attendant risk of fuelling more communal clashes and increasing the casualties. The increasing rural-urban migration will also increase the population density in urban areas. A lot of the people who have been involved in violent clashes in the rural areas will migrate into urban areas with their weapons. This will increase both the population density in urban areas and the

incidence of violent crimes. There will be an increase in gun violence and gunshot wounds presenting to health facilities nationwide. The increase in population will also increase the volume of people travelling on the roads with the resultant increase in the risk and occurrence of road traffic accidents. These will all contribute to put pressure on the available yet inadequate health infrastructure with resultant worsening in the health indices of the population. Thus, there is an urgent need to increase the number and preparedness of emergency medical staff to attend to the victims while security forces work on prevention of the incidents.

In the coming years, we will need to strengthen our healthcare system to cope with the increase in demands that are inevitable. We will need to provide emergency rescue services that cover the major highways and townships. This will reduce the rescue time and reduce the number of people that

“die-on-the-spot”, a colloquial term that refers to immediate deaths but which in fact alludes to people who died at the accident scene before rescue arrived. This will also increase the survival rate of complex injuries and the need for health care facilities to be able to manage the patients that are rescued on time.

There will be an increase in access to and proficiency with social media which will continue to improve communication and dissemination of news and information and this will be a major determining factor in educating the public about the proper response to trauma, availability of resources and personnel to manage the trauma as well as guiding rescue services to the location of the victims to facilitate speedy and effective evacuation and care.

SWOT Analysis: A SWOT analysis of our situation is elucidated below.

SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> i) We have an opportunity to develop a system that is suited to our culture, population dynamics and is tailored to our specific needs. This will allow us to avoid the challenges that countries have come up against following the implementation of their own programmes ii) Nigeria has trauma surgeons and safety experts who can serve as the nucleus around which the teams can be built 	<ul style="list-style-type: none"> I) A lot of funding is required II) The success of planning is dependent on stability in the region III) Poor road network and other transportation developed infrastructure
Opportunities	Threats
<ul style="list-style-type: none"> i) Traditional leaders, clerics, opinion leaders and leaders of associations can be enlisted to enlighten the populace about the need to support the improvements and the value of early and appropriate intervention ii) Social Media: Nigeria has a strong social media culture and information spreads very rapidly via social media. This can be utilised as a tool for public enlightenment and education 	<ul style="list-style-type: none"> i) Strong cultural beliefs and heavy reliance on alternative medicine and traditional healing practices that discourage people from accessing orthodox care acutely ii) Cost: Absence of health insurance or at best, poor or limited coverage. Currently, the basic coverage by the NHIS does not cover the entirety of trauma care especially when investigations like MRI is needed for brain or spine injuries, neither does it cover all the aspects of surgical care (purchase of implants, specialist fees where the care is given in private hospitals) iii) Safety and security of personnel and infrastructure needs to be ensured

Short term plans

- i) Public enlightenment via social media, print and TV and Radio. These will be aimed at educating the public about preventive measures as well as providing information and basic guidelines on seeking help promptly and from the right sources. One of the major challenges of healthcare in Nigeria is the fact that citizens at every level often opt for traditional alternatives first and only present to hospitals after complications have occurred
- ii) National Agency for Orientation to help with generating social media jingles adverts for public enlightenment
- iii) We urgently need to put legislation in place to protect bystanders and good Samaritans who offer help to accident and assault victims from accusation or harassment by law enforcement agencies. This will serve as a stop gap and shorten the time to commencement of care for victims while we improve ambulance services.
- ii) The dispatch centre must be well staffed with well trained personnel who have a reliable communication network so that they can appropriately guide the ambulances
- iii) Establishment of Trauma Centres: **Local and regional**
- iv) Training, retraining and certification of **medical personnel**
- v) Improvement in the coverage of **health insurance** so that trauma victims do not have to keep paying out of pocket for emergency care
- vi) Establishment of trust funds that will take care of unidentified trauma victims until members of their families and/or their health management organisation can be contacted
- vii) Employment and youth empowerment: This will reduce the number of youth engaged in violent crime and subsequently reduce the number of violence related trauma victims. It will also give an alternative employment to the youth engaging in commercial motorcycle riding

Medium term plans

- i) Training of uniformed officers (Federal Road Safety Corps FRCS, Police, Civil Defence, Customs, Prisons, Military), groups involved with transportation (National Union of Road Transport Workers NURTW, Amalgamation of Motorcycle Owners and Riders Association of Nigeria ACOMORAN, etc) in safe evacuation, basic first aid and safe transportation to health care facilities.
- ii) Incorporation of trauma care postings into the curriculum of undergraduate medical students such that at graduation doctors have the basic rudiments of emergency trauma care
- iii) Institutionalising certification in Advanced Trauma Life Support as part of the requirements for renewal of practicing license for doctors practicing in Nigeria

Sources of funding

- i) Health insurance: With a population of two hundred million, health insurance premiums of one thousand naira per person per annum gives a total of two hundred billion naira. With well-structured payment plans that makes higher income earners pay more and lower income earners pay less, the funds that can be generated from health insurance are huge. This much funds will go a long way in implementing the plans outlined above. Well administered National Health Insurance schemes will greatly improve access to emergent care for trauma victims
 - ii) Repatriated funds and retrieved funds can also be channelled in to provision of health infrastructure and training of personnel.
 - iii) A lot of Nigerian based foreign health practitioners are coming back home to set up high quality and world class health care institutions. This group of people can be encouraged to come back home in larger numbers by giving tax cuts and import duty rebates to encourage them to import equipment and set up. In return, they can be encouraged to cater for a certain percentage of indigent patients with minimal charges.
 - iv) Foreign investors can also be encouraged to set up well regulated practices with the same proviso of catering for a percentage on indigent patients.
- Monitoring and Evaluation: There will be need for ongoing monitoring of the processes:

Long term plans

- i) Development of a well organised rapid response ambulance system for evacuation of victims and transportation to pre-informed health care facilities that can take care of the number and nature of the identified injuries. This will require provision of ambulances with trained paramedics and coordination by dispatchers who can take calls from the public and direct ambulances to the location of the victim and thereafter to the nearest appropriate health facility with available bed spaces.

Monitoring

A continuous monitoring of ongoing processes would be required. This would include

- i) The response time of emergency services.
- ii) The time to institution of definitive care after arrival at the point of care.
- iii) Outcomes of trauma care will be continuously monitored to ensure the quality of care.

Evaluation

- i) Number of patients treated will be evaluated to determine the impact of intervention.
- ii) Reduction in incidence of complications arising from trauma care will be assessed.
- iii) The trend of reduction in number of trauma deaths will also be closely followed.

Conclusion

The pattern of trauma seen in a community is an indication of the lifestyle in that community. Tackling the trauma problem in Nigeria will involve several factors which include but are not limited to: addressing the root causes of the problem to reduce the occurrence, improving access to healthcare, increasing the capacity of existing facilities to cater for the large volumes of trauma cases, regulation of the practices of the healthcare facilities, encouraging public-private-partnership and reduction in brain drain. This will greatly improve the overall health of the nation and reduce the burden of secondary and tertiary prevention.

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