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# Editorial

*I am very pleased to introduce the first edition of the* ***Journal of Sustainable Regional Health Systems****.*

*The primary aim of the Journal is to facilitate mutual learning and the exchange of experience within the field of 'Comprehensive Health Systems' for the benefit of the many countries taking part in our REGHEALTH Masters Course. This Journal will create and support a network helping students of the REGHEALTH European Masters course with their professional development, promoting mutually beneficial collaborations and offering an excellent opportunity to report and share the research and findings with the students and alumni of the Erasmus Mundus scientific community.*

*REGHEALTH is a European Masters Programme involving a wide range of international health professionals with almost one hundred medical doctors, lawyers, nurses, economists, sociologists, anthropologists and other human science professionals, which is added to every year. At its core lies the intention to improve the competences of students, which will help countries to optimize their health systems by improving health management systems and benchmarking against international standards. With new teachers being added annually, the programme aims to use a global perspective and international reference to help embed health systems in the surrounding socioeconomic environment, encouraging more precise epidemiology, public programmes assessments and improved social management.*

*In order to allow it to develop a stable network in Health Promotion, Policies, Planning and Implementation, the programme is supported by people, organisations and institutions such as PIVOT, UMH, MINDFUL, DEPRESSION, MMHE, REGHEALTH, IPPHEC, HCN* (www.healthclusternet.eu, www.reghealth.org, www.mmhe.eu).

*We wish to build a stable collaborative with these international organisations in order to:*

- *Give our students and alumni access to their regional offices where they will gain information regarding regional health strategies for the benefit of their home countries*
- *Ensure quality feedback on the continued relevance of the masters programme to regional strategies*
- *Allow students to internationally benchmark their home systems, embedded in their local socioeconomic circumstances and analyse the implementation of their work against the regional health systems. This is at the core of our work.*

*I am very committed to seeing this Journal become a major means for sustaining our collaborative work. Finally I would wish to thank Polina Putrik, whose work has made this Journal possible.*

J. Augustin Ozamiz, Director

*As journal coordinator, I would like to thank everyone who supported the idea of our journal and contributed to the first edition. Our warm regards to all the authors who submitted their papers, and collaborated efficiently with us and the reviewers to further improve and refine the articles. I would like to express an enormous gratitude for the work of the scientific committee members, for their time and effort put in the paper revision. And our special acknowledgement is for Basque Institute for Healthcare Innovation (O+Berri) for timely and professional support with practical side of the preparation of this edition.*

*Papers selected for the first journal tackle various aspects of health system development in different parts of the world, reflecting the broad international scope of the REGHEALTH program. We sincerely hope they will be of great interest and use for REGHEALTH student community, as well as for a broader audience. We are looking forward to your comments and responses to the published papers, which can be included in the upcoming editions. All of you are welcome to submit new articles and share findings of your own research with the readers of our journal.*

*I wish you a pleasant reading,*

Polina Putrik, Coordinator

SUSTAINABLE REGIONAL HEALTH SYSTEMS

# Uganda Healthcare system profile: Background, Organization, Polices and Challenges

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A B S T R A C T

Uganda's health system was one of the best in the region by the 1960's; it got worse in the 1970's during the military turmoil and civil strife. According to international health indicators, healthcare in Uganda is becoming more accessible and robustly public-donor-private interlinked sector. The basic objective of this paper was to provide a critical description of the Uganda healthcare system. The paper reviews secondary data both published and unpublished from the WHO and various ministries of Uganda. It uses survey data and existing literature to generate lines of argument. In the analyze strengths of the system include; decentralization of the health sector, abolition of cost sharing in 2001, support from the international community and NGOs to various health programs and planning are enlisted. While, threatening the healthcare system are communicable diseases such as malaria, limited access to quality healthcare, health policy loopholes and the low physician to patient ratio. For future studies there is need to understand to what extent high donor dependency in Uganda drives public health priorities and the compatibility of these priorities with donor-local's priorities.



*Key words:* Health system, Healthcare, Healthcare financing, Uganda.

## 1. Historical Context and Socio-Economic Characteristics

This section will describe the historical background and the socio economic indicators including population, literacy level, socio economic sectors indicator, and technology and ICT growth among others driving forces of the Uganda health system.

### *1. Historical context*

History denotes that in 1960s Uganda's health system was one of the best in the region with well equipped and staffed hospitals and a set of connected health units. However, political turmoil between 1970 -1985 ragged the health system. Uganda covers a territory of 241,040 square kilo meters; the country has moved from 80 districts to 111 as of 2012. The increase in number of districts has been referred to as a political patronage tools by critics (Conroy-Krutz & Logan, 2011). Notwithstanding the political bickering on the mushrooming districts, there is a risk of fragmenting the health system and human resource challenges as new districts emerge. The country is bordered by Kenya, Tanzania, Congo DRC, Sudan, and Rwanda (see Figure 1), Uganda is landlocked.

Since 1997, there has been an annual economic growth rate of 6.5% (World Bank, 2010). The poverty line dropped from 31% in 2005/6 projected to 24.5% people living below the poverty line in 2014/15. On the other hand, the rural Urban divide indicates that 80% of the total population living in the rural areas (WHO, 2010). Agricultural products constitute the largest part of Uganda's foreign exchange yet 90% of it is


*Source:* CIA World fact book 2008

Figure 1: *Map of Uganda*

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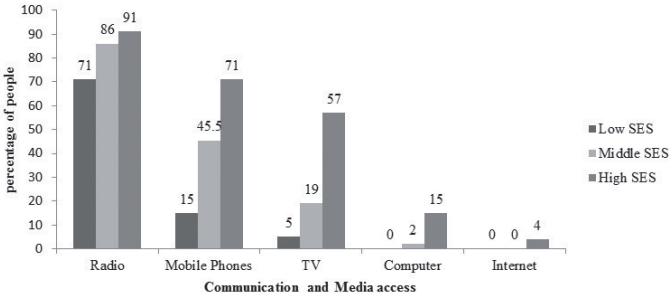
generated from coffee. However, other exports are becoming more important; Exports of hides, skins, vegetables, fruits, flowers, and fish are becoming crucial. By labor constituency; 80% of the labor force is in agriculture compared to 4% in manufacturing sector (Clifford, Booz, & Hamiliton, 1998), (UBOS, 2000), (UBOS & Macro international, 2007). Recent discovery of oil may probably boost Uganda's economy and health sector to an unprecedented proportion.

Improving the level of education is observed to be a major goal of the government according to its policy reports: In 1989, primary school enrolment was 60%, and the literacy rate was 52%, after rigor policy changes, the literacy rate in Uganda is 73.3% (Clifford, Booz, & Hamiliton, 1998), (PRB, 2010). In 1996, a programme of Universal Primary Education was instituted whereby pupils at the primary level are enrolled for free compulsory education, the program has been extended to selected public secondary schools as well, purporting great improvement in the education sector noticed by the United Nations Development report of 2009. Much leaves to be done in the tertiary institutions, for instance in medical institutions all combined (Makerere, Mbarara and Gulu Universities) approximately 200 physicians are produces annually, however, many leave the country amidst poor and uncompetitive working environment. Many end up on Lesotho, South Africa and Europe.

Information and communication technology (ICT) and media have recently changed the way of life of households and the health sector at large. ICT will enhance research and development as well cooperation and exchange of information among health professionals and patient care on various paradigms. According to a study by a media group- Audience Scapes, Ugandans in the high socio economic status (SES) bracket are more exposed to TVs, computer and internet. In the figure below, Radio access has a 20 percentage point difference between the low SES and high SES group.




*Source:* Audience scapes survey http:\\www.audiencescapes.org\

Figure 2: *Household ownership and general access to media and ICT*

Mobile phones are the most accessible ICT device in Uganda, while television viewing is increasingly determined by both SES and education levels. Internet access at home is rare even for Ugandans with the highest SES; internet is more accessible at cyber café than at home. Therefore the health care system can utilize the increasing telephone access for telemedicine in Uganda to revitalize appointment and feedback links to patients and in administration.

### *2. Demographic and health trends*



Uganda's population estimate by 2009 was 30 million (PRB, 2010). The capital city houses over 1.5 Million people; a national average population growth rate has been 3 per cent over a decade since the early 90's. However, regional disparities still exist. Health indicators are poor: the under five mortality Rate is 134 deaths per 1,000 live and the probability of dying between 15 and 60 years for female is 474 and for male is 518 per 100,000 population; the Maternal Mortality Ratio at 505 deaths per 100,000 live births, and average life expectancy of 51years. The population structure of Uganda has a large less than 15 population as below;

***Table 1: Summary of population trends of Uganda 1990, 1995, 2000, 2005 and 2010***

| Indicator | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|
| Population (thousands) | 17.711 | 20.954 | 24.433 | 28.699 | 30.796 |
| Population sex ratio (males per 1000 females) | 99.1 | 99.1 | 99.5 | 100 | 100.4 |
| Percentage aged 0-4 (%) | 19.8 | 20.1 | 19.8 | 19.6 | 19.4 |
| Percentage aged 5-14 (%) | 28.3 | 28.9 | 29.6 | 29.7 | 29.3 |
| Percentage aged 15-24 (%) | 19.3 | 19.5 | 19.9 | 20.2 | 20.5 |
| Percentage aged 60 or over (%) | 4.3 | 4.4 | 4.1 | 4 | 3.8 |
| Percentage aged 65 or over (%) | 2.7 | 2.7 | 2.8 | 2.6 | 2.5 |
| Percentage aged 80 or over (%) | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| Median age (years) | 15.9 | 15.5 | 15.3 | 15.3 | 15.6 |

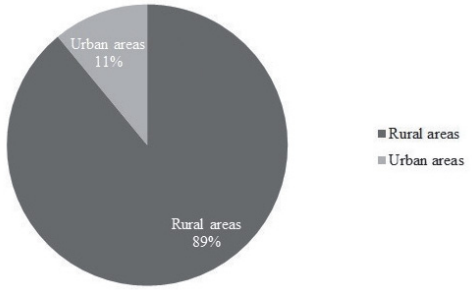
*Source:* United Nations world population prospectus revised 2008

### 3. *Major health indicators*

The indicators that will be considered in this sub section are based on the WHO country profile of 2006, they include analyzed trends of; Proportion of registered birth and fertility rate, peri-natal mortality Rate, antennal care nutrition, malaria in pregnancy, and family planning:

#### *3.1. Proportion of registered birth*

Fertility rates in Uganda are gradually falling, currently Uganda's fertility rate is 6.24 children per woman's reproductive life time from 7.02 children in 1995 (WorldBank, 2011). According to the results of a Uganda demographic and health survey (UDHS, 2001); Fertility in Uganda varies by place of residence in relation to different socioeconomic and cultural factors-a clear trend is characterized by rural urban difference where in rural area women fertility rate is 7.4 children compared with 4.0 children per an urban woman. (See figure below)



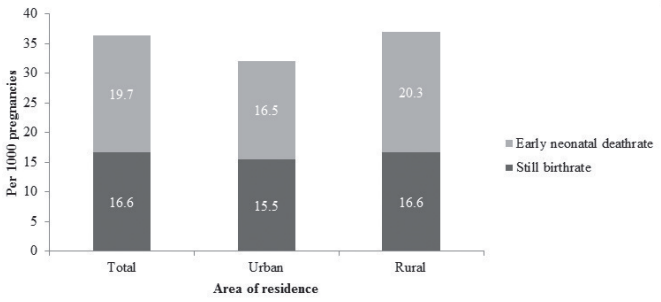

*Source:* WHO Uganda profile, 2006

Figure 3: *Birth according to area of residence 2006*

In this figure according to the WHO, Uganda's estimated total number of births (in thousands) was 1366 for 2005 were only 11% birth occurred in the urban areas as the pie chart. There are enormous factors behind the differentials in family size between rural and urban areas as mentioned above.

#### *3.2. Peri-natal mortality Rate*

One outstanding survey in 2006 reported that peri-natal mortality rate was 36 per 1000 pregnancies in total, while, rural areas women showed a higher rate (UBOS & Macro international, 2007). And, over time trends data shows that less than 50% of births in the five years 2000/1 to 2006 survey took place in health facilities. Peri-natal mortality rate consists of stillbirth rate (refers to number of babies born dead after 24 weeks' gestation per thousand total births) and early neonatal mortality rate (death occurring during the first seven days of life) as the figure below elaborates.




*Source:* WHO Uganda profile, 2006

Figure 4: *Total Perinatal mortality rate (2006)*

#### *3.3. Antennal care*

The good news in view of progress regarding access to healthcare is that of increasing numbers of antenatal care (ANC) visits by women in Uganda. Considering that traditionally, mid wife (birth attendants) work has been infiltrated by local traditional birth attendants, the latest survey in 2004 provided data showing a considerably change. The number of women who attended ANC visits increased reasonably. The survey by the department of making pregnancy safer (WHO, 2006) also clearly showed that approximately 97% of women who gave at least a live birth received ANC, and 95% did so from a skilled provider. Conclusively, since 1988 as the base year, statistics are showing progressive results in antenatal visit of pregnant women in Uganda over a long period.

#### *3.4. Nutrition*

Given the high total fertility rates of regions and the median women age at first marriage for age blanket 25-49 of 17.8, and a low first sexual intercourse median age of 16.6 years there is a high likelihood for poor nutrition of young mothers and their babies. According to the latest survey, 64% of pregnant women were reported to be anaemic. Of those who were anaemic, majority were reported to suffer from mild (31%) to moderate anaemia (31%) (WHO, 2006). This is also associated with low baby birth weight; according to the 2006 survey-where over 11% of babies were reported to weigh less than 2.5 kg at birth in surveyed hospitals.

*3.5. Malaria in pregnancy, and family planning*

At national level, surveys show an increase in contraceptive use. Modern contraceptive methods use was ranging between 17% to 18% of married women in the 2001 and 2006 survey reports. Utilization of modern contraceptive methods is much higher among the educated groups and in urban areas than in rural areas. Malaria is still one of the leading causes of death in Uganda yet pregnant women and children are the most vulnerable.

## 2. Organizational and Financial Aspects of Public Health

This section will exemplify the organisation of the health system (provision, human resource, facilities and coverage), the health financing aspects (actors in the healthcare financing, methods of funding healthcare) as well as major health programs.

### *1. Provision of health care in Uganda*

The country enjoys a decentralized hierarchy of the health system, the public, private sectors and donors often play a major role. First, the private side consists of the private not for profit organizations (PNFPs), private health practitioners (PHPs) and the traditional and complementary medicine practitioners (TCMPs) Second, the public side constitutes of central government and the district health services under the Local Government Authorities. Below we have a summary of the health care system hierarchy with the capacity of population expected at each decentralized level (MoH, 2000); MoH and other National Level Institutions are the steward bodies.

***Table 3: Summary of healthcare system hierarchy with capacity expected at each level***

| Summary of the health care system hierarchy with capacity expected at each level |
|---|
| 1. National Referral Hospitals (30,000,000 population) |
| 2. Regional Referral Hospitals (2,000,000 population) |
| 3. District Health Services (District level, 500,000 population) |
| 4. Referral Facility - General Hospital (District level - 500,000 pop) or Health Centre IV (Country level - 100,000 pop) |
| 5. Health Sub-District level (70,000 population) |
| 6. Health Centre III - (sub-country level - 20,000 population) |
| 7. Health Centre II - (Parish Level - 5,000 population) |
| 8. Health Centre I - (Village health Team - 1,000 population) |

*Source:* Uganda MoH, 2000

By the set up of the hierarchy illustrated above, the main hospital located in the capital is the overall and final referral point for health service. However, this is always abused due to lack of a clear gatekeeper role. Lack of a clear referral system in the health system leaves Mulago hospital and regional referral hospitals over crowded leading to poor patient care, bribing of medical officers for care and outage of essential drugs. The photo below is a snapshot of patient environment in Mulago main referral hospital

*Source:* National Geographic / Super Stock (Stock Photography Category)

Figure 5: *Picture of the Maternity ward at Mulago Hospital in Kampala*

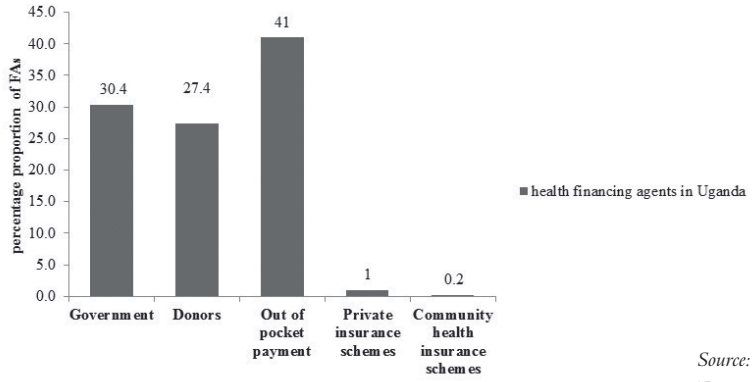
### 2. *Physician situation*

The country has only one doctor and 13 nurses for every 10,000 people (IRIN GLOBAL, 2011). Explicitly, this is far short of the minimum of 23 physician's ratio for every 10,000 people that the World Health Organization recommends. Challenges related to the physician situation in public health facilities include: only about half of the approved nursing positions are filled; there is a wide urban rural imbalance in the distribution of physician hindering health service delivery. Based on the 2002 national census, the central region housing only 27% of the total population is amassed with 70% of the medical doctors, 76% of the all dentists and 81% of all pharmacists operation leaving other regions in physician deficit. Uganda has only 86 pediatricians to serve its 15 million less than 15 years of age population or to put it otherwise, its 1.4 million children born annually. Finally, remuneration and other human resources threats have led to shift of physicians to lucrative callings like politics or migrating. It's worth noting that in Uganda, like other developing countries, traditional healers continue to play a viable role (covering the existing gap of physicians) in mental health, broken limbs and social problems (a sort of counseling and social work especially to the poor).

### 3. *Health sector funding*

Over years, health expenditure as a proportion of government's expenditure has been maintained around 9.6% including government subsidies to the Private Not for Profit (PNFPs) and its training institutions as well as a few private hospitals. Government expenditure on health thus remains below the Abuja Declaration target of 15% (2001 in Abuja Nigeria, Heads of States of the African Union member states committed to allocating at least 15% of annual budgets to the improvement of the health sector). With Uganda not surpassing 10% of public expenditure, less than 1% of GDP of public resources are available for the health sector (Preker, Langenbrunner, & Jakab, 2002).

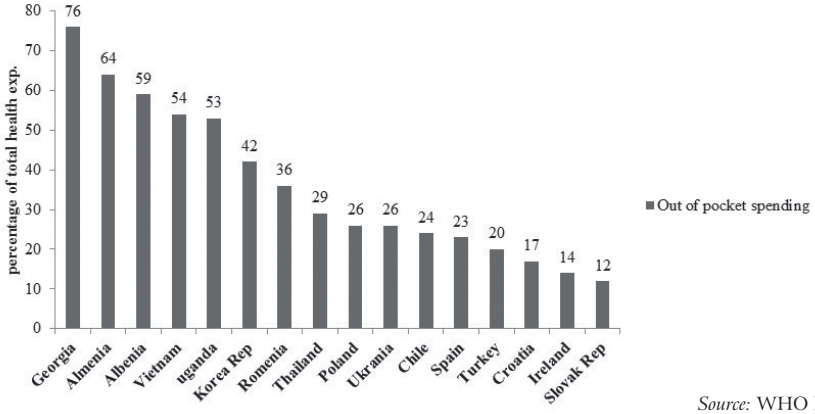
Over previous financial years, there has been increasing budget support funding with diminishing transfers through projects. Project funding reduced from 58% of health sector budget in 1999/00 to 24% in 2002/03 while budget support increased from 42% to 76% in the same years. A big proportion of the donor resources (64% in 2000/01) were passed on to private financing agents. Financing Agents (FAs) especially national financing board (NFB) and PNFPs, yet the biggest expenditure goes for administration not actual health input and services (MoH, 2009), ( MOFPED, 2002). In the 2000 analysis by World Bank institute of development studies, Uganda was the highest donor dependent among selected countries (Malawi, Zambia, Kenya, Ethiopia, Tanzania, and Lesotho, Ghana, Nigeria etc.) (Hsiao & Shaw, 2007). The question here is to what extent donors are driving national health priorities in Uganda and whether their priorities are compatible with the national demands.




*Source:* Data from Ministry of Health report 2009

Figure 6: *Healthcare financing agents in Uganda*

Households constitute a major financing source of the National Health Expenditure at 41% and this is followed by the donors at 27.4%, central government at 30. 4%. Note that, in the figure NGOs contribution is added, if not added, government contribution or donors may reduce because some projects are funded by donors through NGOs. A comparative view with other countries show Uganda's out-of-pocket spending to be high-Uganda lies 5th after Vietnam at a percentage score of 53%; this implies a catastrophic burden to the poor.




*Source:* WHO European health for all database and world health statistics 2006

Figure 7: *Household out-of-pocket spending*

### *4. Health Coverage*

Access to health services is still limited by geographic inaccessibility to health units especially in rural areas and financial limitation for the poor. The government and partners agreed on a basic package called the National Minimum Health Care Package (UNMHCP) as an integrated approach focuses on four clusters of interest namely cluster I, health promotion, disease prevention and community health initiative; cluster II, maternal and child health; cluster III, control of communicable diseases; cluster IV, control of non communicable disease (MoH, 2009). The gap between required and available funds to fulfill this package is very wide; therefore, it affects availability of drugs and physicians in many health units.

#### *4.1. Description of major public health programs*

In this section we provide a summary of health period corresponding to health actors and policy and policy contents since independence of Uganda (1960's-2010);-

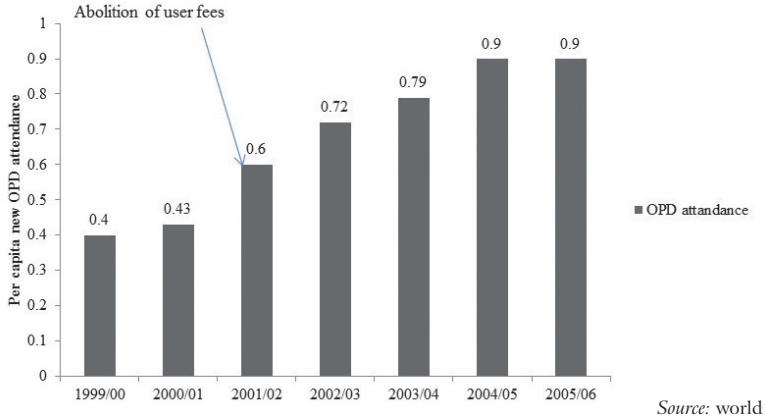
***Table 3: Summary of health policy in Uganda***

| Period | Actor | Policy | Policy content |
|---|---|---|---|
| 1962 to 1971 | Ministry of Health<br>Colonial office<br>Missionaries | Post colonial equity of access<br>Unequal health status<br>Low health status | enlarging of health units<br>emphasis on Primary care |
| 1972 to 1979 | MoH<br>Churches<br>Military tribunal | Military decrees<br>Military contracts<br>Large infrastructure | Minimal charge policy<br>Military take over |
| 1980 to 1985 | MoH<br>Donors<br>Small NGOs<br>Churches | IDPs/insecurity<br>Malnutrition/anemic children<br>Escalating AIDS cases<br>Collapses infrastructure<br>• Un functional health system | Emergency/Relief<br>Weak PHC policy<br>Government / military policy<br>Regional health services |
| 1985 to 2010 | Donors<br>NGOs/ churches<br>MoH<br>institutionalize Pharmaceutical groups<br>National Drug Authority<br>Community and private health insurance<br>• The media/press | Prioritization of sectors/programs/ diseases<br>Inefficient resource use<br>Political legitimacy/involvement of parliament (health insurance law etc)<br>Inappropriate health care<br>Organization (crisis with availability of drug in gov't facilities, human resource crisis)<br>Inequity in quality health care (rural vs. urban)<br>Fragmenting health system<br>Basic health care package<br>Abolition of cost sharing<br>Health insurance (community, and private insurance) | Selective Primary Health Care<br>User-charges<br>Reconstruction of physical structures -First Health Project<br>No further expansion of health facilities<br>Community Health Works<br>Civil service retrenchment<br>Decentralization<br>Decentralizing mental health care to lower health centers<br>Regionalization of health system<br>Community Health including community health insurance and AIDS Project<br>Dual system in public hospitals |

*Source:* MoH National Account, 2000, 2006; MoH Health sector Strategic plans, 2000/1, 2004/5

Among policies summaries above, the key healthcare reforms have been decentralization of the health system and abolition of cost sharing in public health facilities. Abolition of cost share was accompanied with introduction of a dual system (public wing and private wing) in public hospitals affected in March 2001 (MoH, 2009). Abolition of cost sharing resulted into a huge increase in the out of patient department (OPD) new attendances (these are curative first visits for a given illness episodes) as seen in the figure below. It's observable that from 0.4 per capita utilization to over 1 and in some district to 2.5 (WHO, 2006). The figure below illustrates the new OPD attendances at public and PNF8P health facilities- 2001indicates a sharp increase in OPD due to abolition of fees in public facilities.

However, the abolition of user fee policy compromises the promotion of alternative methods of health financing including community health financing and health insurance.




*Source:* world health statistics report 2006

Figure 8: *Trend of outpatient department (OPD) attendance over 7 years*

*4.2. Community health Insurance (CHI) in Uganda*

CHIs in Uganda were a brain child of foreign aid organizations in the second half of the 1990's but membership has remained low-by 2007 only 30,000 persons were registered to a CHI. Majority of schemes are hospital-based. In its annual report in 2009 about 22 schemes were registered covering 100,000 people (Basaza, Criel, & Van Der Stuyft, 2008). *CHIs operation in Uganda in such that:* Schemes exist in only 9 out of 82 districts. Premium was estimated to be on average US$ 5-10 per person annually, the schemes have a requirement for co-payment which varies, and most of the schemes cover both inpatient and outpatient care. CHI members save on health care in relation to Non scheme members who would pay an average of US$5.00 for out-patient case or US$15.00 for an inpatient case. However, it's needless to note that, these schemes are not self sustainable, a large proportion of their costs are reimbursed by affiliated NGOs or government.



## 3. Strength and Weaknesses

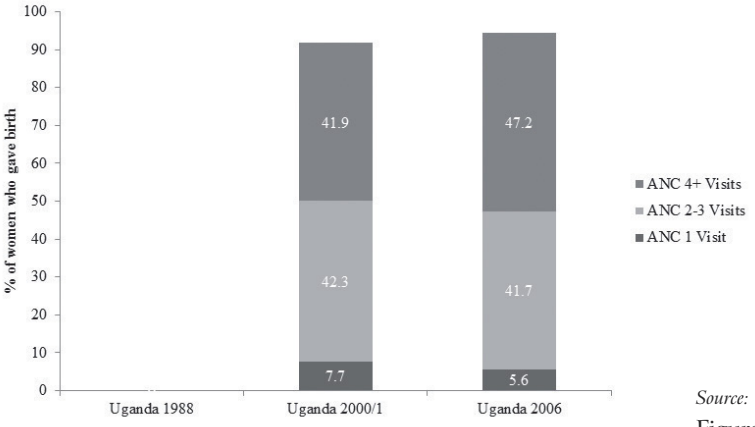
### *1. Strengthens of the Uganda health system*

*Decentralization has and will try to extend services to the grassroots:* Priority is being given to further decentralization of the health care delivery system for better access to quality care, improve research for cost-effective interventions targeted at the most important health problems of the rural population, maintain a highly efficient and accountable local government as well as increasing capacity building among rural health workers. Therefore, decentralization provides greater attention and support to health promotion, disease prevention and empowerment of individuals and communities for a more active role in health management.

*Acknowledgement of poverty as a barrier to quality healthcare and wellbeing:* through the sector strategic planning, the Ministry of health acknowledged that the turning point for the health sector was to add poverty eradication as a runway to good health (elaboration of a 10 year National Health Policy (NHP) and the 5-year Health Sector Strategic Plan (HSSP) 2000/01 – 2004/05 was done to stream line this). The Poverty Eradication Action Plan (PEAP) recognizes that provision of good health is necessary to improve the quality of life of an individual in terms of his/her general wellbeing. Today's Health Financing policies are much important and derived from the broad government framework provided by the Constitution.

*Increased access to basic healthcare:* There has been constant increase in many indicators for better accessibility, for instance the number of pregnant women attending ANC as discussed in the previous sections has been on a rise since 1988. The Graphical representation of this scenario clearly indicate continuous improvement in healthcare seem behavior. NB: the gap from 100% represents those women who miss/ never attended ANC; data for 1988 is not available.

*Introduction of Universal Primary Education (UPE) and Universal secondary education (USE):* In the Long run UPE and USE are likely to bring about behavioral change regarding health seeking, sanitation, health and early pregnancies thus reducing fertility rate (given our current fertility rate of 6.24 children per woman), reduce mortality rate of Under 5 and other conditions like anemia and low birth weights related to ignorance and young parenting.

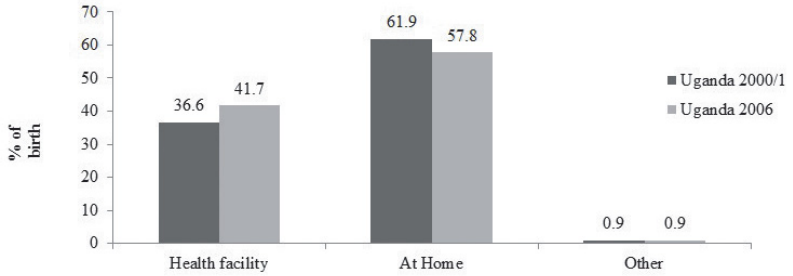



*Source:* (UBOS & Macro international, 2007)

Figure 9: *Number of Antenatal Visits*

### *2. Major Public health Challenges*

In Uganda communicable diseases are the major cause of death in Uganda whilst women and children are worst affected, this is an outstanding challenge for the Health sector today. Although Uganda has enjoyed a progressing record in fight HIV, currently HIV Aids is estimated at 1 million adults (57% of them women) and 187,000 children are HIV positive. Recent records show that, an average of 6.4% of Ugandans aged between 15 and 49 years are estimated to be HIV positive, and with urban residents being more likely to be infected (10.1%) than rural residents (5.7%) (MoH, 2009). HIV also fuels the TB epidemic – 50% of HIV-positive people have TB, and 30% of them will eventually die as a result. Uganda ranks among the world's top 22 among TB high-burden countries, with an estimated annual risk of infection of 3% equivalent to 150−165 new smear-positive TB cases per 100,000 per year (MoH, 2009).Limited access to health services: Rural areas have least access to basic health care, safe water and sanitation. This, alongside poor hygiene, creates high rates of diarrhea disease and death in children. Less than 50% of mothers deliver in health facilities, the largest number of mothers mostly in rural areas deliver at home giving an estimate of more than 60% of the new born each year.




*Source:* (PRB, 2010)

Figure 10: *Place of delivery*

Home delivery is closely related to lack of healthcare facilities in the neighbor, means of transport to the health unit, as well as other monetary related factor. However, we can't disregard the other factor like limited sensation of pregnant women, level of education and cultural factors.

Related to the above point, poor infrastructure such as bumpy-dusty roads, poor power supply, and high transport costs to referral hospitals. All these combined with the prevailing high poverty levels are an eminent barrier to mothers in labor and patients seeking health care.

*Poor nutrition of mothers and babies:* studies have shown a worsening situation over five, in which an increase of 8 percentage points between the two surveys (2000/1 UBOS survey and macro international inc. 2007) release. The implications of low weight babies are diverse including higher chances of death due to low immunity among other.

## 4. Conclusion

A variety of health reforms have been implemented to enhance healthcare funding and delivery in the country. Despite these rigorous planning and policy changes in Uganda, out-of - pocket spending is still a barrier to household access to quality care. The government and the donor community have embarked on health as a right and an integral sector enhancing poverty eradication unfortunately challenges of physician imbalance in distribution and limited primary health care providers is holding health improvement hostage as indicated by the high rate of preventable communicable diseases and high pregnant women were anaemia, however, several hundreds of independent health providers make the health system fragmented with little or no coordination from the government which raises a problem of duplication of services. Therefore, without recent increasing in funding from donor countries, NGOs and global fund in funding projects, the health sector in Uganda is bound to collapse. Given this background, first, the extent to which donor priorities are compatible with local demands need more research. Second, unless the government reconciles the abolition of fees policy in the public health unit with community health insurance through clear policy reform, out of pocket payment will sky rocket and bribery in government hospital will further degrade the virtues of health as a right for all. Finally, this paper's analysis was largely a desk exploration of existing data. Its limitation may include; lack of more recent data and alternative sources. However, the researcher endeavored to counter examine the existing body of literature both published and unpublished.



## 5. References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SUSTAINABLE REGIONAL HEALTH SYSTEMS

# The organization of the Health System in Brazil: a clipping from the policies of decentralization and regionalization of the Unified Health System (SUS)

Diogo Pataro*

A B S T R A C T

**Background:** Decentralization and regionalization are the main structural axis of the Brazilian National Health Policy and the Unified Health System (SUS). Such methodology of health management allows better identifying local demands and planning more specific targets to assist the local context.

**Methods:** We performed bibliographical research colleting previous studies using key words in the health research databases. Simultaneously, we referred to Brazilian Ministry of Health to analyse the current policy of regionalization in the country.

**Results:** The main strengths of the SUS are: free access to services, universality, and free distribution of medicines. On the other hand, the results showed an insufficient number of physicians in health services, as well as users' dissatisfaction with the delay to get health assistance. With respect to the regionalization, we found a considerable advance in this policy at the state level, but there is slowness in implementing the same at the municipal level.

**Conclusion:** The theoretical analysis indicates that albeit SUS aims social justice, there is a meaningful part of the population which still is unassisted. Thus, it is necessary to invest more actions which foment the decentralization policies in municipal level in order to fulfil the SUS enduring gaps.

*Key words:* decentralization, regionalization, Unified Health System



## 1. Background

The SUS is a public health system in Brazil, regulated by the Organic Law of Health (Law No. 8080/90) that was implanted in the Constitution of 1988.One of its major goals is to provide services to Brazilians without restriction or prejudice made by socio-economic status, race, colour and social class. Thus, the SUS services are universalized, comprehensive and free to the entire population, which gives the Brazilian health system a commitment to the social justice.

Decentralization, by having a large cross with the other principles governing the operation of the SUS, is considered as the axis of the other guidelines in the basic health care in Brazil. And yet, according to Gomes and Beltrammi (2008), regionalization is conceived as the inducer principle of the decentralization, since it is regarded as one of the strategies for achieving the nuclear division of the responsibility of the health between the governments and for promoting the health administration in the local network.

The Health Systems built from centralized models and with little participation of the local organizations tend to have low efficiency in the implementation of health policies (Cesar, J., Ramires, D. L., & Gerais, 2010). Under this assumption, the Unified Health System (SUS) in Brazil provides the establishment of decentralized health systems in which the responsibility for the health actions is deposited in the hands of the local managers and that is precisely what allows the regional health services to consider the particular aspects of a given area as the socio-economic, cultural and epidemiological conditions.

The decentralization and consequently the regionalization are therefore arguably challenges, but are highly necessary and relevant in a continental country with great diversity like Brazil. The Brazilian current absolute population, according to the Brazilian Institute of Geography and Statistics - IBGE, is over than 190 million people. In addition, Brazil is the largest country of South America, and the third largest in the world, and it has calculated its territorial extension in 8,514,876.599 km$^2$ (Ibge, 2010).

Therefore, a country with such characteristics is obliged to develop public health policies that cover local differences and that are congruent with the socio-economic context and to consider the dynamics of the spaces in which the articulated health actions will be developed.

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## 1. *The Brazilian Health System, its history and bases*

The situation of the Brazilian Health System in the twentieth century was marked by the absence of public hospitals. Instead of these, there were strictly charitable organizations maintained by the Church and volunteers. In this period, Brazil had its economy sustained in the coffee export, and it required that the urban spaces were cleaned up; causing the exclusion of factors that could result in the spread of contamination. Brazil was internationally recognized as a great reservoir of communicable diseases, which invariably damage the export. In this period, health campaigns had a militaristic approach to disease eradication and social exclusion (Locks, 2002).

The first intervention of the Brazilian state in networking assistance was from the 20s, with the creation of the CAPs (Retirement and Pension), which were public entities, managed by both employers and by employees and had a strictly care goal.

The CAP's were directed only to employees who were involved in activities related to exports and trade, which according to Luz (1978), these were essential activities for the development of the capitalism in the country.

Thus, health has become dichotomized between the public health and the medical welfare. The public health was in charge of developing collective action, as the salaried class was to be assisted with individual care services developed by the CAP's (Lokcs, 2002).

However, it is in the 50's, through the peak of the developmental movement in Brazil, in which this dichotomy becomes more prominent. In the 70's he National Health Policy was implemented. It prioritized the expansion of the private medical services. Thus, until the 80's, the exclusive model of health was precarious and disadvantageous to the poorer classes. Until then, the health was not a social right. Only those citizens who were able to pay for private health care or those who worked and were assured by the government had access to care.

During the 80s, the country had to provide opportunities for popular demands in terms of their political openness, and it was just for demonstrations and protests in the society which the "health reform movement" arose; and that had as its purpose the complaint of the precariousness of the health services. The direct consequence of this movement was the proposal for a health reform in the country, and that in turn led to the creation of the Unified Health.

So in 1986, with the completion of the VIII National Conference on Health – CNS, the Health Reform was approved and its proposals were included in the Constitution. In addition, the CNS promoted the implementation of demonstrations through a democratic debate among the civil society organizations, health professionals and political representatives, which allowed the establishment of a consensus among their interests. Thus, Lokcs (2002) asserts that through the implementation of the 1988 Constitution emerges the Brazilian National Health System which guarantees access to health for all people universally.

## 2. *The SUS and its current organization: links between concepts and structuring principles*

The SUS is a public system in which all people regardless of race, colour, employment status, social class and housing are entitled to enjoy their services. In addition, the SUS administration is managed by federal, state and local governments, seeking a decentralization of responsibilities for health services, a more effective approach to the different living conditions of the various population groups living in Brazil.

The Health System is organized and regulated by the Organic Health Law (Law No. 8080/90), and has a very wide network of care and services and ranges from prevention and health promotion, primary care visits to organ transplantation and in addition, all health actions developed by the SUS guarantee the population an open, universal and free access to the health system. Some of the activities that are socially relevant are performed by SUS: vaccination campaigns, prevention, health surveillance (such as monitoring food) and health promotion activities.

Therefore, it can be said that the current health policy in Brazil, enshrined in the Constitution of 1988, promoted the incorporation of definitive changes to the public health in Brazil. First, the Unified Health System adopted the "expanded concept of health" - established by the World Health Organization in 1946 - as one of its guidelines, which is possibly one of the biggest news in the National Health Policy, since the health was associated with several other conditions that were hitherto neglected.

With the adoption of the expanded concept of health, SUS considers the physical (geographic conditions, water, food, and housing), the socio-cultural and economic (employment, income, education, habits, etc.) environment as well as the biological factors (age, sex, genetics) as determinants of the population health. Therefore, the health becomes a human factor tied to the living conditions, which in turn, are highly variable and thus require specific management and must be targeted to each location.

Furthermore, with the implementation of the SUS in Brazil, the health is integrated into the Brazilian social security system. According to the text of the 194 Article of the Constitution, the social security "includes an integrated set of actions and initiatives of the government and the society to ensure the rights to health, welfare and social assistance" (Nacional, P. Art, Lei, Disposi, & G. Art, 1990).

This means that the public health in Brazil is going to be a relevant factor that integrates social and other social values by allowing citizens to take ownership of public health services thereby ensuring greater equity in social relations.

Parallel to the broader concept of health, the SUS also brings two fundamental concepts that are precisely the elements that guide the organization and operation. The first is the system, which involves the integration of various services and institutions and the interaction of the three governments (federal, state and municipal) and of the private sector in joint actions seeking to achieve the same goal, which is the satisfaction of the need for health and well-being of the population (Cunha, J., P., P., & Cunha Rosani, R., E., 1998).

The second concept is that of *uniqueness*, which concerns the application of the doctrine and the same models of the organization of the health care throughout the country. However, this concept must be analysed carefully so that it is not confused with the homogenization of forms of health management in different parts of Brazil. In fact, uniqueness refers to the existence of a set of doctrinal and organizational principles that run throughout the health system, and it is precisely these principles that ensure the consideration of the specific local health services (Cunha, J., P., P., & Cunha Rosani, R., E., 1998).

Ultimately, the uniqueness proposes precisely the health approach taking into account the local contingent and the unique conditions that each community and population contain.

Therefore, based on constitutional principles, the SUS developed doctrinal and organizational principles which are explained below in order to have a better understanding of the Brazilian health system (Nacional et al., 1990).

The first doctrinal principle is the *universality* which is the guaranteed access to health services to all people regardless of race, sex, ethnicity, income or occupation. According to this principle, health is a universal right and it is the duty of the state to plan, build and maintain services to ensure the population access to effective health actions (Ministério, S., 2000).

The other principle is *equity*, which provides health care at all levels of the society. However, the equity also requires that the health services should focus on areas of greatest need and necessity, considering the particular characteristics of each local and population. Ultimately, we can say that this principle is aimed at social justice. (Ministério, S., 2000).

We could say that there is the doctrinal principle of *comprehensiveness*, which sees the human person as made up of multifaceted and diverse needs throughout life. This principle calls for health services to attend to specific needs of individuals or groups who are demanding health care that are private, such as elderly, young, pregnant women and HIV. Moreover, the comprehensiveness principle gives the SUS the construction of humanized services that consider the vicissitudes of each user (Ministério, S., 2000).

From these three doctrinal principles, it was originated some guidelines that are systematized in the organizational principles of the SUS and they have the function of governing the implementation of the practices of the health system. These principles will be described following Cunha, J., P., P., and Cunha Rosani, R., E. (1998) studies and the Constitution of the Federative Republic of Brazil (Brasil, 1988), by giving greater attention to the decentralization and regionalization, which are of the most interest in this work.

One of the major organizing principles of the SUS is the *decentralization*, which is based on the redistribution of the power and responsibilities on health among the three powers (federal, state and municipal), this means that the health services can be managed by authorities that are very close to the socio-economic reality and cultural life of the citizens, thus allowing a higher quality in health care.

The *regionalization* can be understood as the division of the geographical areas and the stimulation of all services and health programs that are enclosed within the same area. Thus, the regionalization allows a specific configuration and management of the health services and promotes an approach to these epidemiological conditions and contexts faced by people in everyday life.

There is also the principle of *hierarchy* that in turn, is the division of the health system in levels of care, promoting the joint provision of such services and the distribution of reference centres with different degrees of complexity in different regions. The ranking goal is to maximize the solvability of the health network promoting the interaction among other regions and other services.

The last organizational principle is the *popular participation*, which gives a wide opening for the local population to promote democratic debates, to formulate strategies and to evaluate and monitor the performance of the National Health Policy.

The popular participation is done through the Health Councils that are deliberate bodies composed of representatives of the whole society. Thus, the health system in Brazil, through the principle of the popular participation, also encourages and invites citizens to participate in the organization of the health system.

### *3. Decentralization and Regionalization: builders of a regional health network*

According to Gomes, D., and Beltrammi, M. (2008), decentralization is a crosscutting principle to other principles and, furthermore, is configured as a structural axis of the Unified Health System (SUS) as it allows the articulation among the federal, state and municipal levels. The same author also states that the regionalization can be considered as one of its main provisions, and therefore regards it as its main operational tool of the decentralization.

Thus, we can say that the decentralization and the regionalization are closely related and directly involved in the implementation of the SUS and in the application of the other organizational principles. Cesar, J., Ramires, D. L., and Gerais, M. (2010) claim that in Europe the methodology of regionalization has been applied since the 1920s, in Brazil only with the establishment of the constitution of 1988 that the systematization of the regions to the health care has happening.

The regionalization has gone through a long process of refinement over the years in Brazil, however, in 2001 and 2002 the Standards for Health Care Operations (NOAS) considerably deepened the concepts and references of regionalization from the definition of micro-regions, macro-regions and of the construction of the Regionalization Master Plan (PDR) and investment (PDI), which have become essential tools for the planning of the regionalization (Gomes & Beltrammi, 2008).

In addition, the National Health Conferences fulfilled an important role for the decentralization and the regionalization could be taken as the main strategies for achieving the other principles of the SUS, especially the twelfth and thirteenth National Health Conferences that took place in 2002 and 2007 respectively. Furthermore, Gomes, D., and Beltrammi, M. (2008) argues that these two conferences "Strengthened the guidelines of the regionalization encouraging the quality of the access and giving priority to basic and medium complexity, such as levels of essential care for the full performance of the municipalities and thus favouring the full performance of the health regions" (Gomes & Beltrammi, 2008, p. 162).

The Regionalization can be synthesized, therefore, as an abstract and artificial division of the geographical space designed to allow better planning and management of the health conditions and factors that coexist in the same location. For Cesar, J., Ramires, D. L., & Gerais, M. (2010), one of the main advantages of this health approach is that the states and the municipalities can better meet the demands of the population and study further the local context and thus create individualized and targeted resources exactly to that region.

Considering these points, it is worth noting the definition of the Ministry of Health, which sees the regionalization as follows: "Territorial clippings are placed in continuous geographic space. Identifying them is the responsibility of the municipal and state manager based on the existence of cultural identities, economic and social networks as well as in communications, infrastructure, transport and health. In these regions, the actions and services must be organized in order to meet the demands of the populations of the cities linked to them, ensuring access, equity and completeness of the health care site" (Ministério, S., 2006, p.23).

## 2. Aims

Knowing the Brazilian Unified Health System (SUS), its history and current organization, and jointly analysing the organizational principles of decentralization and regionalization, which by the authors studies, are the main structure for the implementation of other principles of National Health Policy (Gomes & Beltrammi, 2008).

In addition, it has as objective to accomplish a critical analysis of the core strengths and on the major problems faced by the SUS at present, and thus, to develop a study on the

current performance of the regionalization of the health policy in the Brazilian state, scoring their progress and stating the deficiencies that still exist.

## 3. Methods

We performed a literature search in which scientific studies were found later on the same topic and then we made a careful and systematic review of the discussed literature. The bibliographic material was collected through key words (SUS, regionalization, decentralization) in the following databases: SCIELO PUBLIC HEALTH, MEDLINE, LILACS, and BIREME. Attached to it, we consulted strategic management and operating tools of the National Regionalization of SUS, as follows: Investment Plan (IDP), Regionalization Master Plan (PDR) and CGR (Regional Management Council), of some states in different regions of Brazil.

We also consulted databases Brazilian Ministry of Health for information about the current policy of regionalization in the country, and then develop a critical view on the subject.

To evaluate the performance of the SUS in Brazil today, we used data from the System of Indicators of Social Perception (SIPS), prepared in February 2011 by the Institute of Applied Economic Research (IPEA) of the Strategic Affairs Secretariat of the Presidency.

## 4. Results

The Institute of Applied Economic Research (IPEA), managed by the Strategic Affairs Secretariat of the Presidency, which has great importance in setting public policy, in 2010, conducted a survey to assess consumer perceptions about the services provided by Health System (SUS). It starts with the assumption that users, participating in the health network every day, are an important part in the public system, as they used or have followed a family member who has used the services of the SUS.

The analysed data led us to study the following evaluated services provided by SUS: Family Health, distribution of drugs, specialist doctors, urgency / emergency services and health centres.

People said that the SUS service that is less effective is the urgency and emergency, which received 31.4% of negative evaluations. At the same time, the services of the health centres were assessed with the lowest percentage of positive evaluations, being considered by 31.1% of the population as bad or very bad. And the Family Health Program was considered the most qualified by the population, 80.7% of the population visited for the research, said that this service is good or very good (Ipea, 2011).

The strengths of the most prominent SUS mentioned by respondents were, in order: free access to services, which received 52.7% of mentions, followed by universal healthcare and without distinction, which was cited by 48.0% of the interviewed population. Finally, the distribution of free drugs, which was mentioned by 38.8% of the respondents (Ipea, 2011).

On the other hand, the lack of doctors and delay in treatment were the most cited problems during the interviews. 58.1% of the population indicated that the presence of a few medical services is a barrier for the service has a highest quality, in addition, 35.4% complained of the delay to be assisted in jobs / health centres or hospitals, and 38% cited the delay in getting a service with a specialist (Ipea, 2011).

In addition, the overall quality of SUS was rated similarly by men and women, and the results showed that in the opinion of 29.7% of men and 28.17% of women, these services are very good or good (Ipea, 2011).

Moreover, to evaluate the regionalization we used the expression data of the instruments of the strategic and operational management of this policy, such as the Regionalization Master Plan (PDR), Investment Plan (IDP) and the formation of Regional Collegiate Management (CRG). To Gomes and Beltrammi (2008), the administrative monitoring of these policy measures indicates the possible outcomes of actions from regional groupings.

The creation and development of Regional Collegiate Managers in different parts of the country is a guide for quantitative movement by the states toward regionalization. Once formed the CGRs, they must be communicated to the Bipartite Commissions (municipalities and states) and tripartite (municipalities, states and Union), and in May 2008, there were 312 CGRs, distributed in 14 states and 4,118 municipalities. Below we will show the CGR numbers and the number of municipalities that make up each state:

- Alagoas (5 CGR, 102 Municipalities)
- Bahia (30 CGR, 417 Municipalities)
- Ceará (22 CGR, 184 Municipalities)
- Espírito Santo (8 CGR, 78 Municipalities)
- Goiania (16 CGR, 246 Municipalities)
- Minas Gerais (75 CGR, 853 Municipalities)
- Mato Grosso do Sul (3 CGR, 78 Municipalities)
- Mato Grosso (16 CGR, 141 Municipalities)
- Piauí (2 CGR, 47 Municipalities)
- Paraná (22 CGR, 399 Municipalities)
- Rio Grande do Sul (19 CGR, 496 Municipalities)
- Santa Catarian (15 CGR, 293 Municipalities)
- São Paulo (64 CGR, 645 Municipalities)
- Tocantins (15 CGR, 139 Municipalities)

What was seen through the experience of implementing a regionalization policy in three federal units in different regions of the country was that these states were able to effect the creation of their CGR and prepare their RDP and IDP work certainly required in the management of the local effort.

However, it was observed long delays at the municipal level, since the dynamic articulation and flow of reference and against reference between the regional bodies that have become slow and inefficient due to the lack of co-management relationships established between the municipalities.

## 5. Conclusion

The discussed results reflect, in addition to the positives, the main difficulties and characteristics of the Brazilian health system, such as the lack of human resources at work (especially doctors) and the long term that is spent for appointment scheduling.

The SUS is the largest social inclusion policy in Brazil and it was born with the democratization of the country and it also has the same principles aimed at ensuring the social justice, however, we can note that in reality these precepts are abstraction in many places, as the accessibility and quality of the services are compromised by the inertia of the operation of some activities performed by the SUS.

Moreover, as we already mentioned, the extended health concept advocated by the World Health Organization was

adopted by the SUS, so we try a complete biopsychosocial well-being to the population, however, it is easy to see that such state is utopian and is not consistent with the present social reality, since part of the population still complain about extremely primary questions for a health service, to wit: the opportunity to consult with a medical specialist in a timely manner.

The results allow us to view representational elements of the regionalization of the health system in Brazil, and these in turn allow us to say that Brazil, with its continental dimensions, meets on decentralization and regionalization a possible solution to manage the specificities of each region of the country.

We conclude that the SUS, completing its 23 years of existence this year, has already had major contributions to ensure a dynamic public health, and manifests itself as a major breakthrough and as an experience that changed the social paradigm of Brazil, but still faces significant barriers that prevent people from enjoying a greater satisfaction and ease of the access to services due to the lack of human resources (particularly doctors) to expedite consultations.

Possibly the best way to manage the remaining gaps in the SUS for the next year, should be the reiteration of a decentralized and regionalized national policy and to develop strategic planning tools and investment of administrative resources consistent with the needs of each region of the Brazilian state, and together, encourage public participation in the development and structuring of health services.

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SUSTAINABLE REGIONAL HEALTH SYSTEMS

# Social exclusion and indigenous peoples' health; an example of Cameroon Baka 'Pygmies' people of the rainforest region of the south

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A B S T R A C T

**Background:** 'Pygmies' remain poor and marginalized from the political, economic and social life of Cameroon despite sedentarization and development efforts by the (Bigombe 2004). Prejudice against 'Pygmy' people coupled with poverty and inadequate government policies prevent them from gaining basic citizen's rights including access to healthcare, land, education, employment and justice.

**Methods:** An ethnographic and integrated approach was used; an interview guide as well as FGDs was exploited to collect data which was classified in terms of homogenous, exhaustive and exclusive categories by use of typology. Content analysis technique was used to analyse data.

**Results:** Findings show that: poor definition of 'Pygmies'; divergence in development expectations and integration methods; difficulty with access to education, forest resources, land ownership and care in modern healthcare institutions explain the social exclusion in the Baka 'Pygmy' community. Findings show association of these factors with the poverty and poor health of 'Pygmies': they are more vulnerable to disease (malnutrition, diarrhoea, gastritis, malaria, typhoid and intestinal infections).

**Conclusion:** The effective and adequate integration of 'Pygmies' into society taking into account their cultural peculiarities and identity; reduction of disparities and improvement of their health should be of major concern to the state and policy makers.

*Key words:* social exclusion, development, indigenous people, integration



## 1. Background

Much literature on social exclusion and inclusive policies is focused on developed countries (EU and North America) than it is in less developed countries like Sub – Saharan Africa (SSA) where the discourse has largely been on poverty, marginalization and vulnerability. When we talk of social exclusion in this study we imply 'a process of rupture of social norms or marginalization … on a strictly sociological plan, the socially excluded can be considered as those who live at the margin of a certain social norm, either because of their own characteristics which prohibits them from integration in a harmonious manner into society, or because they have been rejected by society or a group which refuses to integrate them. The socially excluded therefore represents all those who have a disadvantage on the social plan Ngwafor (2008).

This study takes into cognizance the fact that there is paucity of systematic data on indigenous peoples' health. Indigenous communities in Cameroon are still very underdeveloped and are excluded from mainstream society despite efforts by the state for their integration and development. Disparities and inequalities continue to grow between 'Pygmy' and Bantu groups. Several development projects have been carried out in 'Pygmy' communities but little or no focus has been given to their health. The complete absence of healthcare centres in the 'Pygmies' communities is indicative of this health neglect. On the other hand, destructive logging and commercial poaching is causing loss to the forest and its resources (especially medicinal plants) on which 'Pygmies' greatly rely on for survival.

Lewis (1999), Jackson (2003) and Hewlett (2006) note that primary healthcare services are either absent or function in rudimentary ways in most of Central Africa; that many 'Pygmies' do not use health facilities even when they exist because they cannot pay for consultation and medication, do not have the necessary documents for care consultation or because they are subjected to humiliating and discriminatory treatment.

High mortality from measles and high prevalence of endemic diseases such as yaws and leprosy is noted in 'Pygmy' children than it is in Bantu communities; 'Pygmies' are excluded from government's health services (Ndumbe et al, 1993). Prejudice against 'Pygmy' people coupled with poverty and inadequate government policies prevent them from gaining basic citizen's rights including access to healthcare, land, education, employment and justice (Kenrick & Lewis, 2001).

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Tchoumba (2005) asserts that HIV prevalence is increasing in 'Pygmy' populations with increased contact with Bantus; an increased rate of infection of 0.7% to 4.0% is noted in Baka 'Pygmy' communities between 1993 and 2003. He further noted an increase in the spread of STDs with the influx of transient Labour employed on the logging camps, road construction and infrastructure projects within and around 'Pygmy' communities.

Cavalli-Sforza (1986), Pampiglioni & Wilkinson (1975), and Frornet (2001) have pointed out disparities in 'Pygmies' health to that of Bantus; high intestinal parasite loads among Baka 'Pygmy' people. Bigombe Logo (2004), on his part notes high prevalence of leprosy, conjunctivitis, periodontal disease, tooth loss, tuberculosis, malaria and splenomegaly in 'Pygmies'.

'Pygmies' remain poor and marginalized, excluded from the political, economic and social life of Cameroon despite efforts by the state to facilitate their sedentarization process since 1960 by improving their living conditions through integration and promotion of their economic, political and social autonomy (Bigombe, 2004). 'Pygmies' people are therefore increasingly vulnerable to diseases.

It is these observations, concerns and sparse research and publications on indigenous peoples' health in the African region noted in Ohenjo N., Willis R., Jackson D., Nettleton C. & Mugarura B. (2006) that raised certain questions that gave reasons for a scientific inquiry on indigenous peoples' health and social exclusion. The study reveals lapses in state integration, development and health policies for indigenous groups.

## 2. Aims

The study seeks to examine factors explaining the social exclusion that occurs in the 'Pygmies' community despite state and development agencies integration and development efforts and show its impact on the health of the people.

## 3. Methods

Qualitative and quantitative methods are used for data collection and analysis; secondary and primary sources of data were consulted and to enhance our understanding of the discourse of indigenous peoples' health and social exclusion in the Baka community, social exclusion is conceptualized and an ethnographic and integrated approach is used in the study.

General behaviours in link to exclusion practices were observed in common places such as in primary schools, 'wine huts', communal streams and hospitals used by Baka and Bantu groups. Such observations were later transcribed and described in details; they focused on the relationship between Baka and Bantu groups. An interview guide served as data collection tool. The interview guide focused on: the knowledge of Baka 'Pygmies' people; integration and development projects implementation strategies in the community (to have understanding of the factors explaining the social exclusion in the Baka community); access to land, health, educational facilities and labelling (to show how exclusion occurs in the Baka community); and difficulty with access to economic resources and care in health centres (to show the impact exclusion has on the health of Baka 'Pygmy' people).

Focus group discussions were further used to check the validity and reliability of data collected from individual interviews; two FGDs were conducted - one for women and one for men. The FGD for men consisted of 17 men from Minko'omessing and Akonetche settlements, facilitated with the help of a local interpreter who translated from Baka to French language and vice versa. FGD questions consisted of follow-up questions from individual interviews:

- Who are the owners and first dwellers of the forest region?
- How can you define your relationship with Bantus?
- What would integration and development of Baka 'Pygmies' signify for you?
- What opinion do you have of PADES and CED NGOs approach to your integration and development?

Eighteen Baka women constituted the women's FGD which had the following follow-up questions:

- How many of you seek care in modern health centers-Djoum District Hospital (DDH), Catholic Mission Healthcare centre (CMHCC)?
- How do staff of DDH and CMHCC relate with you?
- Which of the two modern healthcare care centres do you use often?

FGD questions therefore served in either confirming or refuting information gathered from individual interviews. The total sample of fifty (50); thirty-five (35) Baka 'Pygmies' and fifteen (15) Bantus was drawn from the Baka-Bantu settlements/villages of Akonetche and Minko'omessing in the Dja and Lobo Division of the South Region of Cameroon because of their accessibility and reliability in providing valuable information for the study.

The collected data was classified in terms of homogenous, exhaustive and exclusive categories through the use of typology. Through this technique factors explaining social exclusion in the Baka community and its impact on the health of the people were categorized. The content analysis technique was then used to analyse the data collected, giving an objective, systematic and quantitative description of the content of the interviews.



## 4. Results

Contrarily to what is noted in the literature on the discourse of social exclusion in Europe (EU) and North America, social exclusion in the Cameroonian as in the Sub Saharan African contexts focuses on poverty, marginalization and discrimination. Social exclusion in the Baka community is thus the product of several factors: poor approach to 'Pygmies' integration and development by the state and some NGOs; difficulty with access to education; difficulty with access to land ownership and forest resources; difficulty with access to care in healthcare centres and differences in perception of integration and development for Baka 'Pygmies'. These factors have a negative impact on the socio-economic welfare and health of Baka 'Pygmies'. Findings confirm what Stephens C., Porter P., Nettleton c. & Willis R. (2006), Tchoumba B. (2005) and Mounchikpou E., Voula E. AN., Ngima GM. & Bigombe L P. (2005), have noted.

Findings show that social exclusion is a problem in Baka community confirming assertions that 'social exclusion matters because it denies some people the same rights and opportunities as are afforded to others in their society simply because of who they are…certain groups cannot fulfil their potential, nor can they participate equally in society (DfID, 2005).

Findings further show positive relationship in social exclusion in the Baka community and 'Pygmies' susceptibility to disease(it notes that indigenous people are susceptible to poverty induced diseases such as syphilis, malnutrition, gastritis, malaria, typhoid, pneumonia, diarrhoea, yellow fever, tuberculosis and intestinal infections); poverty and insecurity

from frequent land disputes. This is in line with findings of earlier studies: Tchoumba B. (2005), Mounchikpou E., Voula E. AN., Ngima GM. & Bigombe L P. (2005), Gracey M. (1999), Currie B. & Brewster D. (2001), Carville KS., Lehmann D., Hall G., et al. (2007), Gluckman P., Hanson MA. & Pinal C. (2005), Elkin AP. (1973), Ohenjo N., Willis R., Jackson D., Nettleton C. & Mugarura B. (2006) and Abéga SC. (1998).

### *1. Poor knowledge of Baka 'Pygmies' people*

Like Bahuchet S. (1993) notes, it is with despising, contemptuous and humiliating words that Bantus ('the big blacks') identify 'Pygmies'. The study shows that there are divergences in the knowledge of Baka 'Pygmies' among Bantus, NGOs working in the region and Baka people.

*Table 1 Definition of 'Pygmies' among Bantus, NGOs and Baka 'Pygmies'*

| RESPONSES | BAKA 'PYGMIES' | | BANTUS | | Total |
|---|---|---|---|---|---|
| | Akonetche | Minko'omessing | Akonetche | Minko'omessing | |
| God's creation like Bantus & other ethnic groups | 13 | 11 | 1 | 1 | **26** |
| Reasonable people who can think and work | 9 | 2 | 1 | – | **12** |
| Thieves, liars, dirty and unscrupulous people | – | – | 5 | 2 | **7** |
| Animals, slaves, servants, ugly looking & toothless people | – | – | 2 | 1 | **3** |
| Our brothers & neighbours | – | – | 1 | 1 | **2** |
| **Total** | **22** | **13** | **10** | **5** | **50** |



The name 'Pygmy' is considered pejorative by Baka people and they don't employ it to make reference to them. Great divergence is noted in the perception, understanding or knowledge of who are 'Pygmies' people among Bantu, and NGO groups. 26 of 50 people participating in the study perceive 'Pygmies' to be God's creation (24 Baka people and 2 Bantus). For 7 of the 15 Bantus participating in the study 'Pygmies' are thieves, liars, dirty and unscrupulous people; 3 of the 15 perceive of them to be as animals, slaves, servants, ugly looking and toothless people. Meanwhile 2 Bantus perceive them to be brothers and neighbours. Only 1 Bantu thinks of 'Pygmies' as being reasonable with ability to think and work. On the other hand, 11 of 35 Baka 'Pygmies' in the study perceive of themselves as a people with ability to reason, think and work. There is great variation in the way Baka 'Pygmies' perceive themselves and how Bantus do. This variance in perception or knowledge of who Baka 'Pygmies' are can be likened to what Stephens C., Porter P., Nettleton c., & Willis R. (2006) have noted; 'poor definition of indigenous identity contributes to the groups' marginalization and inadequate data for their numbers, health, and socio-economic circumstances. This variance creates discrepancies that not only hinders integration and development but also pushes them further away from mainstream society that keeps on rejecting, labelling and discriminating 'Pygmies' people as observed in their day to interaction with Bantus.

### *2. Divergences in expectation and results of integration and development projects in Baka Community*

The integration and development of indigenous communities is of significant importance to the state of Cameroon; several projects have been launched and are been executed in indigenous communities through NGOs and joint government partnerships. Some of these projects are been carried out in the Baka 'Pygmies' community; but are these projects addressing the needs and expectations of the 'Pygmy' community is the 'big question' to find an answer from beneficiaries of the projects: what are their expectations and what are the results of the projects. Our findings revealed that Baka 'Pygmies' expectations from these projects are contrary to the results obtained this far. For them having the right to be treated as human beings by Bantus (11 of the 35 in the study); having access to the forest and its resources (14 of the 35); having the right to live freely without fear of aggression or maltreatment from Bantus and not having feelings of not belonging to the society wherein they live (10 Baka 'Pygmies') are what they expect from the projects rather than trying to be acculturated into Bantu cultures and 'civilization'. These expectations are considered priority for Baka 'Pygmy' group. Baka 'Pygmies' want to be involved, be a part of what is happening in the society and not just be treated as a junk of people on whom decisions they have no knowledge of are being imposed on. They demand a participatory and not a top-bottom approach to their integration and development as is the case with some NGOs working in their community. It is the failure to incorporate Baka 'Pygmies' in the conception, execution and evaluation of their development and integration that has led to failure in many such projects in the 'Pygmy' community; causing major socio-economic disparities which is a major determinant of disparities in indigenous peoples' health. These approaches and results do not respond to indigenous communities' needs, priorities and expectations.

### *3. Education and access*

There is difficulty with access to education for Baka 'Pygmies' in this community; learning institutions are non-existent in Baka settlements; the learning curricular as notes

Mounchikpou E., Voula E. AN., Ngima GM., & Bigombe L P. (2005) does not suit 'Pygmies' because they are more skilled in technical than in general education model of learning; but the latter is what is mostly available in the Bantu communities wherein 'Pygmy' children study. Education is way too expensive for the 'Pygmies' and there is no guarantee of having a job for 'Pygmies' graduates. All these have shunned away 'Pygmy' parents from sending their children to school; they rather bring them up in customary ways. The few 'Pygmies' with primary or secondary level of education have return to the settlements without jobs from the cities.

| Ethnic Group | Higher education | Secondary education | Primary education | School drop-out | No formal education | Total |
|---|---|---|---|---|---|---|
| Bantu | 1 | 1 | 6 | 5 | 2 | **15** |
| Baka 'Pygmies' | – | – | 3 | 12 | 20 | **35** |
| **Total** | **1** | **1** | **9** | **17** | **22** | **50** |

*Table 2 Level of education of participants in study*

'Pygmies' parents are unable to send their children to school because of the poverty they live in. 33 of 35 'Pygmies' in this study are illiterate. Only 2 "pygmies' have primary level of education whereas 10 of the 15 Bantus in the study are literate with higher (1), secondary (1) and primary (6) level of education. With no formal education, it becomes difficult if not impossible for 'Pygmies' to get employment in 'fruitful jobs'[1]. There is as such a positive relationship in the level of education and exclusion; the lower the level of education, the more the practice of exclusion and vice versa.

### *4. Forest resources, benefits, land ownership and access, and insecurity*

Mounchikpou E., Voula E. AN., Ngima GM., & Bigombe L P. (2005), Bigombe, (2004) and Tchoumba B. (2005) have noted land ownership disputes between Bantus and 'Pygmies' people. Land disputes and disputes over forest resources and benefits[2] is a permanent source of conflict between Baka 'Pygmies' and Bantus. These contentions and conflicts promote exclusion practices which are detrimental to the economic growth of the community causing more poverty for the 'Pygmies'. Baka people are constrained to live in adverse conditions because of difficulty to access land, forest resources and benefits. 27 of 35 'Pygmies' in this study do not own a land; they are temporary owners of Bantus' land; they can be kicked out at any time a Bantu needs the land attest a Bantu indigene. 5 'Pygmies' who own land note it is thanks to the benevolence of a Bantu chief or elite (this still does not save them from future loss of the land, especially in the event of the death of the donor). 'Pygmies' routine activities such as fishing, gathering and hunting have become more and more restricted with the forest being commercialized and turned into national reserves, causing most 'Pygmies' (30 and more in this study) live on less than 1€ a day. They are as such unable to make money, and poverty is observed to be more and more in 'Pygmies' populations. Bantus on the contrary own cocoa plantations and farm lands on which they produce cash and food crops for subsistence and commercialization making them self-sufficient. 'Pygmies' illiteracy further puts them in a disadvantageous position to gain employment in lucrative jobs that can put them out of the 'poverty line'; their dependency is entirely on the forest and its resources yet they don't have access to it. Poverty has therefore established itself in the community and is forcing 'Pygmies' to live in adverse conditions that exposes them to diseases.

### *5. Health care in modern health care structures and access*

Social exclusion in the Baka community leads to difficulty with access to care in modern (public) health care structures for 'Pygmies', exposing them to diseases. Findings show the complete absence of a health care structure/service in 'Pygmies' settlements suggesting neglect even from the part of the state for the health of these people; the state health care system excludes Baka 'Pygmies' as noted by Mounchikpou E., Voula E. AN., Ngima GM. & Bigombe L P. (2005). Findings further reveal 'Pygmies' suffer prejudices in their endeavours to get care in public health care structures (Djoum District Hospital-DDH) creating a preference for the Catholic Health Care Centre-CHCC for them. This preference is triggered by the relationship with hospital staff: 22 of 35 Baka 'Pygmies' pointed out that they feel treated with respect, concern and care in CMHCC than in the DDH. Most 'pygmies' (23/35) and Bantus (10/15) in this study seek care in the CMHCC: the hospital administration uses the services of a translator to facilitate communication with 'Pygmies who do not speak any of the two official languages of the country. Diseases like gastritis, diarrhoea, typhoid, syphilis, gonorrhoea, hepatitis B and yellow fever figure in quarterly and annual reports of DDH and CMHCC as frequent diseases in 'Pygmies' for which care is sought in modern healthcare structures (though usually at chronic stages). With the help of a questionnaire with precise questions on the probability of getting sick, 29 of the 35 'Pygmies' in the study showed greater susceptibility to disease. They pointed out that they have been sick of malaria, typhoid, gonorrhoea, etc. few weeks/months ago. 'Pygmies' susceptibility to disease is further seen in the permanent unhygienic conditions of their surroundings; domestic animals such as dogs, pigs, goats and fowls are constantly roaming around, defecating in the yard, drinking and eating from the same kitchen utensils, and water with 'Pygmies'. They are susceptible to skin infections, food poisoning, water contamination, malaria parasite infection etc. and with the poverty observed in the community, it becomes difficult if not impossible for 'Pygmies'

[1] Jobs with remuneration that can sustain them and their families

[2] Forest benefits are gains indigenous communities receive for the exploitation of their forest for commercial purposes. It consists of several millions of CFA francs given to these communities through the council.

to be able to afford for the basic health package of the country. A greater proportion of the population is thus obliged to seek care from traditional care givers who are accessible and cheap but dangerous.

## 5. Conclusion

This work on 'Social Exclusion and Indigenous Peoples Health aimed at: examining factors explaining the social exclusion that occurs in the Baka community and showing its impact on the health of the people. A number of issues have been raised from the study showing association in poverty, susceptibility to diseases, land disputes and insecurities with the exclusion that occurs in the community. These factors create socio-economic disparities and inequalities that forces 'Pygmies' to live in adverse conditions of poverty which in turn makes them susceptible to diseases.

Social exclusion is therefore a cause for concern in this community; through observations and interviews, the study has shown that poor approach by the state and NGOs to integration and development for 'Pygmies'; difficulty with access to education for indigenous people; difficulty with access to land ownership and forest resources; difficulty with access to care in public healthcare services and differences in perception of integration and development for Baka 'Pygmies' explain the exclusion that occurs in the Baka community and have a negative impact on the socio-economic welfare and health of Baka 'Pygmies'. Findings confirm what Stephens C., Porter P., Nettleton c. & Willis R. (2006), Tchoumba B. (2005) and Mounchikpou E., Voula E. AN., Ngima GM. & Bigombe L P. (2005) have noted.

Looking at the impact of social exclusion in the Baka community the study has shown association in 'Pygmies' susceptibility to diseases, poverty, frequent land disputes and insecurity with the social exclusion that occurs there. Findings show that Baka people are forced to live in adverse conditions (more than 30 of 35 'Pygmies in the study live on less than 1€ a day) because of difficulty with access to land ownership and productive forests; it shows that 33 of 35 'Pygmies in the study are illiterate-they cannot secure lucrative employment because of difficulty with access to education; 'Pygmies' live in unhygienic surroundings; seek care in modern health care structures only at critical stages of the diseases and are susceptible to disease (29 of the 35 'Pygmies' in the study are susceptible to diseases).

There is therefore need for interventions to address the exclusion of Baka 'Pygmies':

- The state should take immediate and necessary measures to fight every form of exclusion of 'Pygmies' populations by means of a sustainable settlement, integration and development plan that takes into consideration indigenous cultures.
- The state should bring health closer to the people; mobile clinics could be set up to regularly provide health in indigenous communities whereby field coordinators can be designated to coordinate the work in these communities by regularly visiting to take stock of what is needed in terms of resources (data collection) and based on this data, know what type of interventions to carry out in the communities. The state should equally get into partnership with development agencies and institutions already working on 'Pygmies' for a cost effective and holistic approach for health care of 'Pygmies'.
- 'Pygmies' should be consulted and should take active part in the definition, implementation, follow-up and evaluation of their development priorities; their traditional skills should be identified and included in development and integration efforts.

This study provides a gateway into the socio-economic, political and cultural dimensions that influence social exclusion, and though instructive, it is not conclusive. Thus it is vital to have disaggregated, up-to-date and reliable data on 'Pygmies' collected with regards to their health, development, integration, exclusion, poverty status etc. in other scientific studies for a better understanding of indigenous populations and for sustainable solutions to their problems within these contexts.

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SUSTAINABLE REGIONAL HEALTH SYSTEMS

# Measuring culture of patient safety in a teaching and a non-teaching hospitals in Italy

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A B S T R A C T

**Background:** Creating a culture of safety has received great attention to ensure that patients receive the safest possible care. A key precept of patient safety programs is the removal of the "culture of blame." Patient safety has been and still is a priority in Italian Hospitals. The aim of this study was to measure the safety culture in teaching and non-teaching hospitals of Italy.

**Methods:** Data were collected from 261 staffs working in the teaching and non-teaching hospitals by means of the Italian version of the Safety Attitudes Questionnaire-Short form 2006.

**Results:** Mean response rate from returned valid questionnaires was 60%. Both hospitals did not differ significantly in SAQ dimensions except unit management. Clinical departments differ with each SAQ dimension as indicated by Kruskal Wallis test. Regression analysis showed positive trend between safety climate and other SAQ dimensions except for stress recognition dimension. Physicians scored high in team climate, safety climate and job satisfaction and non-physicians scored high in stress recognition and job satisfaction. Comparing the gender scores, stress recognition and job satisfaction dimensions scored high with females and Males scored high in team climate and job satisfaction. Both at professional and gender level hospital management scores were low.

**Conclusion:** This cross sectional survey provides benchmark data for both hospital safety cultures. Results point out critical attention to patient safety at teaching and nonteaching hospitals. Further research is needed to check safety culture impact on patient outcomes in both the hospitals.

*Keywords:* patient safety, safety culture and safety attitudes



## 1. Background

Health care is complex, with many interdisciplinary elements, very unpredictable and at high risk of hazard. It is widely believed that healthcare organizations have to build a patient safety culture to reduce adverse events and improve patient safety (Kohn, 2000). In fact, patient safety problems remain common in healthcare organizations, and are considered one of the central concerns in quality improvement in healthcare.

The Institute of Medicine (IOM) committee emphasized that health care organizations must create an environment in which safety becomes a top priority. The IOM Committee (Medicine, 2001) reported health care should be: Safe, Effective, Patient-centred, Timely, Efficient, and Equitable. Thus, health care organizations began the process of improving the widespread deficits in patient safety (Leape, 2002). One strategy leaders used to create a safe environment was to evaluate their organizations culture (Pronovost, 2005). McCarthy & Blumenthal (2006) state policymakers could help stimulate a culture of safety by linking regulatory goals to safety culture expectations. Currently, The Joint Commission (TJC) (2009) requires that hospitals regularly measure the culture of safety within the organization using valid and reliable instruments, track changes over time, and evaluate the impact of patient safety interventions. The National Quality Forum (NQF) (Forum, 2006) takes a stronger position requiring hospital leaders to assess their organizations safety culture annually, provides feedback to leaders and staff, and implements interventions focused on target units and domains of safety culture.

Safety culture is a term often used to describe the way in which safety is managed in the workplace, and often reflects "the attitudes, beliefs, perceptions and values that employees share in relation to safety" (Cox, 1991). Assessing an organization's patient safety culture remains a critical first step for healthcare organizations of all sizes. Thus it is important for the hospitals to recognize the value and tangible benefits of assessing the current status of a hospital as a first step to improve its patient safety culture, as it may be able to recognize weak points in the attitudes, norms and practices of healthcare staff and the healthcare organization.

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Awareness of weak points may be used to guide the planning and implementation of intervention programs, directed at facilitating staff members and healthcare organizations in developing enhanced patient safety practices and safety management mechanisms. Positive safety attitudes need to be developed and agreed by all members of the organization and cannot be imposed. Reflexivity can be developed through feedback systems using incident, accident, and near-miss reporting.

Self-reported questionnaires have been developed to measure the patient safety climate in hospitals. Many studies showed that Safety Attitudes Questionnaire (SAQ) is psychometrically sound, reliable and responsive to interventions (Paine, 2010). SAQ is a single-paged self-administered questionnaire with investigational items and demographic information for the participants to fill in. Estimated time to complete the SAQ is 10 to 15 minutes. It uses a five-point Likert scale: disagree strongly; disagree slightly; neutral; agree slightly; and agree strongly. The responses to individual SAQ questions are reported at the unit of analysis as the percentage positive score. The SAQ author has made adjustments for negatively worded assessment questions to match the positively worded items (Sexton, 2006). The SAQ elicits caregiver attitudes through the 6 factor analytically derived scales: teamwork climate; job satisfaction; perceptions of management; safety climate; working conditions; and stress recognition.

The SAQ differs from other medical attitudinal surveys (Shortell, 1991) in that it maintains continuity with its predecessor (the Flight Management Attitudes Questionnaire (FMAQ)) a traditional human factors survey with a 20-year history (Helmreich, 1984); therefore, preserving continuity allows for comparisons between professions, and assists with the search for universal human factors issues.

The SAQ has been used to examine safety culture in hospital intensive care units, operating rooms, and labour and delivery units and it demonstrates linkages to clinical and operational outcomes such as bloodstream infections, ventilator associated pneumonia, post-op sepsis, pressure ulcers, registered nurse turnover, and burnout (Sexton, 2006). The SAQ has been shown to be highly reliable in demonstrating the relationship between safety culture and patient outcomes (Colla, 2005). Patient safety culture outcomes include the staff members perception of safety, the willingness of staff members to report events, the number of events reported, and an overall patient safety grade given by staff members to their units (Sorra, 2004).

The general epistemology of this proposed research is important, as it is anticipated that the possible outcome of the study will help to quantify the existing culture of patient safety and show possible differences among the two types of hospitals.

## 2. Aims

Patient safety has been and still is a priority in Italian Hospitals. The aim of this study was to measure the safety culture in teaching and non-teaching hospitals of Italy.

## 3. Methods

This survey was conducted with healthcare workers from 2 hospitals in Italy over the period from April to May 2011. The Italian version of the SAQ was distributed to all healthcare workers at each hospital by hand. The study design and protocol were presented to four departments' clinical heads of both teaching and non-teaching for approval. The collection of data on clinical staff was approved by them. Then the questionnaire was delivered to all frontline staff in clinical departments namely (i) Internal medicine, (ii) Obstetrics, (iii) Geriatrics and (iv) Surgery department, (v) Operating Room of both teaching and nonteaching hospitals. In order to secure the staff about confidentiality, one cover letter was given to them with oral explanation before handing questionnaire. The distributed questionnaire was anonymous and the participation in the study was voluntary. The answered questionnaires were returned to the researcher by nursing managers, who kept envelop in their room to collect the questionnaires from respondents. Survey instrument used was the Italian version of the Safety Attitudes Questionnaire Short Form 2006. The Italian questionnaire used was not colour printed. It was black and white.

### *1. Translation of Questionnaire*

The English SAQ questionnaire was translated independently by 2 native Italian professionals. Reconciliation process was done by an Italian professor of psychology, thereby, generating an Italian version with consensus in language. In order to access and control the quality of the local version, a back-translation was made by one American student who was fluent in Italian language. Following discussions between English and Italian translators an agreement was reached on the Italian language version, the back-translated and original versions of the safety attitude questionnaire were then compared with each other and appeared to be identical. Prior to the study, the Italian version was administered to 2 risk management nurses at non-teaching hospital. Changes were made based on their recommendations. The translation process was carried out following MAPI Institute manual guideline for linguistic validation of a questionnaire. No cognitive briefing for SAQ was done due to limited time for the study.



### *2. Survey Administration*

The survey administration was replicated using standardized methods

1. During planned meetings: The SAQ, which took 10-15 minutes to complete, was administered to physicians on a voluntary basis in the planned meetings at the respective clinical departments at each study site. Forms were to be completed anonymously and did not have an ID number which could be used to trace the responder. Completed Questionnaires were collected at the end of the meeting. Physicians who did not attend the staff meeting were sent their SAQ through the chief nurses. The questionnaires were returned to chief nurses.
2. SAQ was administered to the paramedical staff at the work sites. Respondents were requested to return the completed surveys to a designated caposalas (Nursing Managers) room where an envelope was placed to collect the returned questionnaires. These methods reported to generate a 60-70 % of response rate (Sexton & Thomas, 2005). As the questionnaires were anonymous, the research staff had no way of reminding non-responders, except for asking the department chief nursing heads to urge their staff to participate.

### *3. Data entry*

Prior to data entry, all returned surveys were checked for question completion and or omissions. All the survey data items which included Likert scale and demographic information were entered in an Excel sheet for each of the two hospitals to allow for baseline data measurement.

### *4. Data Analysis:*

All Likert scale data were analysed to identify the mean scores based on the standardized method developed by the original author (Sexton, 2006). Data from each hospital study site were analysed at safety culture domains. Sub-group analysis was also conducted, including the calculation of mean and standard deviations scores by department level, professional group, and gender. The results from each site were inter-compared. The answers to the SAQ questionnaire were accepted based on the number of items answered within one dimension. Analysis was done by R software (R Foundation for Statistical Computing, Version 2.13.0). The t-test was used to assess whether the means of two groups were statistically different. Values $< 0.05$ were considered to be statistically significant, unless otherwise stated.

## 4. Results

In total, we received 261 response papers from 2 hospitals making it 60.0% for response rate (Table 1). In non-teaching hospital, we delivered in total 233 sheets of questionnaire and received 168 responses (72.1%). Geriatrics department had highest response rate (83.7%) and lowest one was at obstetrics department (65.1%).

*Table 1: Response rates at 4 departments at non-teaching hospital.*

| | Geriatrics | Internal medicine Department | Obstetrics Department | Surgery department & operating theatre |
|---|---|---|---|---|
| No. of staff | 53 | 55 | 65 | 74 |
| Number of questionnaires delivered | 49 | 49 | 63 | 72 |
| Number of questionnaires received | 41 | 35 | 41 | 51 |
| Response rate | 83.67 | 71.43 | 65.08 | 70.83 |

In teaching hospital, the response rate was 46.5% (93 received/200 delivered). As a whole, 91.19% of participants confirmed that they didn't answer this questionnaire before. Registered nurses corresponded to 51.34% of respondents. Female participants were more than 80%.



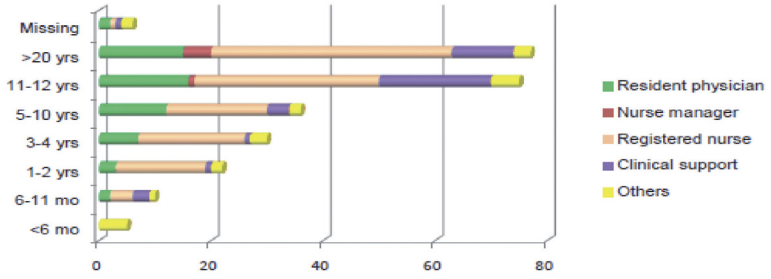


Figure 1: *Years of specialty based on working position of all participants.*

*Table 2: Seven SAQ dimensions means and standard deviations (SD) for teaching, non-teaching, and both hospitals. Safety Culture mean and SD is derived from all seven dimensions of SAQ.*

| SAQ Dimensions | Teaching Hospital Mean (SD) | Non-Teaching Hospital Mean (SD) | Both Hospitals Mean (SD) |
|---|---|---|---|
| Team Work | 3.74 (0.84) | 3.83 (0.66) | 3.78 (0.75) |
| Safety Climate | 3.61 (0.76) | 3.61 (0.60) | 3.61 (0.68) |
| Job Satisfaction | 3.78 (0.95) | 3.89 (0.75) | 3.83 (0.85) |
| Stress Recognition | 4.04 (0.94) | 4.0 (0.87) | 4.02 (0.90) |
| Perception of Unit Management | 2.92 (1.04) | 3.23 (0.94) | 3.07 (0.94) |
| Perception of Hospital Management | 2.82 (0.99) | 3.00 (0.90) | 3.07 (0.94) |
| Working Conditions | 3.32 (1.01) | 3.42 (0.97) | 3.37 (0.99) |
| Safety Culture | 4.03 (0.93) | 4.07 (1.09) | 4.12 (1.01) |

The stress recognition, safety climate in both teaching and nonteaching hospitals is same with slight difference in standard deviation. In the above table, most of the dimensions standard deviation is low, which indicates that the data points tend to be very close to the mean.

*Table 3: Comparison between teaching and non-teaching hospital on SAQ dimensions.*

| | Teaching Hospital | Non-Teaching Hospital | p value |
|---|---|---|---|
| N | 93 | 168 | |
| Gender (M/F ratio) | M(15); F(74) | M(29); F (137) | |
| Team Climate | 3.82 (0.66) | 3.74 (0.85) | 0.37 |
| Safety Climate | 3.61 (0.59) | 3.61 (0.75) | 0.97 |
| Job Satisfaction | 3.88 (0.75) | 3.77 (0.95) | 0.39 |
| Stress Recognition | 4.00 (0.86) | 4.04 (0.93) | 0.49 |
| Unit Management Perception | 3.23 (0.93) | 2.92 (1.03) | 0.01 |
| Hospital Management Perception | 3.00 (0.89) | 2.82 (0.98) | 0.15 |
| Work Condition | 3.42 (0.97) | 3.32 (1.01) | 0.42 |

*Note:* Values are means (standard deviation). P values are calculated using unpaired t test.

From the above table it is clear that, in general SAQ dimensions (except for the unit management perception; (p = 0.01) do not differ significantly for the two hospitals. Different SAQ dimensions were tested to see if any difference exists among the various departments of teaching and non-teaching hospitals.

*Table 4: Mean standard deviation (within brackets) and P value for different departments of the scores for all SAQ dimensions.*



| | Geriatrics | Operating Theatre | Obstetrics | Internal Medicine | Surgery | P value |
|---|---|---|---|---|---|---|
| N | 69 | 18 | 48 | 57 | 69 | |
| Team Climate | 3.59 (0.80) | 3.36(0.72) | 3.93 (0.72) | 3.76(0.69) | 3.94(0.84) | 0.00 |
| Safety Climate | 3.62 (0.65) | 3.02 (0.66) | 3.74 (0.63) | 3.45 (0.63) | 3.78 (0.77) | 0.00 |
| Job Satisfaction | 3.66 (0.80) | 3.13 (1.08) | 3.94 (0.85) | 3.74 (0.92) | 4.11 (0.78) | 0.00 |
| Stress Recognition | 4.05 (0.88) | 4.35 (0.61) | 4.28 (0.77) | 4.15 (0.86) | 3.63 (1.01) | 0.00 |
| Unit Management Perception | 2.81 (0.98) | 2.69 (0.82) | 2.97 (0.96) | 2.91 (0.87) | 3.48 (1.09) | 0.00 |
| Hospital Management Perception | 2.83 (0.86) | 2.51 (0.92) | 2.79 (0.97) | 2.74 (0.89) | 3.18 (1.03) | 0.02 |
| Work Conditions | 3.28 (0.89) | 2.71 (0.93) | 3.52 (0.84) | 3.14 (1.04) | 3.66 (1.05) | 0.00 |

*Note:* P values are calculated using Kruskal Wallis test: p=0.00 when $p \leq 0.01$ and $p = 0.02$ when $p \leq 0.05$.

From table 4, it is clear that quite a disparity exists among departments. Results from Tables 3 and 4 suggest that the two hospitals have similar SAQ dimensions, but different departmental scores therefore the intervention should be directed at the department level.

On observing the influence of team climate, job satisfaction, stress recognition, unit management perception, hospital management perception, work conditions dimensions of SAQ on safety climate dimension by correlation coefficient (r) test. Results from table 5 suggest there is a significant positive trend between SAQ dimensions except for the stress recognition dimension where the correlation coefficient (r) is negative. SAQ dimensions which has high percentage (%) of slightly and strongly agree score. From the table, it shows that Stress Recognition has highest score (63 %) followed by Job Satisfaction (51 %). In general male have a significantly higher score than female for all the parameters except for the Stress Recognition.

*Table 5: Intercorrelation of seven SAQ dimensions. Values are correlation coefficient (r) and negative sign indicates negative correlation.*

| SAQ Dimensions | Team Climate | Safety Climate | Job Satisfaction | Stress Recognition | Management Perception A | Management Perception B | Work Condition |
|---|---|---|---|---|---|---|---|
| Team Climate | 1 | | | | | | |
| Safety Climate | 0.69 | 1 | | | | | |
| Job Satisfaction | 0.66 | 0.59 | 1 | | | | |
| Stress Recognition | -0.08 | -0.15 | -0.17 | 1 | | | |
| Management Perception A | 0.54 | 0.51 | 0.49 | -0.26 | 1 | | |
| Management Perception B | 0.41 | 0.42 | 0.43 | -0.26 | 0.79 | 1 | |
| Work Condition | 0.54 | 0.58 | 0.46 | -0.19 | 0.56 | 0.52 | 1 |

*Table 6: Percentage scores for SAQ dimensions.*

| | Team Climate | Safety Climate | Job Satisfaction | Stress Recognition | Unit Management Perception | Hospital Management Perception | Work Condition |
|---|---|---|---|---|---|---|---|
| % Observation | 45 | 31 | 51 | 63 | 21 | 13 | 33 |

*Table 7: Mean standard deviation (within brackets) and P value of the scores for all SAQ dimensions in Males and Females.*

| | Males | Females | P value |
|---|---|---|---|
| N | 44 | 211 | |
| Team Climate | 4.14 (0.88) | 3.69 (0.74) | 0.0 |
| Safety Climate | 3.92 (0.81) | 3.54 (0.66) | 0.0 |
| Job Satisfaction | 4.11 (0.83) | 3.75 (0.89) | 0.01 |
| Stress Recognition | 3.68 (1.03) | 4.09 (0.87) | 0.00 |
| Unit Management Perception | 3.36 (1.25) | 2.94 (0.94) | 0.04 |
| Hospital Management Perception | 3.13 (1.22) | 2.81 (0.89) | 0.10 |
| Work Condition | 3.79 (1.01) | 3.25 (0.97) | 0.00 |

*Table 8: Mean standard deviation (within brackets) and P value of the scores for all SAQ dimensions in Physicians and Non Physicians.*

| | Physician | Non Physician | P value |
|---|---|---|---|
| N | 6 | 197 | |
| Team Climate | 4.31 (0.65) | 3.59 (0.74) | 0.00 |
| Safety Climate | 4.08 (0.68) | 3.45 (0.63) | 0.00 |
| Job Satisfaction | 4.07 (0.84) | 3.72 (0.88) | 0.00 |
| Stress Recognition | 3.80 (1.06) | 4.10 (0.84) | 0.04 |
| Unit Management Perception | 3.53 (1.08) | 2.86 (0.93) | 0.00 |
| Hospital Management Perception | 3.20 (1.11) | 2.78 (0.88) | 0.00 |
| Work condition | 3.98 (0.98) | 3.16 (0.92) | 0.00 |

*Note:* Except for stress recognition, physicians scored higher than non-physicians.

## 5. Conclusion

To our knowledge, this is the first SAQ study initiative to evaluate the culture of patient safety in teaching and non-teaching hospitals in Italy. Measuring safety climate in health care may have a great impact on patient safety, helping to assess the underlying safety culture of an organization or work unit. To scrounge on Burn's metaphor, safety culture surveys give organizations the gift to see themselves as others see them. They provide invaluable information about how patient safety is viewed within an organization. Correctly implemented, a safety culture measurement and improvement process can act as the tipping point for superior patient safety. This makes conducting a safety culture survey very attractive (Fleming, 2005). The prevailing culture influences safety behaviours and outcomes for both healthcare workers and patients (Flin, 2006).

Two hundred and sixty one respondents participated in the study. The response rate was 60% compared to 68% in international benchmarking. The results provided the most complete available information on the attitudes of clinical staff working in five clinical departments of non-teaching hospital and four clinical departments of teaching hospital. Time to complete SAQ was 10 to 15 minutes which was matched with normal criteria of the English SAQ version.

The data obtained through safety culture dimensions analysis revealed that the overall dimensions of safety culture mean score of the teaching hospital (mean =4.03) was less than nonteaching hospital (mean =4.07). This observation might be due to the fact that no initiatives were taken yet in teaching hospital to train the clinical staff on clinical risk management and patient safety, when compared to non-teaching hospital were first level training was organized on clinical risk management and patient safety and second level training programs were organized on incident reporting, root cause analysis, Failure Mode and Effect Analysis / Failure Mode, Effects and Criticality Analysis and Healthcare Failure Mode and Effect Analysis for the clinical frontline staff before the measurement of patient safety culture study.

In our study, stress recognition dimension scored high for both hospitals followed by job satisfaction dimension (table 8). This finding is not in congruence with Colla (2005) who reported that substantial variability in SAQ dimensions of safety culture study among front line caregivers was in job satisfaction, followed by team work climate, safety climate, stress recognition and working condition. In our study, except stress recognition, all SAQ dimensions followed the same pattern. The higher stress observed in our study may be due to less staffing, more paper work, poor unit and hospital management and the hours of duty. While high job satisfaction scores shows positive sign in creating a safety culture. Glendon and Mckenna (1995) argued that organizations with a positive safety culture are characterized by effective communication and job satisfaction.

In this study, on examining the relation of safety climate with other SAQ dimensions by using regression analysis and also by checking with correlation coefficient (r), there was significant positive trend between safety climate and all other SAQ dimensions except for stress recognition, where the trend was negative and these results were same for both hospitals. These findings may be related to the fact that the unit management perception and hospital management perception exhibited lower mean scores for both teaching and non-teaching hospitals than other SAQ dimension scores (table 3) and are also supported by data of table 8 where low scores for hospital management and unit management as compared to other SAQ dimensions were observed for both physicians and non-physicians. Hence, gap exists in effective management of units and hospital, which may increase stress recognition in frontline staff. This identified gap could be alleviated by increasing safety concept which is formed in the frontline workers minds, with increase in the effectiveness of management system of both hospitals, so that clinical staff will be more confident to handle obstacles and difficulties relating to safety issues.

In accordance with these findings, Neal and Hart (2000) concluded that the significant correlations of overall dimensions were ranged from weak to strong correlation among health care providers, except for stress recognition. In addition, Fitzpatrick (2010) concluded that nurses reported significantly positive correlation perceptions towards overall safety culture dimensions, but in our study, physicians showed high scores in overall safety culture (Table 8) when compared to nurses and other clinical support staff. This finding is of great concern as Cox (1991) suggests nurses attitudes are one of the most important indices of safety culture, since these attitudes are often framed as result of all other contributory features of the working environment. In our study major portion of the sample are nursing staff so the results may reflect the true picture of work environment, where they scored less on overall safety culture when compared to physicians, hence improving the safety culture among nurses must be the highest priority for both teaching and nonteaching hospitals. Nursing staff team climate can be improved by regular meeting, good communication, valuing of diversity, real participation, adaptability, etc. (Adorian, 1990). There were differences in the SAQ score profiles of physicians and non-physicians. Physicians had higher safety climate and team climate. Non-physicians shows higher stress recognition and low teamwork. Both professionals show similar ratings for hospital management which was scored lowest among all the SAQ dimensions. Our study results were different from the Jason (2010) study in ICUs in the United States figuring that there was no difference between physicians and nurses in Job satisfaction. Kitch (2005) to determine characteristics of patient safety culture, he concluded that teamwork within units, honest and open communication among physicians, administrators and healthcare workers, as with patients are considered the principal characteristic of a culture of safety.



Gender is associated with differences in attitudes (Oskamp, 2005). Comparing the gender scores for SAQ dimensions, stress recognition was higher in females (4.09) compared to males (3.68). Males scored high in team climate (4.14) than females (3.69). Both the genders scored less for hospital management (Table 7).

Variance across hospital departments indicates the existence of department safety cultures. Obviously, patient safety culture scores depend on the person interest, attention and dedication of each staff member. From the scatter plot graphs 33 to 39 and from table 19, there was quite disparity among different departments with different SAQ dimensions. The major part of the variance in patient safety attitudes was seen across clinical departments, so efforts to promote a patient safety culture must be given priority at the clinical departments.

This study provides a preliminary description of frontline perceptions of safety culture dimensions in teaching and non-teaching hospitals of Italy. Results suggest that safety climate is measurable and can be improved across big and complex health care organisations. This survey provides benchmark data of hospital safety culture for both teaching and non-teaching hospitals. Results point out bigger attention to patient safety as safety culture is distant from established standards at teaching and non-teaching hospitals. There is still substantial opportunity for improvement in building a safety culture than the presented status quo. The equifinality concept in systems theory (Miller, 1978) which is applicable to the present study of measuring safety culture, asserts that the final state of a patient safety system may be reached from different initial conditions and in different ways by including patient safety

training, safety briefings, and senior executive walk rounds. Further research is needed to check safety culture impact on patient outcomes in both the hospitals.

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SUSTAINABLE REGIONAL HEALTH SYSTEMS

# Health Care Workers Occupational Exposure to HIV and Post-Exposure Prophylaxis in Health Centres and Hospitals of Addis Ababa, Ethiopia

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A B S T R A C T

**Background:** Exploring the extent of exposure, knowledge and practices of health care workers on occupational HIV risks is important. The study aimed to assess occurrence of occupational exposures and knowledge and practice regarding HIV post-exposure prophylaxis among health care workers.

**Methods:** A health facility based cross-sectional study, involving randomly selected 372 health care workers, was conducted in Addis Ababa from March to April 2008. A pre-tested questionnaire was applied for data collection. Odds ratio with 95% confidence interval and logistic regression analysis were employed to depict the results.

**Results:** One hundred forty two (38.2%) health care workers experienced at least one needle stick injury in their life time and 19% experienced injury within the last one year. Rate of injury in the previous one year was estimated at 1.34 injuries per person. Factors associated with occurrence of injuries were being a nurse, working long hours, attending fewer patients per day and non-consistent use of personal protective equipments. Two hundred sixty four (71.0%) respondents had knowledge about HIV post-exposure prophylaxis.

**Conclusion:** Occupational exposures were common among health care workers. Improvement of work environment and appropriate management of exposed cases, including addressing the psychosocial burden health workers face after exposure is imperative.

*Key words:* occupational exposure, needle stick injuries, post-exposure prophylaxis, health care workers, HIV



## 1. Background

Exposure to different body fluids has a potential risk of transmission of blood borne pathogens to health care workers (HCWs). The prescription of antiretroviral therapy as post-exposure prophylaxis (PEP) following significant potential exposure to Human Immunodeficiency Virus (HIV) has become routine and it is important that individuals with risk of exposure are aware of the procedures to follow and where their first point of contact should be if an incident occurs.

The estimated risk for HIV transmission after injury through a needle contaminated with HIV infected blood and after mucous membrane exposure is 0.3% and 0.1% respectively (Hamlyn E, Easterbrook P, 2007; Pruss-Ustun A, Rapiti E, Hutin Y, 2005; Batty L, Elliott HK, Rosenfeld D, 2003). It is estimated that 61% of these infections are due to Hepatitis B and C Viruses and the remaining 39% is due to HIV. Worldwide, 4.4 % of HIV infections among HCWs may be attributable to occupational injuries. More than 90% of these infections occurred in low-income countries, most of which could have been prevented (Cardo DM, Culver DH, Clesiliki CA, et al, 1997; Morris CN, Wilkinson D, Stein Z, et al, 2001).

Health care workers are facing a number of unique challenges to stay healthy in the face of the generalized HIV/AIDS epidemic. This is also becoming synergized by the occupational risk to the virus. Although exposure through occupational injuries can usually be avoided by following good working practices, HCWs should consider the implications of taking PEP. Available data from developing countries show that adherence to the "standard precaution" and documentation of occupational exposures are suboptimal and the knowledge about PEP among HCWs is poor (Pruss-Ustun A, Rapiti E, Hutin Y, 2005; Hamlyn E, Easterbrook P, 2007; Jovic-Vranes A, Jankovic S, Vukovic D, et al, 2006).

This suboptimal proficiency is also more marked among auxiliary staffs working in health care settings (Hamlyn E, Easterbrook P, 2007). Studies addressing their knowledge and practice are also lacking in developing countries including Ethiopia (Hamlyn E, Easterbrook P, 2007; Jovic-Vranes A, Jankovic S, Vukovic D, et al, 2006).

Extent of occupational exposure to HIV, existing knowledge and practices, and evidence on use of PEP among HCWs were

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systematically looked for from similar literatures and helped to formulate the study objectives and methods. Based on the available evidences, occupational exposures to HIV are very common among HCWs in addition to the risk encountered as a result of their personal sexual behaviour. This risk may also depend on their adherence to proper protocols and procedures as well as on the availability of Personal Protective Equipments. Knowledge of HCWs about the risks associated with NSIs, use of preventive measures and appropriate post-exposure management was also inadequate. These exposures usually occurred as a result of the interplay of many factors, which have different level and degree of influence. Different socio-demographic factors are most likely to act through a number of other interrelated factors, including work environment and behavioural factors. Understanding the different factors and their relationships will in turn help to have a better and feasible approach for occupational exposure management. Hence, this study was conducted to explore existing perceptions and practices of HCWs regarding occupational HIV risks and PEP. This can help to provide an insight to subsequent efforts to improve prevention, diagnosis, treatment and support of HIV/AIDS in relation to the occupational hazard.

## 2. Aims

### 1. *General aim*

- ✓ To assess occurrence of occupational exposures and knowledge and practice regarding HIV post-exposure prophylaxis among health care workers in health centres and hospitals of Addis Ababa, Ethiopia

### 2. *Specific aims*



- ✓ To characterize and estimate the extent of occupational exposures to HIV among health care workers
- ✓ To describe factors associated with occupational exposures among health care workers
- ✓ To assess knowledge and practice of health care workers on HIV post-exposure prophylaxis

## 3. Methods

A facility based cross-sectional study was employed complemented by in-depth interview in Addis Ababa. The source population of the study was all HCWs (both professionals and auxiliary) working in 29 health centres and 33 different hospitals in the city. Study subjects were HCWs working in a randomly selected 11 health centres and 12 hospitals in the city.

Sample size was determined using sample size calculation for a single proportion. The extent of occupational exposures or knowledge and practice of HIV PEP among the study subjects was not known from previous studies in the local context. Therefore, the prevalence of occupational exposures was assumed to be 50% to get maximum sample size. (The assumption was that 50% of HCWs ever had sustained at least one type of occupational exposure i.e. needle stick injury). Sampling was made from a finite population (total population=4361, health professionals and auxiliary staffs), which was less than 10,000.

By applying a finite population correction, the final sample size was computed and resulted to be 388. Other assumptions considered were margin of error 5% and standard score corresponding to 95% confidence level to be 1.96. Health facilities were stratified based on their ownership and level of care. Then, 40% of the facilities from each stratum were included in the sample. Accordingly, 12 hospitals and 11 health centres were included in the study using population proportional to size. A sample size was determined for each 23 selected facility based on the prepared sampling frame. Simple random sampling method was then applied to identify the study participants. The total sample size was then the sum of sample size calculated for each facility. A total of 6 in-depth interviews were conducted for the qualitative section.

Data collection was conducted from March to April, 2008 using pre-tested, structured questionnaire. Semi-structured in-depth interview guide was prepared for the qualitative section. Eight trained data collectors and two supervisors were involved in the data collection. Data entry and cleaning was performed using Epi Info 2000 Version 3.3.2. The cleaned data was exported to SPSS Version 13.0 for further analysis. Proportions, percentages, tables and graphs were used for description of the data as appropriate. Odds ratio with 95% confidence interval was used to identify the factors associated with occurrence of NSI and knowledge on HIV PEP. Cross-tabulations were also made to compare frequencies and percentages.

*Table 1: Summary of Steps in the Analysis of the Effect of Socio-demographic, Work environment/organizational and Behavioural Factors on Needle Stick Injury*

| Model | Factors | Interpretation |
|---|---|---|
| 1 | Socio-demographic factors | Overall effect of socio-demographic factors; not adjusted for work environment and behavioural factors |
| 2 | Socio-demographic + work environment factors | Effect of work environment factors adjusted for confounding role of socio-demographic factors |
| 3 | Socio-demographic + work environment + behavioural factors | Effect of socio-demographic factors represents that not mediated through work environment factors<br>Effect of behavioural factors adjusted for confounding role of socio-demographic and work environment factors |
| | | Effect of work environment factors represents that not mediated through behavioural factors |
| | | Effect of socio-demographic factors represents that not mediated through work environment nor behavioural factors |

A multivariate logistic regression analysis using hierarchical models was employed to estimate the adjusted odds ratio of the independent variables by controlling for confounders. Variables which reached $p<0.3$ were entered in to the models and analysed at multivariate level (Victoria CG, Huttly SR, Fuchs SC, et al, 1997). First, based on the results of the bivariate analysis, the effect of selected socio-demographic factors on the magnitude of NSIs was assessed.

In the second step of analysis, work environment/ organizational factors were included, and their effect was seen in the presence of socio-demographic factors. Finally, behavioural factors were added to see their effect in the presence of socio-demographic and work environment factors. The final analysis was done for variables which showed a statistical significant association of $p<0.05$ in the last model (Table 1). The qualitative analysis was accomplished based on identified themes in the transcripts.

*Table 2: Socio-demographic and Work Environment Characteristics of Respondents, Addis Ababa, 2008 (n=372)*

| Characteristics | Frequency | Percentage |
|---|---|---|
| **Working sector** | | |
| Government | 277 | 74.5 |
| Private | 95 | 25.5 |
| **Sex** | | |
| Male | 172 | 46.2 |
| Female | 200 | 53.8 |
| **Age groups in year** | | |
| ≤24 | 89 | 23.9 |
| 25-34 | 164 | 44.1 |
| 35-44 | 70 | 18.8 |
| ≥ 45 | 49 | 13.1 |
| **Current profession** | | |
| Physician | 53 | 14.2 |
| Nurse | 140 | 37.6 |
| Health assistant/junior nurse | 27 | 7.3 |
| Midwife | 25 | 6.7 |
| Laboratory technician | 50 | 13.4 |
| Cleaner | 34 | 9.1 |
| Others (less risky health workers) | 43 | 11.7 |
| **Educational status** | | |
| Attended up to grade 12 | 45 | 12.3 |
| Completed 12+1/12+2 | 121 | 32.5 |
| Completed 12+3/12+4 | 152 | 40.9 |
| Completed 12+6 and above | 54 | 14.5 |
| **Religion** | | |
| Orthodox | 274 | 73.7 |
| Protestant | 70 | 18.8 |
| Muslim | 20 | 5.4 |
| Others | 8 | 2.1 |
| **Marital status** | | |
| Single | 202 | 54.3 |
| Currently married | 156 | 41.9 |
| Others | 14 | 3.7 |
| **Total experience in health facilities in year** | | |
| <10 | 257 | 69.1 |
| ≥10 | 115 | 30.9 |
| **No. of patients attended to daily** | | |
| <35 | 200 | 53.8 |
| ≥35 | 172 | 46.2 |
| **Working night shifts** | | |
| Yes | 280 | 75.3 |
| No | 92 | 24.7 |
| **Hours worked per week** | | |
| <40 | 100 | 26.9 |
| ≥40 | 272 | 73.1 |

## 4. Results

### *1. Socio-demographic Characteristics of the Study Population*

A total of 388 HCWs were selected to the study. Sixteen questionnaires were excluded, which gave a non-response rate of 4.1%. One hundred thirty three (35.8%) respondents were from central/ referral hospitals and majority of them, 277 (74.5%), were working in the government sector. Among the total respondents, 200 (53.8%) were females. The age of respondents ranged from 18 to 60 years with a mean (SD) age of 31.70 (9.34) years and median age was 28 years.

Out of the total respondents, 320 (86%) were health professionals and 140 (37.6%) were nurses. One hundred fifty two (40.9%) respondents attended up to 12 + 3 or 12+4 years of education, 274 (73.7%) respondents were Orthodox Christians and singles took more than half of the share (54.3%). The mean (SD) service tenured years was 8.15 (8.68) and the median service year was 5 years. The large proportion of total service year is below 10 years (69.1%). About 75% of respondents were working in night shifts and 272 (73.1%) respondents were working for 40 hours and above per week in their respective facilities (Table 2).

### *2. Exposure Histories among Health Care Workers: Needle Stick Injuries*

Among the total respondents, 142 (38.2%) ever experienced at least one NSI in their entire career. Seventy one (19.1%) experienced NSI within the last one year. Fifty four (76.1%) of them experienced the injury once and 17 (23.9%) had encountered more than once within the last one year. Based on the last year (12 months), the rate of NSI was estimated at 1.34 injuries per person. The most common reason for sustaining the recent injury was due to recapping of needles. Forty six (32.4%) of the respondents sustained the injury during recapping of needle, 44 (31%) experienced it due to sudden movement of the patient while caring the patient and 28 (19.7%) during sharp collection. Immediate washing of the area of the damage with soap and water was the most commonly measures taken, 103 (72.5%) respondents. Fifty two (36.6%) exposed HCWs took HIV testing as one measure and only 10 (7.0%) sought PEP (Table 3).

*Table 3: Measures Taken by Health Care Workers after Needle Stick Injury, Addis Ababa, 2008 (n=142) **

| Measures Taken | Job Category | | | | Total | |
|---|---|---|---|---|---|---|
| | Health Professionals (n=131) | | Auxiliary Staffs (n=11) | | | |
| | Yes | % | Yes | % | Yes | % |
| Washed with soap and water | 98 | 74.8 | 5 | 45.5 | 103 | 72.5 |
| Washed with alcohol, iodine or chlorine | 84 | 64.1 | 7 | 63.6 | 91 | 64.1 |
| Applied pressure to stop bleeding | 15 | 11.5 | 1 | 9.1 | 16 | 11.3 |
| Squeezed to extract more blood | 34 | 26 | 4 | 36.4 | 38 | 26.8 |
| Visited HIV Voluntary Counselling and Testing | 46 | 35.1 | 6 | 54.5 | 52 | 36.6 |
| Sought HIV Post-exposure Prophylaxis | 8 | 6.1 | 2 | 18.2 | 10 | 7 |
| Reported to head person/supervisor | 6 | 4.6 | 2 | 18.2 | 8 | 5.6 |
| Nothing done | 3 | 2.3 | 0 | 0 | 3 | 2.1 |
| Took Tetanus anti-toxin | 1 | 0.8 | 1 | 9.1 | 2 | 1.4 |
| Other | 1 | 0.8 | 0 | 0 | 1 | 0.7 |

*J* Percentages do not add up to 100 due to multiple responses*

### *3. Existing Practices related to Occupational Exposures*

Only 35 (9.4%) of the respondents were trained on how to report NSIs. The majority, 328 (88.2%) said that they would report NSIs immediately if they encounter in the future. Forty eight (67.6%) respondents that encountered injuries within the last one year didn't report to any responsible body or to their facilities. One hundred fifty three (41.5%) of all the respondents were ever tested for HIV at least once in their entire career. About 71% of all respondents agreed that confidentiality of HIV testing is kept at their facility. Sixty seven (18.0%) of all respondents were tested for HIV either due to NSIs or BBF splashes. About 81% of all respondents replied that they could get HIV testing at their own facility immediately after exposure. The majority, 348 (93.5%) of the respondents were voluntary to be tested for HIV after occupational exposure.

### *4. Factors Associated with Occurrence of Needle Stick Injuries among HCWs: Bivariate and Multivariate Analyses*

The results of the regression analysis showed that the strongest association was observed with being a nurse (AOR=15.39, 95%CI=3.70-18.05). Other factors which were associated with occurrence of NSIs were; having work experience for more than 10 years (AOR=2.68, 95%CI=1.30-5.54), working long hours (AOR=1.90, 95%CI=1.10-3.31), attending fewer patients per day (AOR=2.21, 95%CI=1.32-3.58), self-perception of high risk HIV (AOR=2.05, 95%CI=1.10-3.82) and non-consistent use of personal protective equipments (AOR=1.67, 95%CI=1.01-2.76) (Table 4).

*Table 4: Multivariate Logistic Regression Analysis of Factors Associated with Needle Stick Injuries among HCWs, Addis Ababa, 2008. ***

| Characteristics | COR(95%CI) | AOR(95%CI) MODEL 1 | AOR(95%CI) MODEL 2 | AOR(95%CI) FINAL MODEL |
|---|---|---|---|---|
| **Model 1[Socio-demographic factors] #** | | | | |
| Work sector | | | | |
| Government vs. Private† | 2.05(1.22-3.43) * | 2.74(1.84-3.05) * | 2.54(1.89-3.11) * | 2.17(0.25-3.77) |
| | | | | |
| Profession | | | | |
| Physician | 10.22(2.80-37.24) * | 11.90(2.64-53.70) * | | |
| Nurse | 14.53(4.29-22.17) * | 15.04(3.45-23.98) * | 14.37(3.37-19.13) * | 15.39(3.70-18.05) * |
| Health Assistant/ Junior Nurse | 5.61(1.34-23.57) * | 4.31(0.83-22.42) | | |
| Midwife | 7.50(1.80-31.32) * | 6.93(1.37-35.16) * | | |
| Lab technician | 6.87(1.85-25.48) * | 7.73(1.71-34.97) * | | |
| Cleaner | 4.80(1.19-19.44) * | 2.65(0.53-13.25) | | |
| Less risky health workers | 1.00 | 1.00 | 1.00 | 1.00 |
| *Experience (in 10 year) ‡* | | | | |
| ≥10 Vs. <10† | 3.21(2.03-5.06) * | 3.43(2.44-6.92) * | 3.11(2.04-5.78)* | 2.68(1.30-5.54) * |
| **Model 2[socio-demographic + work environment factors] #** | | | | |
| *No of Patients attended daily ‡* | | | | |
| <35 vs. ≥35† | 2.08(1.27-3.48) * | | 2.79(1.43-6.46) * | 2.21(1.32-3.58) * |
| *Working night shifts* | | | | |
| Yes vs. No† | 1.07(0.59-1.65) | | | |
| *Hours worked per week ‡* | | | | |
| ≥40 vs. <40† | 1.76(1.07-3.26) * | | 3.41(1.52-6.94) * | 1.90(1.10-3.31) * |
| **Model 3[Socio-demographic + work environment + behavioural factors]#** | | | | |
| *Perceived level of risk to HIV* | | | | |
| High risk vs. Low risk† | 1.69(1.05-2.70) * | | | 2.05(1.10-3.82) * |
| *Always use of PPEs* | | | | |
| No vs. Yes† | 1.83(1.18-2.84) * | | | 1.67(1.01-2.76) * |
| *Use of glove all/ most of the time* | | | | |
| Yes vs. No† | 2.96(1.41-6.23)* | | | 2.35(0.15-5.85) |

** Significant association, p<0.05 at 95%CI # Only variables reached p-value less than 0.3 were kept in the subsequent analyses, and displayed in the table (in the 3 models) † Reference group ‡ Categories were made based on previous similar literatures*

*** Some variables, which were used in the analysis, are not shown in the above table*

### *5. Knowledge and Practice on HIV Post-Exposure Prophylaxis*

Three hundred nine (83.1%) respondents were aware of the presence of HIV PEP. Seventy four (23.9%) of them ever attended trainings related to HIV PEP. One hundred twenty four (40.1%) described that they observed the presence of guidelines related to HIV PEP in their facility and 126 (40.8%) saw posted posters in their facility. About 16% claimed that they couldn't get PEP starter packs in the usual working hour. Two hundred sixty four (71.0%) respondents had knowledge about HIV PEP and only 10 (2.7%) ever took PEP tablets in their lifetime.

### 6. *Factors Associated with HIV PEP Knowledge among Health Care Workers*

Based on the results of the multivariate logistic regression analysis, factors associated with PEP knowledge were ever trained on universal precaution or infection prevention (AOR=2.26, 95%CI=1.08-4.72), consistent use of glove during procedures (AOR=2.44, 95%CI=1.02-5.82), Ever experience of BBF splash (AOR=2.28, 95%CI=1.01-5.15) and ever tested for HIV due to occupational exposure (AOR=7.79, 95%CI=1.48-41.04) (Table 5).

*Table 5: Multivariate Logistic Regression Analysis of Factors Associated with HIV PEP Knowledge among Health Care Workers, Addis Ababa, 2008***

| Characteristics | Knowledge about HIV PEP | | | |
|---|---|---|---|---|
| | Yes (%) | No (%) | COR(95%CI) | AOR(95%CI) |
| **Socio-demographic factors** | | | | |
| Job category | | | | |
| Health professionals | 245(76.6) | 75(23.4) | 5.6743.05-10.56) * | 3.64(0.77-17.15) |
| Auxiliary staffs | 19(36.5) | 33(63.5) | 1.00 | 1.00 |
| Educational status | | | | |
| Attended up to grade 12 | 18(40.0) | 27(60.0) | 1.00 | 1.00 |
| Completed 12+1/12+2 | 85(70.2) | 36(29.8) | 3.54(1.74-7.22) * | 0.63(0.12-3.21) |
| Completed 12+3 and above | 161(78.2) | 45(21.8) | 5.37(2.71-10.61) * | 1.13(0.22-5.94) |
| **Work environment factors** | | | | |
| Trained on infection prevention | | | | |
| Yes | 99(80.5) | 24(19.5) | 2.10(1.25-3.52) * | 2.26(1.08-4.72) * |
| No | 165(66.3) | 84(33.7) | 1.00 | 1.00 |
| **Behavioural factors** | | | | |
| Perceived level of risk to HIV | | | | |
| High risk | 89(67.9) | 42(32.1) | 1.00 | |
| Low risk | 115(74.7) | 39(25.3) | 1.39(0.83-2.33) | |
| Use of glove all/ most of the time | | | | |
| Yes | 151(81.2) | 35(18.8) | 4.95(2.63-9.33) * | 2.44(1.02-5.82) * |
| No | 27(46.6) | 31(53.4) | 1.00 | 1.00 |
| Needle stick injury in the past | | | | |
| Yes | 113(79.6) | 29(20.4) | 2.04(1.25-3.33) * | 0.73(0.32-1.69) |
| No | 151(65.7) | 79(34.3) | 1.00 | 1.00 |
| Past Blood and other Body Fluid splash | | | | |
| Yes | 111(85.4) | 19(14.6) | 3.40(1.96-5.90) * | 2.28(1.01-5.15) * |
| No | 153(63.2) | 89(36.8) | 1.00 | 1.00 |
| Tested for HIV due to Occupational Exposure | | | | |
| Yes | 51(91.1) | 5(8.9) | 4.93(1.91-12.73) * | 7.79(1.48-41.04) * |
| No | 213(67.4) | 103(32.6) | 1.00 | 1.00 |

** Significant association, p<0.05 at 95%CI ** Some variables, which were used in the analysis, are not shown in the above table*

## 5. Conclusion

The prevalence and rate of NSI in our study is consistent with previous studies done in Ethiopia (Damtie M, 2007; Woldegebriel Y, 2004). Similar studies in Tanzania indicated that NSIs were the commonest occupational exposures among HCWs (Gumodoka B, Favot I, Berge ZA, et al, 1997). A study done in Uganda (Frederich M, Nubuga A, Maritta SJ, 2005) showed that among the nursing staff working at national referral hospital, a high rate of NSI was observed. The most common reason for sustaining NSIs in this study was due to recapping of needle. Despite the current national infection prevention recommendation not to recap needles, it was still a common practice (Ethiopian Ministry of Health, 2005). Earlier studies also indicated that the major contributing factors for NSIs were recapping of needle (Damtie M, 2007), vein-puncture (Damtie M, 2007) and administering of injections (Damtie M, 2007; Woldegebriel Y, 2004; Gumodoka B, Favot I, Berge ZA, et al, 1997).

Those who worked for 10 years or more had a higher chance of experiencing NSI compared with those who worked for less than 10 years. Earlier studies came up with different results. A study done in India indicated that increasing work experience was associated with increased occurrence of NSI (Askarian M, Malekmakan L, 2006). The Ugandan study (Frederich M, Nubuga A, Maritta SJ, 2005), however, showed that nurses who

had been in service for less than 10 years were at a higher risk of sustaining NSI compared with those with more than 10 years of experience. As experience in health facilities increases, the chance of getting NSI may also increase. It may also be related with stress. As it was evidenced in other studies (Uslan DZ, Virk A, 2005; Lee CH, Carter WA, Chiang WK, et al, 1999; Iihan M, Durukan E, 2006; Adegboye AA, Moss GB, Soyinka F, et al, 1994), working for many years and for long hours can result in stress and emotional exhaustion, which are likely to increase the chance of human error and contribute to a tendency towards risky behaviours.

Consistent with this finding, working for long hours was found to be significantly associated with occurrence of NSI. Long working hours is also an indicator of understaffing, which is a common phenomenon in developing countries (Porta C, Handelman E, McGovern PP, 1999). It is understood that with the increase workload, there is a likely that health workers get fatigue which in turn increases the likelihood of committing errors.

Somewhat surprisingly, a higher injury rate was found among those attending to less than 35 patients per day compared with those attending to more patients. It is possible that those who were doing invasive and operative procedures, which was usually accompanied by a higher risk for NSIs, were attending to fewer patients. This implies working conditions and type of activity plays significant role in the occurrence of NSI. Non-consistent use of PPEs was found to be associated with odds of sustaining NSI. Earlier studies (Greshon RR, Karkashian CD, 2000; Porta C, Handelman E, McGovern PP, 1999) linked consistent use of PPEs with precautions.

Being nurse was associated to the increased risk to NSI and BBF splash. This finding is understood in light of this profession, which is the commonest one that takes care of patient handling and caring of patients that require various invasive procedures. HCWs who encountered injuries had experienced adverse feelings such as nervousness, desperation and anxiety in the hours following the accidents. They also had concerns about their families and support from the employing institution. Research also indicated that exposure to HIV/AIDS in health care settings may cause serious adverse psychological outcomes for HCWs leading to stress, burnout and dropping out of their practices (Bennett L, 1997; Dejom DM, Murphy LR, Gershon RM, 1995).

The study indicated that about 71% of HCWs had knowledge about HIV PEP. The odds of PEP knowledge was higher among HCWs who were ever trained on universal precaution compared with those who did not attend training. In one previous study (Gumodoka B, Favot I, Berge ZA, et al, 1997), training was found to be the crucial factor in predicting the knowledge of HCWs about HIV PEP. This finding has great importance for planning preventive measures for occupational exposures, where arranging proper training is a more feasible target for immediate actions after occupational exposure. There also seemed to be a gap between national PEP guidelines and actual practices among HCWs. Lack of institutional support was found to be an important barrier for HCWs compliance with taking PEP.

In conclusion, a significant proportion of health care workers experienced needle stick injury and blood and body fluid splashes. Rate of injury per person was also considerable. Health care workers who encountered exposures could also experience adverse psychological feelings and have many concerns. Majority of the respondents had knowledge about HIV PEP, however, only very few exposed HCWs took PEP medication. Health facilities should make available within their system a standardized written protocol for infection prevention and reporting unit for management of occupational exposures so that HCWs will know how and where to report. Appropriate management of exposed cases, including addressing the psychosocial burden of health workers, is crucial. A mechanism should also be established in order to avail PEP drugs complemented with appropriate counselling and testing of HIV for immediate use by health care workers.

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