



HUMAN ORGAN TRANSPLANTS: ANALYSING THE CHALLENGES OF ORGAN AND TISSUE TRANSPLANT SURGERY IN GHANA

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Abstract: - Human Organ transplants is now a fully grown discourse in the practice of medicine and health where by apart from medical doctors (physicians and surgeons), nurses and health practitioners, religious leaders be it pastors and Imams have had many opinions that bothers on ethical considerations about such an indispensable, innovative surgical life procedure that restores the human life and human existence.

Organ transplant has been in existence since 1954 when, after numerous unsuccessful previous attempts, the first successful kidney transplantation by Murray et al. made human allotransplantation.

Allotransplantation is the transplantation of an organ or tissue from one individual to another of the same species. Organ transplantation is the modern way of prolonging life of people suffering from end stage organ diseases worldwide. The most known ones are the hepatic and renal transplants (Liver and Kidney). The main root of organ donations in Ghana are from living donors. Organ donations from the dead have far been advanced with ethical considerations and legal inputs.

Is a known fact that a few number of organs come from living brain dead donors in Africa and Ghana is not an exception.

Yet, despite the surgical and medical advancement, the scarcity of human organs for transplantation has become a medical task and an albatross that has taken both clinical, religious, political and academic hiatus yet to be repaired by all stakeholders involved in it.

The field of human organ transplantation is complicated as it details more on ethical, religious and psychosocial issues.

There are many successes, problems and controversies surrounding organ donation, harvesting and transplantation.

The worse approach are human organ trafficking, the buying and selling of organs from what is known as brokers.

In Ghana most of the organ donations are from living donors and the percentage of cadaveric organ donation is low.

There is no explicit consent and presumed consent systems in Ghana yet. Ethically, there can be little or no harm to living organ donors. The availability of a matched donor is a high issue in Ghana coupled with religious, psychosocial influence and financial inability to embark on organ transplant procedures. Some of the very well documented factors in organ transplantation are the religious, legal, ethical and surgical/medical paradigms in country wide.

Keywords: Organ transplant, cadaveric, brain death, organ failure, cardiopulmonary, hepatic, renal, haemodialysis, organ broker.

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1.0 Introduction:

Transplant surgery and medicine has a big role in latest medicine in the world and currently it's the important treatment option in giving next chance to longer life. Transplant medicine saves and increases life span, and best of life. Organ transplant have good advantage over medical therapy in people with end stage organ disease, which also comes with a good quality of life. Generally, most organ transplant is coordinated through Ghana health service even though we do not have a national system and for organ transplant in Ghana, which gives the opportunity of organ sharing and give the necessary equipments, materials, clinical and research system for organ transplant steps in the country.¹ Most human organs can't stay for a longer period of time without proper clinical laboratory preservation, and steps for early organ transplant assignment, whenever an organ donor is available.²

Drastic methods involving matched donor and recipient with the health aspects of the organ transplant is the most complex and controversial method in current day healthcare. Ethical laws are complex in organ transplantation whether dealing with dead person's donor or a living donor organ. It also has several religious controversies surrounding it. In medical practice ethical problems with time and what is death are major issue to deal with. Mostly, what the public and professionals say about organ transplant are questioned by many religious and cultural influences. Thou, there are other ethical structure and legal framework that separate between cultures and religions. Ghana is faced with organ shortage since there is no proper structure for human organ harvesting and transplantation, and this is a need for a national call for donation and proper allocation to guide the ethical and medical principles for all people that depend on organ transplantation to live long and the best quality of life.

1.1 We will talk much about the effect of organ transplant and scarcity of matched donors in our nation.

2.0 Method:

Research methods were from qualitative scientific empirical data works from others which is published in journals. It is carefully analyzed, criticized and has appraisal which reference this work.

3.0 Body

Organ scarcity is a big issue in Ghana.³ So many sick individual are on the organ transplant list than available at the national organ center. Advancement in modern medicine has allowed organ transplantation to take place in places we would not think about for such complex medical procedures in Ghana few years ago. The health system has not been able to deal with the high number of

patients awaiting organ for transplantation due to organ shortage and unmatched organs for recipients. The issue of organ scarcity has become a serious problem in Ghana. As of the year 2001, there were 300 plus Ghanaian nationals waiting to get donors for kidney and another 200 people waiting for liver transplant stated by Ghana health service.⁴ As of 2015, it had multiply to n about 3,000 people, and less than 50 people on the waiting list has gotten an organ. Liver transplants number from dead donation have lowered down drastically.⁵ There was a total increase in living and reduction of dead kidney donation at the very moment. Almost 200 patients on the kidney transplant list are for one kidney donor in the nation. Other organs also have similar scarcity. In our country, there are higher number of individuals who are seriously in need of organ replacement such as liver and kidney. Individuals who are in need of the organ kidney are higher than that of others, even though other organs are also vital and needed for survival. India is the preferred destination for many Ghanaians for complex medical and surgical procedures due to medical tourism and almost all the transplant surgeries are done there and little is performed in the country. In the year 2020 about 5 kidneys were transplanted for patients in Ghana and all the 5 procedures were performed at the Korle Bu Teaching Hospital which is the largest health care facility in the nation.

Organ shortage in Ghana is due to multiple clinical and logistical issues, ranging from organ availability, medical equipments, lack of skilled surgeons and other health personal to perform the procedure, organ preservation centers, unmatched organ recipients and other suppressive factors such as cultural and religious issues preventing people from donating an organ.

4.0 Organ Shortage in Ghana

Scarcity of human organs must be checked differently for alive and dead donors. Dead donor programs should be a national and regional transplant which is an international standard coordinated by the ministry of health and Ghana health service. Human organ program must be establish in all nations around the world according to World Health Organization (WHO), for the nations not to have organ shortages overtime as their population grow and increase in organ demand. Another vital issue is the religious, cultural problems and consent of people in our society about donation of organ. There are countless ethical, medical, religious, and other factors to consider in donating an organ. Religious bodies should encourage the donation of organs to help sick people in need for survival. Donation processes have diverse approach among several factors even within the same religious status. Based on latest studies, Ghana performs not more than 40 live kidney transplant and 10 live liver transplant annually.

5.0 Ethics on Alive and Dead Donations:

Many diverse ethical guidelines for living donation and dead donation, Ethical importance of the two donations are the same in the process of donating and procuring an organ for transplant. Kidney, bone marrow, liver and skin are the highest number of living donations in our country. A serious bioethical philosophy is

¹ Federal Register. Department of Health and Human Services: Organ Procurement and Transplantation Network. Final Rule, Vol. No. 63, p. 16288, April 2, 1998. Available at: <http://www.federalregister.gov/articles/1999/10/20/99-27456/organ-procurement-and-transplantation-network>. (accessed April 25, 2011). [Google Scholar]

² Guidelines for the determination of death: report of the medical consultants on the diagnosis of death to the President's commission for the study of ethical problems in medicine and biochemical and behavioral research. JAMA. 1981;246:2184-6. doi: 10.1001/jama.246.19.2184.. [PubMed] [CrossRef] [Google Scholar]

³ Wolfe R, Merion R, Roys E, Port F. Trends in organ donation and transplantation in the United States, 1998-2007. Am J Transplant. 2009;9:869-78. doi: 10.1111/j.1600-6143.2009.02564.x. [PubMed] [CrossRef] [Google Scholar]

⁴ Johnson R, Collett D, Birch R, Fuggle S, Rudge C. Kidney donation and transplantation in the UK from 1998 to 2007. Clin Transpl. 2008;75-88. [PubMed] [Google Scholar]

⁵ Israeli Organ Transplantation Center 2011. Available at: <http://www.health.gov.il/transplant/indexashtala.htm> (accessed April 25, 2011).

there should not be harm or damage to the living donor. People with no financial interest can give donations to support patients who are in need and it will be appreciated. Also it is not accepted to donate an organ or tissue with a financial interest in mind. While different views are saying people have the autonomy of their body and they can decide to keep it out or give it freely, it is well known those action are illegal and not accepted anywhere in the world. Organ smuggling will go high when trading of human organs are not condemned. Communities around the world are not in support of organ smuggling, and several preventive decisions have been taken to reduce and if possible to stop this inhuman act.⁶

The smuggling of people for the reason of organ harvesting has been in existence for a longtime and not a new thing which has emerge in the world as a whole⁷. With the scarcity of legally acquire organs in Ghana and other places around the world, there is a generation of about 3 billion dollars from the illegally acquired human organs from 15,000 to 20,000 wrongful organ trade, harvesting and transplantation⁸. Smuggling of human being for organ harvesting has dangerous result for the security of mankind, especially, for the more desperate and unsafe people around the world, such as the unemployed, people with no homes, asylum seekers and travellers. Example, in 2017 to early 2018, a huge number of organ smuggling issues were discovered in the Arab world which happened in Lebanon, Syrian refugees and other war hit areas around the world were so much in need to take care of their selves and families⁹. Tourist organizations, governments of nations and other not for profit bodies have started estimating roughly on trafficking human being for organ harvesting after the Pronouncement of Istanbul on organ smuggling, and still, little awareness and recognition has been given to the learning of this world problem¹⁰. In 2005, the World Health Organization told nations to consider significant steps to stop human organ smuggling and give maximum protection for those who are the most to be affected. These issues brought the Pronouncement of Istanbul on organ smuggling and human organ exploration, where more than 200 analyst and investigators from many nations ended that, organ transplant, organ smuggling and tourism should be stop¹¹. In this paper, our motive is to open up the current state of the theory on smuggling human for organ harvesting.

Human trafficking which happened in 2018 is about 40 million people which is like the population of present day Iraq and Uganda according to the International Labor Organization (ILO)¹². Most reported cases were females for prostitution and forced labour reasons¹³. Organ removal and other illegalities were amongst the remaining few cases reported. Human organ smuggling is a broad language that includes many illegalities against human, and the main reason and motive is profiting from human parts and blood. Smuggling human for organ harvesting, illegal organ transplant tourism and trading of human organs and tissues are the main activities included^{14, 15, 16}. About 10 percent of organ transplantation worldwide which is like 13,000 human organ per annum still remains illegal despite the world and local effort to fight this illegal business for human safety¹⁷. Victims of human trafficking has gone up, many of them are for prostitution and forced labour and about 800 of them are use for human organ harvesting which are from many countries from the year 2005–2020, which is 15 years period¹⁸.

The very vulnerable people for human organ smuggling are migrants^{19, 20}. Many people who migrate are those with low financial status, jobless and seeing political instability in their own countries. However, problems of vulnerability is also part which expose migrants to mistreat and exploration by, brokers, criminals and other offenders²¹. Most people were avoided from registering again in different countries by the United Nation authorities most of these people were Pakistanis and other people in Lebanon trying to escape the Syrian civil in the Middle East this happened in 2015. One smuggler and an organ dealer said those who are not permitted to register to seek asylum are finding it

¹² UNPD UN Population Division: World Population Prospects. [(accessed on 2 March 2019)];2020 Available online: <https://population.un.org/wpp/DataQuery/>

¹³ Global Report on Trafficking in Persons. [(accessed on 29 March 2019)];2018 Available online: https://www.unodc.org/documents/data-and-analysis/glotip/2018/GLOTiP_2018_BOOK_web_small.pdf

¹⁴ The HOTT Project. [(accessed on 1 May 2020)];2014 Available online: <http://hottproject.com/userfiles/HOTTProject-TraffickinginHumanBeingsforthePurposeofOrganRemoval-AComprehensiveLiteratureReview-OnlinePublication.pdf>

¹⁵ Broumand B., Saidi R.F. New definition of transplant tourism. *Int. J. Organ Transplant. Med.* 2017;**8**:49. [PMC free article] [PubMed] [Google Scholar]

¹⁶ Fiona D., Katharine B., Joudo Larsen J. Migrants and Their Vulnerability. IMO. [(accessed on 1 February 2020)];2019 Available online: https://publications.iom.int/system/files/pdf/migrants_and_their_vulnerability.pdf

¹⁷ Global Observatory on Donation and Transplantation . *Organ Donation and Transplantation Activities 2014*. Organización Nacional de Trasplantes; Madrid: 2016. [(accessed on 14 March 2020)]. Available online: <http://www.transplant-observatory.org/data-reports-2014/> [Google Scholar]

¹⁸ Global Report on Trafficking in Persons. [(accessed on 29 March 2019)];2018 Available online: https://www.unodc.org/documents/data-and-analysis/glotip/2018/GLOTiP_2018_BOOK_web_small.pdf

¹⁹ Forsyth A. Meeting an Organ Trafficker Who Preys on Syrian Refugees. [(accessed on 29 March 2020)];2017 Available online: <https://www.bbc.com/news/magazine-39272511>

²⁰ Da Silva W.C. ¡Que se rompan los grilletes! La cooperación internacional para la protección de los derechos humanos de las víctimas de trata de personas desde el Consejo de Europa. *Rev. Fac. Derecho Cienc. Políticas.* 2014;**120**:221–269. [Google Scholar]

²¹ Forsyth A. Meeting an Organ Trafficker Who Preys on Syrian Refugees. [(accessed on 29 March 2020)];2017 Available online: <https://www.bbc.com/news/magazine-39272511>

⁶ 17. Ministerio de Sanidad Y Consumo, Organización Nacional de Trasplantes, World Health Organization. Global Observatory on Donation and Transplantation. Available at: <http://data.transplantobservatory.org/paginas/informes/DatosUsuario.aspx> (accessed December 23, 2008).

⁷ Da Silva W.C. *El Respeto a la Dignidad de la Persona Humana: Curso Brasileño Interdisciplinario en Derechos Humanos*. Instituto Interamericano de Derechos Humanos; Ceará, Brasil: 2015. Vulneración de la Dignidad Humana en el tráfico de órganos. [Google Scholar]

⁸ Global Financial Integrity. [(accessed on 21 February 2020)];2017 Available online: http://www.gfintegrity.org/wp-content/uploads/2017/03/Transnational_Crime-final.pdf

⁹ Miss M. Reuters. [(accessed on 29 March 2020)];2017 Available online: <https://www.reuters.com/article/us-mideast-crisis-syria-trafficking/organ-trafficking-booming-in-lebanon-as-desperate-syrians-sell-kidneys-eyes-bbc-idUSKBN17S1V8>

¹⁰ Declaration of Istanbul. [(accessed on 1 March 2019)]; Available online: <https://www.declarationofistanbul.org/>

¹¹ Declaration of Istanbul. [(accessed on 1 March 2019)]; Available online: <https://www.declarationofistanbul.org/>

difficult to survive. He questioned what can they do if they have nothing to eat and take care of their surviving families? Since they have no other means to live on they end up being desperate and the only option they have is to sell their organ to have some money to live on^[22]. Also, personal issues can lead to the vulnerability of migrant. Some are migrants travelling with babies, people in their old age, people with impairment and sick people^[23]. A teenage boy who managed to flee the Syrian war zone when his dad and male siblings were murdered, he had stayed in the country Lebanon over a period of time while he is not working and had debts to pay, difficult to help his mum and other younger siblings. "He agreed to sell one of his kidneys his right kidney specifically for US\$ 9000" which is small amount of money for human organ but he had no choice than to agree to sell his vital organ for survival said the previously discussed organ dealer^[24].

In all, Smuggling of desperate and vulnerable people for organ harvest is a worldwide crisis with dangerous implications, also abusing the rights of humans and this is affecting thousands of individuals around the world.

6.0 Willingness to Pay for Organ Transplantation:

Though, employment, financial and education level were not used as an indicator of wealth used to check social and financial level of people in association. Studies say rich people are ever ready to finance organ. Example, those in the higher percentage of financial status were many than the lower percentage. Using social and financial status to find the indicators of riches, earnings and affordable healthcare for the proper health delivery^[25]. Analyst got to know that cardiac arrest was less in people without formal education and less income population^[26]. In another study elsewhere, there was a significant connection between diabetes therapy and financial status^[27]. Many studies show that financial status influences medical care in the world^[28-29]. Another data for

respiratory disorder and ocular degeneration showed the same based on financial status^[30]. Actually, patients not ready to finance organ transplant is due to the expensive cost of the service and they cant afford it. People with low financial status who are sick also need medical care regardless of the cost and it is their fundamental human right. It is established that organ transplant is the best treatment option for most people end stage organ failure most especially, end stage chronic kidney disease and it has the best long term benefit than haematodialysis treatment and other medical therapy^[31]. Transplant is the perfect choice for everyone including those in the less-income countries, governmental health agencies and private individuals involved in sponsoring health care should do their best in financing organ transplant procedure specifically for the youthful ones in societies who are most likely affected by end stage organ damage because of their youthful lifestyles and I believe doing this will help in the productivity of our nation^[32].

Readiness to finance a certain medical treatment is mostly based on the financial and social status, research showed that most working class people were willing to finance medications since its more economical than complex procedures like organ transplant^[33]. Study and survey says the correlation features of people involved and their satisfactory with the readiness to finance for diabetic medication stated that family earnings and peoples contentment has forecasted that they are ready to finance^[34]. A different theory elsewhere stated the same findings where family earnings forecasted peoples' readiness to finance for wellness and healthcare^[35]. There is a connection for earnings and readiness to finance is from other research findings^[36, 37].

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³⁰ Fryer D. Employment deprivation and personal agency during unemployment: A critical discussion of Jahoda's explanation of the psychological effects of unemployment. 1986.

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³¹ Ilori TO, Enofe N, Oommen A, et al. Factors affecting willingness to receive a kidney transplant among minority patients at an urban safety-net hospital: a cross-sectional survey. *BMC Nephrology*. 2015;16(1):191. pmid:26588895

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³² Matekole M, Afram K, Lee SJ, Howie AJ, Michael J, Adu D. Hypertension and end-stage renal failure in tropical Africa. *J Hum Hypertens*. 1993;7(5):443-446. pmid:8263884

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³³ Puteh SEW, Ahmad SNA, Aizuddin AN, Zainal R, Ismail R. Patients' willingness to pay for their drugs in primary care clinics in an urbanized setting in Malaysia: a guide on drug charges implementation. *Asia Pacific Family Medicine*. 2017;16(1):5.

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³⁴ Pinto SL, Holiday-Goodman M, Black CD, Lesch D. Identifying factors that affect patients' willingness to pay for inhaled insulin. *Res Social Adm Pharm*. 2009;5(3):253-261. pmid:19733826

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³⁵ O'Brien B, Viramontes JL. Willingness to pay: a valid and reliable measure of health state preference? *Med Decis Making*. 1994;14(3):289-297. pmid:7934716

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³⁶ Zhou Q, Li Y, Liu HZ, Liang YR, Lin GZ. Willingness to pay for colorectal cancer screening in Guangzhou. *World J Gastroenterol*. 2018;24(41):4708-4715. pmid:30416318

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³⁷ Unutzer J, Katon WJ, Russo J, et al. Willingness to pay for depression treatment in primary care. *Psychiatr Serv*. 2003;54(3):340-345. pmid:12610241

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²² Forsyth A. Meeting an Organ Trafficker Who Preys on Syrian Refugees. [(accessed on 29 March 2020)];2017 Available online: <https://www.bbc.com/news/magazine-39272511>

²³ Shimazono Y., World Health Organization The State of the International Organ Trade: A Provisional Picture Based on Integration of Available Information. [(accessed on 29 March 2020)];2007 Available online: <https://www.who.int/bulletin/volumes/85/12/06-039370/en/> [PMC free article] [PubMed]

²⁴ Forsyth A. Meeting an Organ Trafficker Who Preys on Syrian Refugees. [(accessed on 29 March 2020)];2017 Available online: <https://www.bbc.com/news/magazine-39272511>

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²⁸ Cissé B, Luchini S, Moatti JP. Progressivity and horizontal equity in health care finance and delivery: what about Africa? *Health Policy*. 2007;80(1):51-68. pmid:16584803

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²⁹ Uzochukwu BSC, Onwujekwe OE, Uguru NP, Ughasoro MD, Ezeoke OP. Willingness to pay for rapid diagnostic tests for the diagnosis and

More than 40% of patients were not employed, and higher percentage not having any source of earnings and this didn't allow them to be committed in paying for the services. Organizing funding to finance this is a little difficult since it come with a lot of financial liabilities. This study agrees with other research findings which stated that readiness to finance within rich people living in the city is above that of people in the rural areas [38]. Moreover, a multi- facility survey done gave a solid relation between people financial strength to finance healthcare and their readiness to finance it in less developed nations [39]. Recent research was about sex, financial and jobs. It did not talk and forecast readiness to finance [40].

Organ transplant can be supported by the community and other member of a family which will include financing, donation and after care. Many people depend largely on the family, friend and external donations to finance health care. Ghana is a clear example of it where most of the health care are financed by family such as mother, father, brothers, sisters and other donors such as, religious bodies, not for profit health organizations and one owns bank account[41]. This is due to the fact that most of the end stage organ disease patients are youthful between 20 to 40 years old [42] and lose their career when they are pronounced of a certain disease. Ghana should make useful of all these supportive initiative by giving full or partly monetary help in organ transplant majorly kidney transplants to lower the monetary pressure on the people readily to help and this can good steps in the right direction in the foundation of lasting organ program in the nation.

Recent research says men are more likely finance for organ replacement surgery than that of women. Though, there is not a research data and evidence on men and women for that experiment. Among other non-communicable diseases, male patients are 3 to 4 times ready to finance a better health insurance than their opposite sex [43]. In a traditional Ghanaian household the men finance almost everything in the family.

There is an emerging popularity of none payment of organs and it has made people to donate their organ willingly without asking for any money from patients and their families. Bioethicists these days have gotten the attention of monetary issues encouraging

living organ donor and they have condemn the act as illegal and immoral. Researchers are also saying trading of human organs is illegal, unprofessional and immoral practice [44]. Major points raised is that trading human organs will cause social and financial problems to poor and less literate people in our societies and because of the monetary payment and financial benefits around human organ trading, many people will be under influence to sell their organs. In less developed nations around the world where dead body organs are not easy to harvest for transplant, most human organ trading and smuggling happens there because there are many desperate and vulnerable people. Because of that, an illegal medical practice has come out, rich clients pay as much as possible to organ brokers, hospitals and physicians for transplant whereby the most traded solid human organs like the kidney are purchased from desperate, vulnerable and poor people [45].

7.0 Kinds of Human Transplant in the World:

Xenograft: Tissue transplant from a different species to another. Such as pig tissue to human transplant, is a success these days.

Allograft: Transplant of genetically identical of the same species. That is human to human transplant and it's the most common in solid organ transplants.

Autograft: Transplant of tissue and cell from different body part to another part in one person. That is body part for reconstructive procedure as skin graft.

8.0 Types and Source of Human Organ Donors:

All sources of human organ donation and transplantation are living donor, deceased donor, and brain-dead donor. Nations which has a develop organ transplantation systems, most of human donations are live and cadaver donation either by a consent and donate after the person is clinical dead.

9.0 Explicit Consent or Presumed Consent Donor System:

Many countries including the United States of America uses explicit consent organ donor system, whereby people sign up to become organ donor before they die, the final decision to transplant the organs from the deceased body mainly depends on family after their death.

Many countries in European example Italy and Spain have developed a restriction of the explicit consent system to give chance to presumed consent system. The presumed consent system says all people will have consent to their organs before donation. The explicit consent system gives more right for consent than the presumed consent system [46].

In practicing countries, having laws allowing for consent [47] which give small recognition for opt in consent system and peoples autonomy.

38 Tran BX, Vu GT, Nguyen THT, et al. Demand and willingness to pay for different treatment and care services among patients with heart diseases in Hanoi, Vietnam. *Patient Prefer Adherence*. 2018;12:2253–2261. PMID:30464415

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41 Akazili J, Gyapong J, McIntyre D. Who pays for health care in Ghana? *Int J Equity Health*. 2011;10:26. PMID:21708026

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42 Matekole M, Affram K, Lee SJ, Howie AJ, Michael J, Adu D. Hypertension and end-stage renal failure in tropical Africa. *J Hum Hypertens*. 1993;7(5):443–446. PMID:8263884

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43 Oga ASS, Attia-Konan AR, Vehi F, Kouame J, Koffi K. Diabetic and cardiovascular patients' willingness to pay for upcoming national health insurance scheme in Cote d'Ivoire. *Health Econ Rev*. 2019;9(1):8. PMID:30848393

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⁴⁴ Daar AS (1998) Paid organ donation-the grey basket concept. *J Med Ethics* 24:365–368. [PMC free article] [PubMed] [CrossRef]

⁴⁵ Danovitch GM, Delmonico FL (2008) The prohibition of kidney sales and organ markets should remain. *Curr Opin Organ Transplant*. [PubMed]

⁴⁶ Ghaly M (2012) The ethics of organ transplantation: how comprehensive the ethical framework should be? *Med Health Care Philos* 15:175–179. [PMC free article] [PubMed] [CrossRef]

⁴⁷ Implied consent is a consent which is not expressly granted by a person, but rather inferred from a person's actions and the facts and circumstances of a particular situation.

10.0 Relatives Roles in Procurement of Postmortal Organ:

Abiding the decision made by the dead person, whether he or she want to donate an organ or not, is the legality which looks to the acquisition of deceased organs for donation.

Although, the explicit consent system has greater eligibility of consent than that of the presumed consent system. Whereby there is no conclusion made by dead to be a registered organ donor, organs can be donated by the dead person's family members.

Presumed consent system permits taking out the internal organs of a dead person because the dead person will not be able to say no when decision for organ harvesting are in place. [48]. Also, family members of the dead person can say no to their relative organs to be donated.

11.0 Campaign on Organ Donation:

There should be a public media announcement and campaigns about the openness of organ donation, harvesting and organ transplantation. They media should let people know about the benefits of organ donation (living or deceased donor) and organ transplantation. They should always do public education on ethical medical and religious concerns of organ donation and transplantation. There are five lesson principles the media should embark on: "(1) media announcements should tell the truth to the general public and should base the information on lies; (2) The media should be open and fair to the public; (3) the campaigns should tell the truth about problems related to law, medicine and other religious problems about organ donation and transplantation; (4) organ donors must meet the ethical values and know more before registering as a donor; (5) campaigns should promote health education and promotion about organ donation to the public and should not be based on lies [49].

12.0 Clinical Significants of Organ Transplant:

Human organ transplant surgery is the messiah in modern day medical practice. It works by prolonging human life span on earth and the best quality of life. As of now, it is the most advanced treatment option for people with end stage organ disease who need human organs for survival around the world.

13.0 Solid Organ Transplant Surgery:

13.1 Hepatic Transplant Surgery

The second most performed transplant surgery after renal transplant surgery is hepatic transplants. Europe hepatic transplant registry reports that in 2011 the major reasons for hepatic transplant surgery were [56%] cirrhosis, gallbladder diseases[8%], tumors[12%], liver failure 6%, diseases related to metabolism and other diseases of the liver is also around[14%]. [65%] to [85%] of Patients who had their first hepatic transplant surgery are likely to survive for five years,[50%] to [80%] after their second hepatic transplant surgery and[48%] to [78%] after their third hepatic transplant surgery.

Growing number of grown people above 60 years, patient surviving is going down but it is necessary than other with similar signs for hepatic transplant surgery. Activities of hepatic transplant

surgery has grown rapidly in Europe and other first world countries since late 1980s to early 1990s, reaching a record high in the 2000s with more than 8000 liver transplant surgeries which includes old donations. There is a reduction of the survival rate from [60%] for donations are less than 60 years and this is medical approved. Liver transplants in children have a good prognosis above 11 years survival that is over [77%] ahead of older people which is [60%]. Aside the bad effect of liver giver and receiver age on hepatic transplant surgery, there is a medical acceptance and importance of the rate of survival for people with end stage liver disease.

13.2 Cardiopulmonary Transplant Surgery

Cardiac transplant surgery is an indication for people with heart failure secondary to hypertensive heart disease leading to cardiac myopathy, coronary artery disease, adult and pediatric birth heart defects, valve heart disease, former failed transplants and others.

In the United States of America, there are over 25,000 people living with cardiac transplants and the numbers are still going up due to the improvement and better prognosis of cardiac transplant surgery. Amongst adult and pediatric patients, there is a growing rate of survival. The highest survival rates are observed among young and pediatric recipients. Cardiac transplant surgery done on pediatric patients in the year 2006 was around 88% in their first half year, 85% at age one, and 73% at age five. For all this cardiac transplant patients, cardiac transplants done within 1994 to 1995 in one year half- life was around 18 years to that of 10 years for the ones done between 2011 to 2012. There is an effect on patient survival for old donors and recipients in other organ transplant procedures.

Cardiopulmonary transplant surgery have been limited in the past 30 years and most of the conditions leading to the cardiopulmonary transplant surgery are decompensated respiratory failure, decompensated cardiac failure, cancers, congenital heart defects and fibrosis of the lung.

In late 2011 to early 2012, the United States of America performed about 110 cardiac transplant surgeries and about 60 cardiac transplant surgeries were also performed in other European countries. There is usually a better prognosis for patients who live for the first one year after cardiopulmonary transplants with optional survival of at least a year with 10 year of half-life.

14.0 Chronic Conditions in Organ Transplant Surgery:

High blood pressure, new occurring diabetes mellitus, infections ,cancers, heart related conditions and chronic renal failure goes up in even non-kidney transplant people. With all these comorbidities after organ transplant surgery, it remains the best option for better quality of life and higher life expectancy. Even though, older organ transplant patients has a poor clinical outcomes than the younger transplant candidates and this has a growing concern and cause a challenge to the quality of life of elderly transplant candidates.

15.0 Legislative Framework of Organ Transplant Surgery in Ghana (The Organ and Tissue Transplant Act of Ghana):

Recognizing the need to establish a legislative framework for the nascent organ transplant program in Ghana, this Act aims to promote ethical practices, protect the rights of donors and

⁴⁸ Ghaly M. op.cit.

⁴⁹ Rady M, McGregor J, Verheijde J (2012) Mass media campaigns and organ donation: managing conflicting messages and interests. *Med Health Care Philos* 15(2):229–241. [PubMed]

recipients, ensure patient safety, and address critical issues related to organ donation and transplant surgery.

15.1 Regulatory Authority

1. Establishment of Regulatory Body

Establish an independent regulatory body, such as the Ghana Organ Transplantation Authority (GOTA), responsible for overseeing the organ transplant program, enforcing regulations, and ensuring compliance with ethical guidelines.

2. Powers and Functions

Define the powers and functions of GOTA, including setting standards, issuing licenses or permits, monitoring transplant centers, conducting inspections, and enforcing penalties for non-compliance.

15.2 Organ Procurement and Allocation

1. Organ Procurement and Allocation System

Establish a transparent and equitable system for organ procurement and allocation, based on medical need, compatibility, and fair distribution principles, considering the Ghanaian cultural context and societal values.

2. Donor Screening and Evaluation

Outline protocols and criteria for thorough evaluation of living and deceased donors to ensure their suitability for transplantation, considering medical, psychological, and ethical factors.

3. Organ Matching and Allocation

Specify the process for organ matching and allocation, ensuring fair distribution, and minimizing the risk of exploitation or unethical practices.

15.3 Informed Consent and Donor Protection

1. Informed Consent

Emphasize the principle of informed consent for both living and deceased organ donors, ensuring comprehensive information disclosure, independent counseling, and voluntary decision-making, while taking into account cultural and religious considerations.

2. Donor Protection

Establish safeguards to protect the rights and well-being of living donors, including provisions for pre- and post-operative care, financial support, and long-term follow-up, ensuring their physical and psychological well-being.

15.4 Transplant Center Accreditation and Oversight

1. Accreditation Requirements

Define accreditation criteria for transplant centers, including infrastructure, medical expertise, quality assurance measures, and compliance with ethical guidelines, ensuring a high standard of care.

2. Monitoring and Oversight

Assign GOTA the responsibility to monitor transplant centers, conduct regular inspections, investigate complaints, and impose penalties or sanctions for violations, promoting accountability and quality improvement.

15.5 Ethical Considerations

1. Prohibition of Commercialization

Explicitly prohibit commercialization of organ transplant, including organ trafficking, organ sales, and organ tourism, to ensure the ethical practice of transplantation, protecting vulnerable individuals.

2. Ethical Guidelines

Develop a comprehensive set of ethical guidelines that govern all aspects of the organ transplant program, including donor-recipient relationships, conflict of interest, and confidentiality of medical information, reflecting Ghanaian cultural values.

15.6 Public Awareness and Education

1. Public Awareness Campaign

Mandate GOTA to conduct public awareness campaigns to promote organ donation, dispel myths, and educate the public about the importance of transplantation and ethical practices, utilizing culturally appropriate strategies.

2. Training and Education

Encourage the development of training programs for healthcare professionals, transplant coordinators, and other relevant stakeholders to enhance their knowledge and skills in the field of organ transplantation, fostering expertise and capacity building.

15.7 Data Collection and Reporting

1. Data Collection

Establish a system for collecting comprehensive data on organ transplant procedures, outcomes, waiting lists, and post-transplant follow-up, ensuring confidentiality and compliance with data protection laws.

2. Reporting and Analysis

Require transplant centers to regularly report data to GOTA, which will analyze the information to identify trends, evaluate program effectiveness, and inform policy and decision-making, facilitating evidence-based practice.

15.8 Penalties and Enforcement

1. Penalties for Non-Compliance

Specify penalties, fines, or other punitive measures for individuals or institutions found to be in violation of the legislation or ethical guidelines, ensuring a deterrent effect and accountability.

2. Enforcement Mechanisms

Outline the mechanisms for enforcement, including GOTA's authority to conduct investigations, impose sanctions, and suspend or revoke licenses in cases of serious violations, promoting compliance and upholding standards.

15.9 Administration of Ghana Organ Transplant Association (GOTA)

1. Establishment of an integrated GOTA HQ
2. Appointment and functions of the Chief Executive Officer of the Authority
3. Divisions of the Authority
4. Appointment of other staff of GOTA and their functions.
5. Management at regional and district levels

15.10 Transitional Provisions and Review

1. Transitional Provisions

Address the transitional period during which existing transplant programs or centers will be required to comply with the new legislation and regulations, ensuring a smooth transition.

2. Review and Amendments

Mandate periodic review of the legislation to assess its effectiveness, identify emerging issues, and make necessary amendments to enhance the organ transplant program in Ghana, promoting continuous improvement.

15.11 Issues Informing the Legislative Framework

1. Lack of regulatory framework leading to unregulated organ transplantation practices.
2. Ensuring ethical practices and protection of the rights and safety of donors and recipients.
3. Fair and equitable organ allocation to address concerns of justice and resource allocation.
4. Prevention of organ trafficking, commercialization, and exploitation.
5. Establishing transparent criteria for donor and recipient selection.
6. Need for trained healthcare professionals and facilities capable of performing transplant surgeries and providing comprehensive post-operative care.
7. Public awareness

16.0 Conclusion:

The ministry of health in collaboration with the Ghana health service should establish a proper structure for human organ procurement and also to organize legislation and ethical structure for human organ donation and transplant surgery. There is also a need in setting up a national organ bank and national pathologic laboratory service to store and preserve all donated human organs and tissues. Organ donation and transplant surgical procedures have become the latest treatment modality for people suffering from end stage organ damage worldwide and Ghana should not be an exception. There should be public education about the benefit and importance of organ donation and transplant surgery. The ministry of health and other religious bodies should also help in the campaign and encouragement of organ donation in our societies to stock up our national organ bank to help treat people in need of organs for their survival and better quality of life. The legislative should address critical issues that informed its draft, including the need for ethical practices, protection of donors and recipients, patient safety, equitable organ allocation, cultural considerations, public awareness, and data-driven decision-making. By implementing this framework, Ghana seeks to establish a robust, transparent, and ethical organ transplant program that aligns with international best practices and caters to the specific needs and values of its population.

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