ISSN: 0975-833X

Availableonlineathttp://www.journalcra.com

International Journal of Current Research
Vol. 11, Issue, 07, pp.5639-5655, July, 2019

DOI: https://doi.org/10.24941/ijcr.35722.07.2019

INTERNATIONAL JOURNAL OFCURRENTRESEARCH

REVIEW ARTICLE

HIV/STIs/TB TRANSMISSION AND DRUG ABUSE AMONG PRISONERS. A CASE FOR EQUITY IN HEALTH CARE AND HUMAN RIGHTS FOR DEVELOPING COUNTRIES

***Emmanuel Hakwia Kooma**

Texila American University

ARTICLE INFO

Article History:
Received 16th April, 2019
Received in revised form
10th May, 2019
Accepted 12th June, 2019
Published online 31st July, 2019

Key Words:
Assessment, Prison service, Prisoner, HIV/STI/TB, Drug use, Prison health.

**Corresponding author:*
Emmanuel Hakwia Kooma

ABSTRACT

Objectives: To determine a frame work for significant prison environment and health systems factors influencing transmission of HIV/STI/TB and Drug Abuse in prisons. **Methods:** Data base: Medline, CINAHL, Cochrane Library and WHO Journals, Reports/Policy. Documents that review the progress of prison health care were identified. The sources for the study were chronologically examined under historical development of prison health care trends since 1900. The documents were reviewed and organized around Knowledge, Attitude and Practice, Legal &, Prison Systems, Prisons Health Care, Interventional areas and Practice Topics or Issues, not the chronology of the research. **Results:** Prison health frame work on HIV/STI/TB environmental factors was extensively studied and was found suitable for the 21st century prison health care in accordance with the WHO guidelines. The construct was analyzed to provide the needed knowledge, attitude and practice. The problems for implementing prison health are: lack of committed leadership, lack of strategic planning and a locative efficiency by the Ministry concerned, coupled with no or lack of resources and amnesty decisions on patients.
Conclusion: Better understanding of the three infectious diseases must produce effective prisoners and prison staff in reducing HIV/STI/TB transmission. Knowledge, Attitude and Practice facilitate early diagnosis of the disease. Inmates lack understanding of the transmission of these diseases. Overcrowding, poor nutrition, inadequate and lack of ventilation and light must be prevented or controlled. Prisons lack of clear policies on how to reduce transmission, modified attitude towards human rights and to strategically promote good prison health and also provide a basis for promoting equity of access to health care and quality systems, performance monitoring and evaluation of prison health care, practices and quality activities.

***Citation: Emmanuel Hakwia Kooma,* 2019.** "HIV/STI/TB transmission and drug abuse among prisoners. a case for equity in health care and human rights for developing countries", *International Journal of Current Research*, 11, (07), 5639-5655.

INTRODUCTION

Global efforts have been made to reduce co-infection of HIV/STI/TB transmission and Drug Abuse in prisons. However, these diseases remain a worldwide (America, Asia, Europe, Middle East and Africa) growing problem in these settings because of severe overcrowding, poor ventilation, and limited access to quality health care. A study in Uganda(2008) categorized HIV epidemic in prisons to be high and that Ugandan prisons were more vulnerable and had a higher than average risk of HIV infection than the general population and were categorized as the Most at Risk Populations(MARPS) in Uganda[1]. High risk behavior, including injection drug use, sexual activity and tattooing, body piercing have been found to be wide spread within prison settings, leading to transmission of Human Immune Virus/Sexually Transmitted Diseases/ Tuberculosis (HIV/STIs/TB) and Drug Abuse.

Prison Settings: Prisoners have high risk sex and many of them have history of having contracted TB/STIs prior to imprisonment. The presence of these risk behaviors influence disease transmission in prison settings and lead to prisoners` vulnerability and risks to HIV, that is likely to increase the risk of tuberculosis transmission to prison communities and outside the prison walls. There has been also lack of understanding by inmates on how these diseases can be detected early, how overcrowding, poor nutrition, inadequate and lack of ventilation and light can be prevented or controlled. In prisons, lack of clear definitions and demarcation of infectious zones exist. There are also no clear policies on how to reduce transmission of these diseases in prisons. Delays in health care seeking behaviors are prominent in these settings due to slavery environment that is very common in prison setting.

Health Care System: The health care system, more especially in developing countries has been paralyzed by many problems that need a holistic and transparent management approach. Developing countries have been reforming their health care system but usually leaving out the prison health care to

[1] UAC (2007). Moving towards Universal Access: National HIV/AIDS Strategic Plan 2007/8-2010/11.Uganda AIDS Commission, Republic of Uganda.

equitably and efficiently achieve the national goals and the recent Millennium Development Goals (MDGs) in a sustainable manner. These developing countries have many challenges, worsened by weak health care system, weak institutional capacity, as well as low and ineffective spending that has in general undermined the effectiveness of the health care systems.[2] The HIV Sero_Behavioral public health surveillance systems are weak if not nonexistent. Accurate strategic data about the magnitude of the problem and HIV dynamics and other related infections as well as morbidity and mortality indicators in prisons are not accurate and sometimes not available. Usually data based on general population does not reflect the unique and actual situation in prisons. Due to these observations, the designing of prison specific advocacy and Behavioral Change and Communication (BCC) strategies, policies and prioritization of programmatic interventions become limited. The review of literature for prisons will provide baseline information on HIV/TB/ STIs and Drug Abuse for this study and behavior correlates and health care given in prisons. The study results will inform policy formulation, resource mobilization and strategic planning for the health system for developing countries. Better understanding of these diseases will produce effective prisoners and prison staff in reducing HIV/STI/TB transmission. At screening on entry to prison provides medical staff with general information to HIV/STI/TB and with information on the many signs and symptoms related to the diseases. Knowledge, Attitude and Practice (KAP) facilitate early diagnosis. Strengthening the health care system in prisons can also contribute to the attainment of the Millennium Development Goals (MDGs) by reducing suffering, morbidity and mortality due to these diseases by the prisoners.

Problems with HIV/STIs/TB Transmission and Drug Abuse in Prisons: HIV/STI/TB and Drug Abuse in prisons are among the major public health problems. Prisons receive, concentrate, disseminate, export HIV/STI/TB and Drug Abuse and make them worse. Lack of knowledge about the causation and prevention of these diseases further accentuate the problem. Restriction of access to quality health care may be compounded by de-motivation of health staff due to many reasons. Some affected prisoners to HIV/STI/TB and Drug Abuse do not adhere to prescribed treatment. Some self-prescribe and take self-medication and end up with erratic treatment or have improper drug doses and some are at high risk of Multi-Drug Resistance(MDR)-Tuberculosis. However, tuberculosis is a preventable disease and suspicion index has been found to be low and also poor treatment outcomes have been experienced in many prisons worldwide. Improved data management gives a clear picture of tuberculosis burden and, can accelerate in current rates of decline that have been needed to meet all targets. There is need to help implement the quality health interventions, policies, human resources development, financing, supplies, service delivery and information for good decision making for this marginalized population. The inhuman poor prison conditions, poor infrastructure, lack of care, weak and inadequate health service delivery have also contributed to the burden of these diseases in prisons service. Several studies have demonstrated that HIV prevention programs including education, condom distribution, and needle and syringe programs can successfully be implemented in closed settings or prisons and can yield good results.

[2] WHO. Health Care Financing: A strategy for African Region. Report of the Regional Director. WHO, Addis Ababa. 2004.

The study review answers to the question: "*Are there significant prison environments and health care system implementable factors influencing transmission of HIV/STI/TB and Drug Abuse in prisons?"*

The purpose of this review study was to provide policy makers, health service care providers and prison authorities in prisons with strategic prison information needed for monitoring and evaluating of the current existing prison health care activities in order to effectively provide new approaches in combating HIV/STIs/TB and Drug Abuse.

Objectives

1. To identify factors that influence transmission of HIV/STIs, Tuberculosis and Drug Abuse in Prisons.
2. To propose a frame work that will determine interventions to overcome the prevalence of HIV, Tuberculosis, Syphilis and Drug Abuse in Prisons.
3. To review the knowledge, attitudes and practice among prisoners in relation to HIV/STI/TB and Drug Abuse.
4. To identify gaps in the prevention and health care services in relation to HIV, STI, TB and Drug Abuse.

To determine the availability of quality prison health care, prison conditions, infrastructure, policies and legal framework in order to identify feasible opportunities for improvement.

METHODOLOGY

Data base: Medline, CINAHL, Cochrane Library and WHO Journals, Reports/Policy. Documents that review the progress of prison health care were identified. The sources for the study were chronologically examined under historical development of prison health care trends since 1900. The documents were reviewed and organized around Knowledge, Attitude and Practice, Legal &, Prison Systems, Prisons Health Care, Interventional areas and Practice Topics or Issues, not the chronology of the research. Recently many research studies have been conducted and prison health has become a buzz word in the 21st century. A number of concepts have come under consideration to improve prison health. This paper aims to find a framework that not only clarifies the concept but also action needed to improve the quality of health care in prison setting. The provided frame work may therefore become a foundation for implementing concrete actions. This study also seeks to understand the structure of a good prison health care proposed conceptual frame work.

Conceptual Framework: This paper`s Conceptual Framework focused on four variables and many suggested health care practices that need strengthening. First, the study reviewed the key core concepts namely Knowledge, Attitude, Behavior and Practice that affect the general health of the population including those in closed settings. Health Systems Strengthening (HSS) in prison health care as defined by WHO *"is a group of initiatives and strategies that enhances the functions of the health care system to desired equity of asses and quality prison health."*

The figure below shows the prison disease transmission, transmission variables, health care principles, practices and activities and outcome.

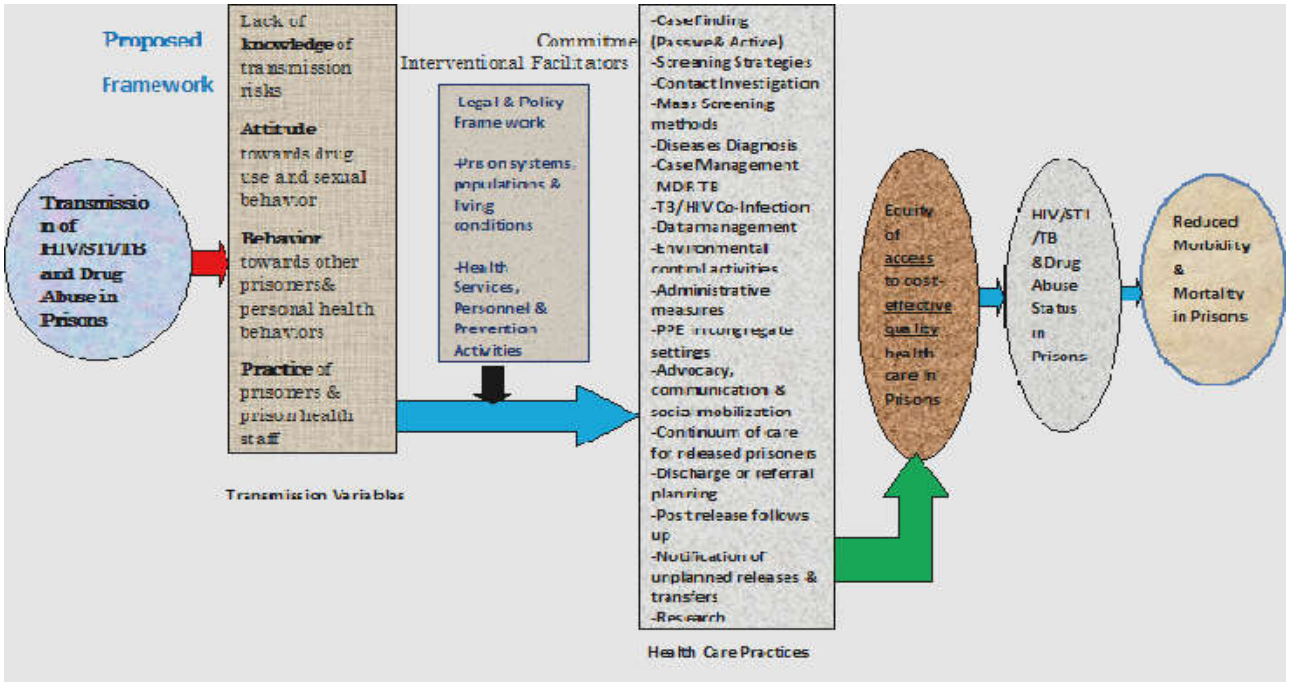

Figure 1. Conceptual Frame work

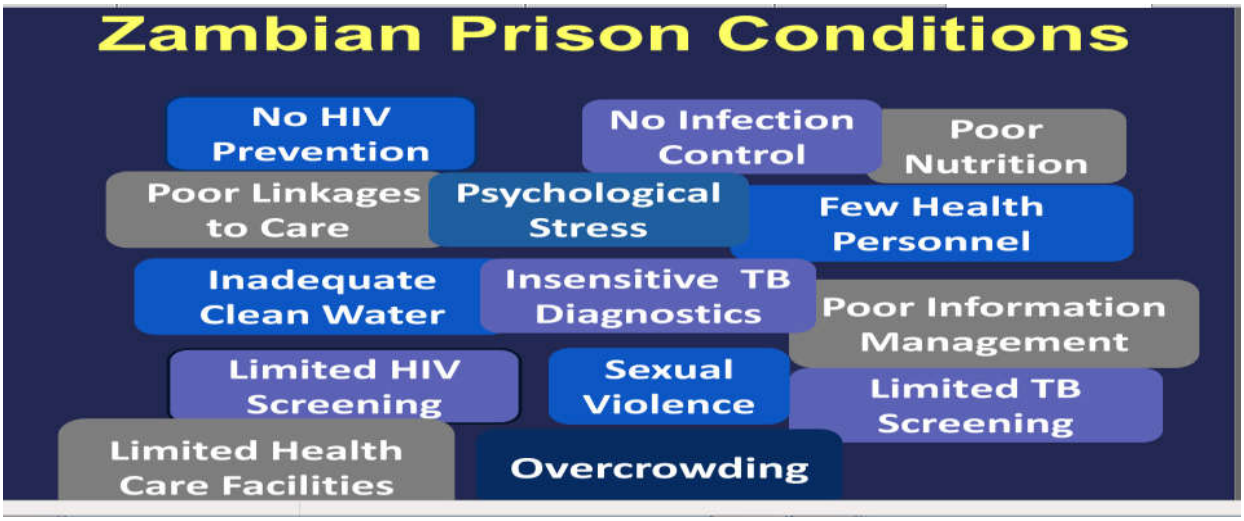

Figure 2. Situational Analysis for prison conditions-2012

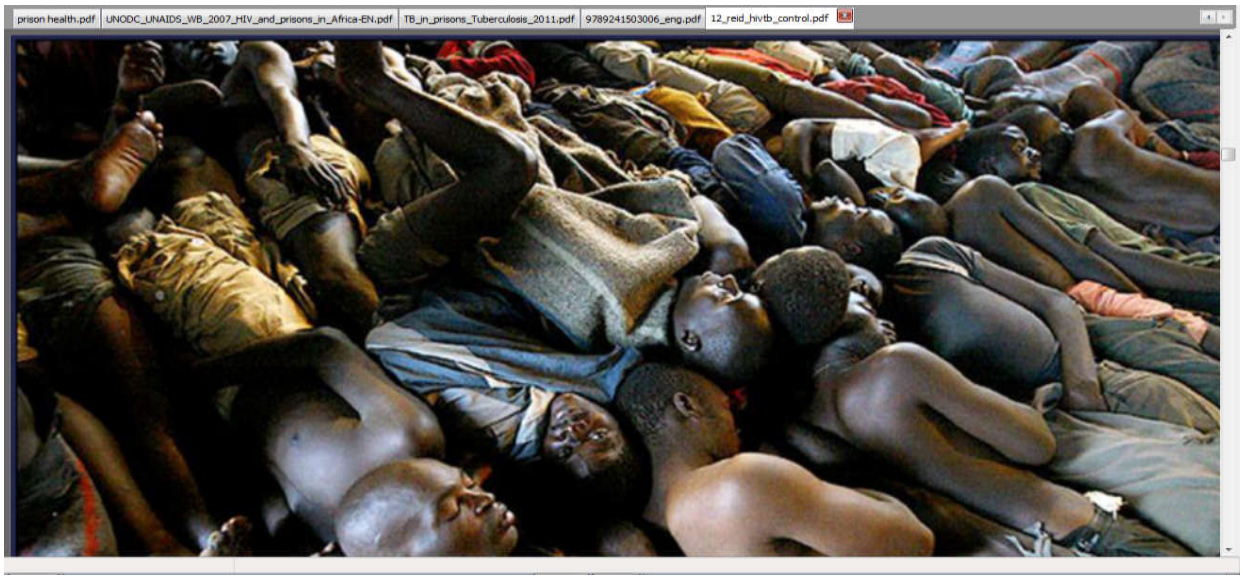

Figure 3. Ref: UN Universal Declaration of Human rights; ref: UN General Assembly: Basic Principles for the Treatment of Prisoners, 1990

As stated by the United Nations, prisons have entitlement to receive health care delivery of similar standard to civilian citizens.[3] The prison health care system in developing countries prison situation has remained "hell on earth" as described by the Vice–President Dr Guy Scott in April, 2012. The prisons condition has deteriorated to levels where inmates have been dehumanized to unbearable condition nearly everywhere in the world especially in developing countries. He indicated that all prisoners have the right to receive health care including HIV prevention measures that are equivalent to that available in the community. There are theories that support prison situation to promote good prison health. The theory of the "Iron Triangle" of health care: equity of access, cost and quality illustrate the trade offs in health care systems world over. At one point one can improve one of the three pillars even two (2) but the third is likely to be affected. Health care system can be made cheaper by improving cost and this can happen only if access is reduced in some way or reduced quality. Quality can be improved but this can result in increased cost or reduced access. Access can be increased but it is also likely to result in reducing quality. The Cost-Access-Quality model for prison health care suggests a need to link up the organizational structure and the approach to handling processes for prison health care. The result of the triangle remains linked up to the process of prison health care and judicial reform with the outcome of care and Judicial reform.

The thematic areas were reviewed and organized around Knowledge, Attitude and Practice, Legal& Policy, Prison Systems, Prisons Health Care, Interventional Areas and practice topics or issues, not the chronology of the research. The thematic areas were broken down into sub topics for easy follow-up. Some sections have the methods selected in literature review sources. Others provide the way information was presented and made suggestions for future studies. In this study the proposed frame work for prison health care was used to determine the way prison health was provided and organized in prison and the support the quality delivery of prisoner health care services in terms of disease, death, discomfort, disability or prison satisfaction. [4] This paper uses a descriptive study to review literature of prison health care that can influence the development of equity of access to quality health care in enclosed settings.

RESULTS

This section presents the complex findings on the prison health proposed framework for HIV/STIs/TB transmission and Drug abuse in prisons .These diseases are strongly linked to other aspects in the field of health and criminal justice, legal systems, with historical cultural and social economic situation of each state.[5]

Public Health and Human Rights	Prison Health	Judicial Reform

Source: HIV&TB Control in Sub Saharan Africa Prisons: Neglect to hopeful future (University of Carolina at Chapel Hill)

Figure 4. Judicial Reform System

Box 1. Search and literature data sources

Search Terms: Prison, Prison Health Care, Cost, Equity, Quality, Health Care System, Models, and Psychological Model

- Journals (6)
- Websites (6)
- Books (40)
- Research papers (30)
- Data base-Medline, CINAHL, Cochrane Library, Reports/Policy

1900-2013

The proposed prison health Frame work and Prison health care literature available both online and offline are summarized in Box 1:

The study reviewed literature on previous and current studies on prisons health cares particularly those prisons in both developed and developing countries. Reports from journals and WHO studies provided information on the current trends of prison health. The sources for the study were chronologically examined under historical development of prison health care trends since 1900.

Health Interventions in Prison Facilities

Condoms: It has been found that there has been over whelming evidence that provision of condoms has been feasible in wide range of prison settings worldwide and that condoms access in prison have been un obstructive. A Condom has no society threat to operations and does not lead to an increase to sexual advances and activities and drug utilization. Most prisoners have been found to be accepted by most fellow prisoners including prison staff once available[6].

[3] HIV/AIDS prevention care, treatment and support in prison settings: a frame work for an effective national response. New York: Joint United National Program on HIV/AIDS, 2006.

[4] Donabedian A, Evaluating the quality of car, 1966 Milbank quality measures ,1970)

[5] The world prison population list -7th educations Jan 2007. International center for prison studies, Kings College, London.

Table 1. Review of literature on Condom Utilization in Prisons (Synthesis Matrix)

Main Idea	Source #1 Scylla M, etal (2010) USA	Source # 2 Butter I, etal (2013) Australia	Source #3 Yap L, etal (2010) Australia	Source #4 Leibotwitz A A, etal(2012) America	Source # 5 Stephens T, etal (2009) South Africa
Availability and Utilization of Condoms in Prison.	Likelihood of getting condoms after machine installation increased and sexual activity remained the same while staff condom acceptance and access increased	Condom availability was not associated with an increase in sexual activity only likely to be used if available	Woman prisoners use less dental dams	HIV transmission (25% aversion) MSM is averted by condom distribution	Demonstrated some variations in condom behavior use & suggested a focus of future prevention efforts on the importance of using condoms to prevent the spread of HIV/AIDS/TB/STIs

Source: Journals, articles, Books and manuscripts

Table 2. Review of literature on HIV/AIDS health promotion activities

Main Idea	Source #1 Sifunda S etal (2008) South Africa	Source # 2 Derlaga V.J etal (2008) USA	Source #3 Fields J,etal (2008) USA	Source #4 Gurdin J.etal (2008) USA	Source # 5 Gristead O,etal (2008) USA
Health promotion delivery to closed settings & information gaps	Health promotion activities to inmates showed long term results indicating some differences in practicing safer sex and promoted better sexual negotiation skills	Inaccurate theories observed in inmates on HIV transmission regarding to stigma on people living with HIV/AIDS	Peer-based HIV health promotion &comprehensive HIV care are critical for program success	Short term & intensive interventions consisting of, one hour small group sessions focusing on Health promotion issues in HIV/AIDS prisoners participants to the study expressed more favorable attitude	Enhanced intervention (EI) was more successful than single session intervention in reducing sexual risk behavior. Sessions were conducted outside correctional institution .Incentives were given at one week and week 12.

Source: Journals, articles, Books and manuscripts

There has been an over whelming evidence of inadequate availability of condoms in prisons. Condoms have to be made available bin different prison locations[6,7,8]. The distribution and prevention education should be encouraged in prisons.[9,10] The 2014 WHO update review report supports the current recommendations and has continued to demonstrate peer-based HIV/AIDS education and that HIV/AIDS programs must remain comprehensive and yet still administrable.[11,12] . The HIV programs must also to include overall stigma reduction in settings.[13,14,15] There has been evidence from many countries around the world that rape and various forms of sexual violence occur in closed settings threatening the health of prisoners both physically and psychologically. This also has precipitated the transmission of sexually transmitted diseases and HIV.

Some prisons have been found to deny existence of such problems. Those systems that have undertaken measures to prevent these diseases have adopted systems to document incidents of prisoner sexual violence and have undertaken preventive measures through training their staff and also under taking investigative and responsive efforts and provision of services such post –exposure prophylaxis to inmates. WHO (2007) re-emphasizes that sexual violence does occur in closed settings and structural interventions such as the use of cameras through involvement of prison staff in sexual violence prevention can be of benefit.[16,17] Effectiveness of camera has been recommended by guards as they have reported favorable impression of the program,training and recommended expansion of such program in most of the prisons.[18]

Sexual Violence

Indeed HIV /TB/STI and counseling must be integrated with other risk reduction services that provide condoms and general active case detection to increase effectiveness of HIV prevention strategies.[19] For that prisoner about to be released HIV care and treatment have to be available in the general community.[20]

[6] Sytla M, Harawa N, etal (2010).The first condom machine in the USA fail: The challenge of harn reduction in a law and order environment. Am J .Public Health, 100 (6) 982-985.

[7] Butler I Richter J, etal (2013).Condoms for Prisoner's: No new evidence that they increase sex in prison but they increase safer sex . Sex transform infect 89 (5) 377-379

[8] Yap L, Butler T etal (2007). Do condoms cause rape and mayhem? The long-term effects of condoms in New South Wales prisons. Sex Transmit infect, 83 (3) 219-222.

[9] Leibowitz AA, Harawa N, etal 2012).Condom distribution in fail to prevent HIV infection. AIDS Behavaviour, 17 (8) 2695-702.

[10] Stephen I Conerly R etal (2009). HIV/AIDS, STIs. and condom use beliefs among male prison in mats in two South African provinces : Mpumalanga and Kwazulu – Natal. Glob Riblie health 4 (5) 423-432.

[11] Fields J,Ganzalez I etal (2008).Learning from and with incarcerated

[12] Sifunda S Reddy P,S etal (2008). The effectiveness of a peer-led HIV/AIDS and STI Health Education intervention.

[13] Derlaga VJ, Ninstead BA,etal (2008). AIDS stigma among inmates and staff in a USA state Prison. Journal of STD and AIDS,19(4) 259-263.

[14] Gurdin J,Niego S,etal (2008).Rikers Health Advocacy program(RHAP): An STI/HIV/AIDS prevention program for young men, in model programs for adolescent sexual Health: Evidence-Based HIV/STI, and pregnancy prevention interventions, Josefina J and Card T ed pg 263-271.

[15] Grinstead O,Eldridge G,etal (2008).An HIV,STD,and Hepatitis prevention program for young men leaving prison: Project START.Jurnal correctional health care 17(8) 2676-2684.

[16] La vigna,Debus-Shrerrill S.etal(2011).Preventing violence and sexual assault in jail.a situational crime prevention approach.Justice Policy Center Brief

[17] Yap L, Richters J,etal(2011).The decline in sexual assaults in en`s prison in New South Wales: a systems approach.J inters Violence,26(15) 3157-3181

[18] Kerbs JJ.Jolley JM(2007).Inmate-on-inmate victimization among older male prisoners. Crime and Delenquency,31(5) 385-393.

[19] Javambakt M. MUMPHY R.etal (2007) Sexually transmitted infections and HIV prevalence among incarcerated men who have sex with men.200-2005.Sexually transmitted infections .36(s@) s17-21.

[20] UNODC, UNAIDS, WHO (2009) HIV Testing and Counselling in prisons and closed settings. Technical paper

Table 3. Review of literature on Sexual Violence in prisons

Main Idea	Source #1 La Vigne,Debus ShrerrilS.etal (2011)USA	Source # 2 Yap L,Richters J, etal (2011) Australia	Source #3 Ravi A Blantenship KM ,etal (2007) USA	Source #4 Kerbs JJ,Jolly JM (2007) USA	Source # 5 Kavasary R,Mary DS,etal (2009)USA
Detection, prevention & reduction of all forms of sexual violence that promote transmission of HIV/STI/TB & drug abuse in prisons	Three separate interventions were piloted for 1year period In 2009. Where site A adopted an electronic system to track officers rounds. Site B installed cameras to reduce blind spots & recorded evidence for investigations and site c trained officers in crisis intervention to help improve their interactions with inmates and their ability to identify & prevent violent acts before they occur. At site A, five instances of force were reported. At site B violence was perceived as likely to occur	Interviews to prisoners about the decreasing sexual harassment indicated that changes implemented in prisons as assaults decreased were fewer prisoners per cell, a toilet &shower located in the cell, increasing # of cameras introduced in cells,day rooms, yards,& program areas, roaming guards rather than stationary posts, and housing of inmates by risk level. Guards are supported to increase their risk awareness of duty	Found that 65% of women inmates sample experience abuse prior to recruitment into prison. Emphasizes the need to have HIV prevention programs in prisons that focus on prevention of violence/coping & the link between violence &HIV	Reported of older prisoners being at high risk of victimization than young ones. Most prisoners requested of more guards in order to protect them from violence	Found that male prisoners were at high rate of accepting HIV testing when opt out testing was offered within 24 hrs of incarceration. Equally female prisoners accepted testing was presented within 24 hrs after incarceration. Prison staff stated they preferred to offer testing immediately because high turnover rates.

Source: Journals, articles, Books and manuscripts

Table 4. Review of literature on HIV Counseling & Testing in prisons

Main Idea	Source # 1 Adrinopoulos K,etal(2010) Jamaica	Source # 2 Kasavary R,Maru Ds,etal (2009) USA	Source # 3 Beckwith C.G,Liu ,T etal(2010) USA	Source # 4 MacGowan R, Margolis A, etal (2009) USA	Source # 5 Strick L.B Macgown J,etal (2011) USA
Increased Uptake of Testing& Counseling through HCT	In his demonstration project provided mandatory opt-out testing for new inmates & psychiatric patients & Voluntary HIV testing for prisoners for 6 Months. Pre/post tests counseling provided. 63% accepted voluntary testing & 16% refused mandatory opt out testing. There was relatively higher rate of voluntary counseling & testing. Confidentiality assured & HIV provided.	Found that male &female prisoners had high rates when opt out testing was presented within 24 hrs after incarceration	In their study found that on 28% of the participants in a conventional cohort received HIV test versus 100% in a rapid test cohort .Rapid testing greatly improved the odds of receiving test results.	Discovering that rapid testing was able to identify a good number of those who were previously undiagnosed of HIV infection & this greatly improved the # of prisoners that had their results received &time of receiving the result.	He found that opt-out testing was more effective at case detection

Source: Journals, articles, Books and manuscripts

HIV Care, Treatment and Support in Prisons

Table 5. Review of literature on HIV Care, Treatment and Support in Prisons

Main Idea	Source # 1 Robertson DN White BL(2009) USA	Source # 2 Small W, Wood E,etal (2009) Canada	Source # 3 Catz SL, Thibodery L,etal (2011) USA	Source # 4 Fontana L, Beckerman A, (2007) USA	Source # 5 Nunn A, Cornwall A, et al 2010) USA	Source #6 Shalihu N, et al (2014) Namibia
Availability & Accessibility of ART Services	Visible Strained relationship with prison staff. Lack of confidentiality Visible medication lines, access to medication, stigma have been found to negatively influence ART adherence while in incarceration. There has been no inmate input in prison, just like lack of medical information and poor relationships between providers & inmates	He observed delays in obtaining HIV care &treatment. Ability to take medication resulted in missed doses due to high levels of stigma influences. He also observed poor relationship between prison health staff and prisoners.	The interviewees indicated the need for the reinforcement of delivering confidential HIV prevention related information in enclosed settings in order to reduce safety threats and stigma. Prison health need to deliver HIV prevention& information updates in timely manner to protect the prisoners & populations	A lack of continuum of care was stated by prisoners between prison & communities during release period. Limited coordination & interaction between the two systems was noted. Discharge models for HIV patients were not followed and must be followed to demonstrate successful efforts to increase collaboration between community and prison system to increase retention care	Intensive case management positively impacted linkage to HIV Care & other services for HIV Positive jail inmates. Intensive care mgt was found to prevent drug relapse after prison release.	Indicated that barriers to ART adherence include: Insufficient privacy, lack of support, stigma, inadequate nutrition intake, market value for adherence of Anti-retroviral drugs & services, prison staff discriminating inmates and lack of adequate information about the transmission of HIV and care

Source: Journals, articles, Books and manuscripts

HIV Needle and Syringe Exchange Program in Prisons

Table 6. Review of literature on HIV Needle and syringe exchange program in Prisons

Main Idea	Source # 1 Milloy MJ,etal (2013) Canada	Source # 2 Rashanfekt P,etal (2013) IRAN	Source # 3 Seal D W etal (2008) USA	Source # 4 Ferver Castro V. etal (2012) Spain	Source # 5 Miller L.F etal (2008) Kyrzagystan
Reduction in needle sharing & resulting HIV Infection	Analyzed data from a cohort from 1996-2012 showed that virus levels were on the increase when incarcerated stating hesitantly in disclosing the HIV status & treatment delays and interruptions discovered continuity of drug use in enclosed setting, reinforcing the needle exchange program in prison.	Conducted interviews to revealed inmates that they received services that urge tailored to reduce harm. The needle & syringe exchange were found to have a significant effect on reducing the abuse of drugs and the studied inmates	He found among study participants that when using injection drugs HIV prevention means were not in effect. Participants supported the need to have needle exchange and education program for HIV infection	Discovered that most inmates & civil servants believe that the HIV program did not increase intravenous drug use that it improved the living conditions in enclosed settings	Discovered that after implementing & development of the needle exchange program in two prisons, needle sharing during the period reduced from 20% to 8%.

Source: Journals, articles, Books and manuscripts

Drug Dependence in Prisons

Table 7. Review of literature on drug dependence in Prisons

Main Idea	Source # 1 Wicheshan J.A etal (2013) Malaysia	Source # 2 Garcia C.A etal (2007) Puerto Rico	Source # 3 Eshrati B etal (2008) Iran	Source # 4 Magura S, etal (2009) USA	Source # 5 Hedrick D etal (2012)
Reducing injecting drug use and consolidated needle sharing & infection	Discovered that higher doses of MMT at time of release were associated with greater retention on MMTA after inmates release to the community	Those who completed treatment compared to non-completed had reductions in the self confirmed heroine use, crime and were less likely to be Opioid positive during drug urine testing	HIV transmission knowledge was high among the inmates population but there was increased health education targeted at prisoners for increased perceptions of effectiveness on health benefits for using harm reduction strategies	Those participants that were assigned randomly to either BU premorphine or methadone maintenance. The completion rates were found to have significant difference on post – release relapse among treatment groups.	Reviewed OMT to be significant associated with reduced injection, needle sharing and heroin use in enclosed settings if doses were noted to be inadequate. Pre-release of OMT was found significantly increased with treatment and retention after releasing e.g. arrangements that exist with treatment. He discovered that disruption of OMT continually because of short periods of imprisonment was in association with significant increase in HIV incidences.

Source: Journals, articles, Books and manuscripts

Table 8. HIV and Prison in Sub Sahara

Country	Prison population	Prison pop rate per 100.00	Total
Cameroon	20,000	125	16
Zambia	14,347	120	12
Tanzania	43,911	113	39
Madagascar	20,294	107	19
Uganda	26,126	95	28.8
Ethiopia	65,000	92	70.7
Malawi	9656	74	13
Togo	3,200	65	4.9
Congo	30,000	57	52.8
Ghana	12,736	55	23
Cote /dvoire	9,274	49	19.1
Niger	5,709	46	12.5
Guinea	3070	37	8.4
Mali	4040	34	11.9
Gambia	450	32	1.4
Nigeria	40,444	30	12.6
Burkina faso	2,800	23	12.2

Source: The World Prison population distribution -7th education Jan, 2007. International Center for Prison Studies, kings College, London.

Table 9. Prison Population Data– By Sub Region

Sub Region	Prison Population	%Prison Population	Population	%of Pop Sub Region
Central Africa	64,665	10	98,489,000	14
East Africa	315,658	47	269904250	39
South Africa	192,166	29	66,610,000	10
West Africa	95,303	14	257,492,000	37
Total	667,792	100	687495250	100

Source: The World Prison population distribution -7th education January, 2007. International Center for Prison Studies, kings College, London.

Table 10. Female Prison Population in Africa

Country	Prison Population (thousands)	Female prison population (# of women & Girls incarcerated)	% Female out of the total Prison Pop
Mozambique	5,812	551	6.3
South Africa	186,739	3,129	6
Mauritius	139	137	5.6
Botswana	6105	306	5
Cape Verde	0.75	38	5
Tanzania	46,416	1515	5
Swaziland	3,245	148	4
Togo	3,200	63	4
Senegal	22,272	183	3.7
Kenya	61,845	1254	3.6
Congo	30,000	83	3.2
Madagascar	19,000	650	3.4
Zimbabwe	20,000	602	3.2
Ethiopia	65,000	N/A	N/A
Cameroon	20,000	N/A	N/A
Rwanda	112,000	2,925	2.6
Cot/dvoire	10,353	236	2.6
Ghana	24,379	257	2
Niger	6,000	N/A	N/A
Mali	4,040	80	2
Guinea	3,070	61	2
Nigeria	46,444	756	1.9
Burkina Faso	2,800	25	1
Gambia	450	6	
Malawi	8,566	117	1.2

Source: The world female imprisonment list, 2006.

Table 11. Some data regarding HIV among prisoners in Africa

Sub region/country	Total Pop (millions)	HIV Prevalence (adults aged 15-49%)	Prison pop (thousands)	# of Prisons	HIV prevalence among Prisoner % & yr
West Africa					
Senegal	11.6	0.9	22,271	38	2.79(1997)
Burkina Faso	12.2	2	2800	11	11(1999)
Nigeria	131.5	4	40,444	227	9(2004)
Cote /dvoire	18	7	10,355	33	28(1993)
Central Africa					
Cameroon	16.3	5.4	20,000	73	12(2005)
Rwanda	17.6	3	112,000	14	14(1993)
East Africa					
Tanzania	38.8	6.5	46,410	120	5.6(1995)
Uganda	28.8	6.7	21,900	-	8 (2004)
South Africa					
South Africa	47.4	18.8	186,739	241	45(2006)
Malawi	12.8	14	8,769	23	75(N/A)
Zambia	11.6	17	13,200	53	27(1999)

Source: Data compiled from UNAIDS, 2006; Directory of prisons in Africa, 2005. The World Prison Population List, 2007.

As we have seen in the tables below, in the sub Saharan Region, South Africa has the highest prison population and has the ninth largest prison population in the world. Rwanda records the largest while Ethiopian and Kenya have reported significant, prison population. Overall, West African Countries have indicated having lowest prison population.[21] Although West –Africa has small prison population ranks 3rd in % of prison population in the sub-Saharan Region.

Health Problems in Prison As a consequence, HIV/STI/TB and Drug Abuse are among the most prevalent health problems in prisons with HIV rates recording as high as 50% and the Tuberculosis incidence rates have been averaging 23 times higher than the mortality rates in the general population of each state. According to the United Nations prisoners are entitled to receive health care the way non prisoners receive.[22] The substandard prison health care and an increase in the disease burden in prisons have remained the most common features in prison in Sub Saharan low and middle income countries[23]. Countries like Zambia, prison population prevalence of human immune deficiency virus HIV and

[21] World Health Organization. Effectiveness of interventions to address HIV in prisons. Geneva, Switzerland: World Health Organization; 2007.

[22] HIV/AIDS prevention care, treatment, and support settings a frame work for an effective national response. New York: joint united nations program on HIV/AIDS, 2006.

[23] Todrys Kw, Amon JJ. Criminal Justice Reform as HIV and TB Prevention in African prisons. PLOS Med, 2012, 9 (5): e001215.

Tuberculosis are far higher than those of national estimate of 12.7% and 0.35 respectively.[24] The country still has no specific infection prevention and control measures or onsite facilities for diagnosing tuberculosis and those prisoners with tuberculosis are held in cells with others sick or ill prisoners including those with HIV infection and mental illness. I argue that although conventional tuberculosis control activities are improved considerable investment in a wider range of public health interventions, such as staffing and infrastructure upgrades has been a challenge. TB laboratory diagnosis and HIV interventions have to be critical as well. High TB and HIV/AIDS endemic in Sub Saharan Africa countries mean also high rates of HIV co-infection[25].

Lack of knowledge among prisoners: It is important to note however that there has been reported lack of knowledge on disease transmission risks in prisons and to that there has been some evidence that well designed HIV/AIDS health promotion programs improve prisoners knowledge about HIV/AIDS. Those countries where studies have been conducted both low and middle income countries demonstrate a need for information and education programs in enclosed settings. This showed that those programs that are well designed are able to improve the knowledge of prisoners about HIV/AIDS. Evidence has also shown that knowledge is a precursor to protection from infection. Some noted prison behaviors are as a result of prison based education initiatives though it is difficult to measure the outcome of these initiatives. Therefore, health promotion programs developed in prisons are likely to be more effective. Some factors have been identified that can influence the effectiveness of educational and informational programs in prisons, whether these are specific to population needs or not[26]. Educational programs are supposed to be designed with the inputs of prisoners whether they are instructor led or peer-based, the method used and whether the program involves pre and post -counseling.[27]

Attitude towards Drug Use and Sexual Behavior: Undoubtedly**,** it has been proven that most inmates are males of the age ranging from 19-35 years old and many of them could have already been engaged in sexual activities and drug use and tattooing prior to entering prison. Others could have already committed rape, all that which carries HIV and other sexual infections.[28]

Behavior towards other prisoners & personal health behavior: It could also be said that inside closed settings inmates are likely to participate in a lot of high risk behaviors such as unprotected sex (MSM),drug use and sharing of needles, razor blades and other sharp instruments.[29] The member states under the United Nations have been guided by Standard Minimum Rules for treatment of inmates covering medical care and these remain to individual states to implement them accordingly. The standards recognize all inmates' fundamental civil, social, political cultural and economic rights irrespective of their detainee or prison situation. Good prison health is good community health.[30]

Practice of prisoners and prison staff: The governments provision of equity of access to medical care, coupled with good prison environmental conditions, could promote both the prisoners and prison staff well being. The prison management objective must be that prisoners leave the prison setting in the same or better health condition than at the time they entered the prison. Prisoners are equally members of the communities and most of them find their way back into the community. If prisoners are not treated with their communicable disease they put others including prison staff in danger of contracting these diseases[31].

Policies and legal frameworks for delivering prison healthcare: In the face of the dangers of transmitting these infectious diseases there have been international frameworks that provide best practice guiding the delivery model of prison health service in every member state

Standard minimum rules for the treatment of prisoners:

- High Commission of Human Rights provides basic rules regarding provision of quality medical services that include availability of multi-skilled medical officers providing psychiatry and transferring of ill/seek prisoners requiring specialist treatment, dentistry and other ailments .[32]
- The United Nations (UN) basic principles for the treatment of prisoners (1990) have a provision that inmates must have undiscriminatory health care services and these must be available based on their legal situation in that country .[33]

Prison Systems, Population and Living Conditions

The principle for the protection of inmates with mental illness and international approach to mental illness health care (1991) provide basic details in regard to the protection of people having mental disorders and ways of improving their conditions. These provisions provide the right to treatment upon informed consent that involuntary seclusion and physical restraint be only implemented in line with procedures. Mental patients admitted to any mental health facility to be always informed of their rights[34]. Trencin Statement on prison and Mental Health (2007) does recognize many numbers of prisoners with mental health problems. The selection criteria has been diverting prisoners with mental health for psychiatry care and appropriately having central policies promoting

[24]Zambia HIV and AIDS estimate (2012 internet) General: Joint United Nations program on HIV/AIDS 2013. Available from (http://www. unaids.orga/en/region countries/countries /Zambia/cited2013 March,2015)

[25] O`Grady,Mwaba P, Bates M, etal Tuberculosis in prisons in sub-Saharan Africa-a potential time bomb.S Afric Med J 2011: 107-108.

[26] Derlega VJ,Ninstead BA, etc (2008).AIDS stigma amog inmates and staff in a USA State Prison.Journal of STD and AIDS,19(4) 259-263.

[27] Sifunda S,Reddy P,S etal (2008).The effectiveness of apeer-led HIV/AIDS and STI health education for prison inmates.Health Edu & Behaviour,35(4) 494-508.

[28] Stewart E.The sexual health and behavior of male prisoners:The need for research.The Howard Journal,2007;46(1) 43: 59.

[29] UNODC,HIV and AIDS in places of detention: A toolkit for policy makers,program managers,prison officers and health care providers in prison settings.Viena;UNODC,2008.

[30] WHO.Tuberculosis control in prisons.Amanual for program managers.Geneva: WHO,2001.

[31] UNDOC,HIV/AIDS in places of detention; Atool kit for policy makers,program managers,prison officers and health care providers in prison settings.Vienna.UNDOC,2008.

[32] UN(United Nations) 1955.Standard minimum rules for the treatment of prisoners.

[33]UN 1990.Basic principles for the treatment of prisons. Adopted and proclaimed by the General Assembly resolution 45/111 of 14 Dec,1990.

[34] UN 1991.The protection of persons with mental illness and the improvement of mental health care. Adopted by General Assembly Resolution 46/119 of 17 December , 1991.

mental health and well-being of inmates and providing health care equivalent as possible to those available in the communities (WHO 2008)[35].

Health services and prevention: In short, supplementary to International Frameworks are individual state principles that guide the provision of care. For example, Australia has strengthened the concept of community equivalent as a bench mark for the delivery of prison health services through its Medical Association Position Statement on health care of prisoners and detainees (1998) that states that inmates must have the same right to equity of access to quality health care as that of the general population.[36] Following the Ottawa Charter recommendations for health promotion and disease prevention have been cited to be essential in preventing illness and strengthening prison health care (WHO 1986)[37]. The Rwandans post 1994 genocide policy making strengthened the safety nets for the poorest, vulnerable and marginalized and placed a political premium on plans and policies that emphasized on equity of access to health care, education and business development. The government of Rwanda wrote the "Right to Health" into the 2013 Constitution.[38] All opportunities for the health and population well-being cuts across the Rwandans entire population and no geographical age, gender and other disparities in accessing primary and tertiary health care. Efforts in Rwanda to buoy the health and well-being of its population have borne fruit. The state has even a community based health insurance "*the mutuelles de santé"* that covers the nation's population and the 25% poorest Rwandans do not pay health care co-payments such as premiums.[39] Prison health care ensures the health of prisoners does not worsen their incarceration but utilizes it as an opportunity to successfully manage health conditions and have influence on risk behavior.[40] Drug use prevention and sexual health and smoking cessation are among the most priority areas that need attention in strengthening prison health. However, there are ethical implications that exist and are associated with delivering of health care in secure environments such as enclosed settings (prison).There has been a need to support the independence and autonomy of health professionals and protect clinical independence and promote integrity from interference and ensure professional independence of prison health staff and their integrity to be compromised by virtue of their type of work .There has been also a need to split custodial responsibility and provision of health care among agencies. Prisoner population has regularly been in transient, the population centers and returns to prison and at times serves short sentences that make the continuum and continuity of health care very problematic. Clear and consistent plans, policies, practices, procedures and pathways must ensure quality service delivery to prisoners to minimize the associated risks with fragmented health care.

Delivery of prison health care services: In this way different nations have variations in governance of prison health services and delivery models. Others use direct service provision or through accessibility to community based services. In some countries primary health care has been found available in all prisons and others still deliver services in all prisons ranging from primary health care, secondary and tertiary services provided along with the general population. In prison health care most services are conducted by a nurse and to some less extent classified daily employees (unclassified employees) and Nurse led care have been very dominant. A situational described as sufficient health service delivery.

Provision of health care in prison setting: Prison health has been obliged to promote "equivalent of health care" principle that requires equity of access to quality health care. A lot of international and national recommendations and directives make reference to this principle.[41] It has been quite difficult to translate this equivalence of care to prison settings from community .There has been an argument that there has been an obligation in provision of health care to a great standard than the community settings, equity of access to be minimum rather than ideal.[42] Although there are similarities in provision of health services to community provided health care, enclosed setting has been unique environment with complication to prison health care delivery. The security and infrastructure requirement of the prison environment provide some challenge faced in these setting.[43] Different inmates have different freedoms to move around within the grounds of the prison, despite availability of health services provided at site where in between gates there are locked doors under control of other people. Decision of choice for medical services appointments as inmates would do in the community must depend on prison security staff bringing a request form to visit health services or bring their health issue to the attention of a medical attendant. Even in emergency situation such as the need for ambulatory services must require security consideration as paramount, making equity of access to quality health care a dream for prisoners. This lack of freedom goes further than restrictions on movements within prison grounds. Prisoners lose many social freedom and connections related to their own health and complete wellbeing. This also goes further to the failure or lack of their ability to access social support from friends and family and general lack of availability of health information and improved life styles.[44] Choice of medical professional to help them to assess their health is not there and similarly visiting health care teams are also unable to freely choose the patient they see needing their immediate help.[45]

Use of health services by prisoners: Prisoners' utilization of health services has been found to be 3-4 times more than the general population that can be linked to, though not completely explained by high illness.[46] Marshall etal (2001) discovered

[35] WHO,2008. Trencin Statement on prisons and mental health. Copenhagen, Denmark: WHO Regional Office for Europe.

[36] AMA (Australian Medical Association) 2012.Position Statement on Health and Criminal Justice System.Canberra.AMA.

[37] WHO, 1986. The Ottawa Charter for Health Promotion, Ottawa, 21 November,1986.

[38] Constitution of the Republic of Rwanda (2003). Article.41. Available at www.mod.gov.rw/img/doc/constitution of the republic of Rda.doc).

[39] Farmer,P, C.Nutt,C. Wagner, etal., "Reduced premature mortality in Rwanda :Lessons from success " British Medical Journal 346 (2013), pp. 346.

[40] Corrective Services WA 2010.Assessment of clinical service provision of health services of Western Australian Department of Corrective Services. Perth: Corrective Services WA.

[41] Niveau G (2007). Relevance and Limits of the principle of "equivalence of health care" in prison Medicine. Journal of Medical Ethics 33: 610-13.

[42] Exworthy T, Samele C,Urquia N & Forrester A 2012.Asserting prisoners` rights to health: Progressing beyond equivalence Psychiatric Services 63: 270-5

[43] Powell J, Harris F,Condon L &Kemple T2010.Nursing care of prisoners: Staff views and experiences. Journal of Advanced Nursing 66: 1257-65.

[44] WHO 2007.Health in prisons: a WHO guide to essentials in prison health, Geneva: WHO.

[45] Bjorngaard J,Rustard A & Kjelsberg E 2009.The Prisoner as patient-a health services satisfaction survey.BMC Health Services Research 9:176.

[46] Nobile C,Flotta D,Nicotera G,Pileggi C&Angelillo 1 2011.Self-reported health status and access to health services in a sample of prisons in Italy.BMC.Public health 11: 529.

that the prisoner medical doctor consultation on average was 6 times in a year, 3 times also like their peers in the community and on the contrally female prisoners visited the doctor on average about 14 times in year making it 3 times community average[47]. This has been described as lack of equity of access to information health care coupled with inaccessibility to formal care where inmates visiting the health facility would instead have consulted the family members. The institutional culture and lack of self-expression opportunities for prisoners to look at own health hinders better health for them. As repeatedly noted in the literature review that minimizing geographical barriers to provision of health services to prisoners subsequently improves the health and well-being of the entire population. Instead of prisoners acquiring medical care from outside the prison grounds can do so within prison grounds to promote equity of access to health care. In the 21st century HIV/AIDS pandemic has hit hard the developing countries and there has been a need for all prisoners to access testing, treatment and comprehensive HIV care. The HIV diagnosis and treatment remains in the framework of the right to health and has the basic fundamental belief that inmates have similar rights to health just like the rest of the population

HIV prevention in prison facilities: There has been a recommendation for every nation to have strong emphasis on HIV prevention interventions such as condom availability and distribution campaign messages and PMTCT through the media. Exploring the HIV prevention and exposure programs have to be intensified at all levels and cost. HIV in prison has been precipitated due to men having sex with men (MSM) and are heavily traumatized, stigmatized and discriminated. If say some many prostitutes were in prison, the sexual activity would not just cease because of a law disallowing their privacy during visitation. Prisoners everywhere have not been allowed to have sex in prison setting. Rwandan law for example does not allow prisoners free access to condoms.[48] Though such a law exists in Rwanda according to some literature review, prisoners have been found engaging in sex during their terms either in prison, worksites or during movements between locations. The side effects of withholding condoms from enclosed settings are ominous. A WHO document of 2007 depicts an evidence that in prison setting provision of condoms must remain feasible and that access to condoms has been unobstructive in prison setting. Condoms have been found to represent no threat to security or operations and do not lead to an increase in sexual activity or during use. Many prisoners and prison staff have been found to accept condom availability and use through condom availability has not been enough. Condoms need to be easily equitably accessible in different locations throughout the enclosed setting environment. There has been strong evidence in the 2014 updated literature review that supports the current recommendations and has continued to demonstrate that equity of access to condoms does not increase sexual activity,[49] nor condom utilization and availability pose a threat to staff security at all costs.[50] Condoms however have been found to reduce HIV transmission.[51] There have been strong recommendations that condoms have to be delivered in prisons in such a way that they are accessible[52] and their delivery to be in combination with HIV prevention and health promotion activities that are equally encouraged. WHO 2007 has indicated that prison authorities in jurisdictions must introduce condom distribution programs and expand their implementation and utilization to scale. The emphasis still continues on condom equity of access to prisoners for prisoners to be able to pick them up from various locations within the prison without asking for them and not easily seen by others. Health promotion activities have to be strengthened and female prisoners also to access to condoms just like male prisoners.[53]

Sexual Violence in Prisons: According to a statement in the 2007 WHO document it has become evident that from countries around the world rape and other forms of sexual violence have been occurring in prisons. This has posed a serious threat to the health of inmates physically and psychologically including a great risk of getting HIV and other sexually transmitted infections. Recognizing sexual violence has been difficult just like preventing it and responding to prisoners' sexual violence. Other prison systems have shown the possible fundamental of addressing sexual violence in prison setting. Some other prison systems have adopted ways to undertake preventive measures through provision of staff training and undertaking investigations re-emphasizing response efforts of providing required services to victims. The updated review of literature of 2014 supports the recommendations with emphasis on sexual violence not to occur in prison setting.It has been found to be important to have some structural interventions where cameras are used through also involvement of prison staff in sexual prevention[54、55] must be implemented with a focus on violence prevention and coping strategies on prison has been found to be essential. Guards have a role to play in preventing sexual assault and this has been emphasized. Prison authority system has to develop multi-prong strategies to enhance prevention, detection and reduction of all forms of sexual violence in prison and also for the persecution of offenders.[56] Various component of policies and programs need to have formal evaluations to address the other forms of sexual violence including rape in enclosed settings. All those victims of sexual assault in prison must have post exposure prophylaxis and PEP must be available to reduce HIV transmission risks after exposure to HIV.

[47] Feron J,Paulus D,Tonglet R,Lorant V& Pestiaux D 2005.Subtantial use of primary health carwe by prisoners; epidemiological description and possible explanations.Journal Epidemiollogy and community Health 59:651-5

[48] . UN Office for the Coordination of Humanitarian Affairs "Rwanda: New HIV awareness drive targets prisoners,IRIN News (February18th,2010).Available at http://www./rinnews.org/ report/88152/RWANDNEW-HIV-awareness-drive-targets-prisoners)

[49] Farmer .P,CNutt,C.Wagner,etal., Reduced premature mortality in Rwanda: Lessons from success," British medical Journal 346(2013),pp.346.

[50] Bingwaho,P.Kyamanya P.Farmer,etal., "Reshaping the architecture of global health partnerships: Rwanda`s Human Resources for Health Program," New England Journal of Medicine.

[51] UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance,Guidelines for second generation HIV Surveillance(200).

[52] Rwanda Biomedical Center,Country progress report for joint United Nations Program on HIV/AIDS(March 30,2012)

[53] WHO 2007.Health in Prisons: a WHO Guide to the essentials in Prison Health.Geneva:WHO

[54] La vigne NG.Debus-Shrerrill S etal(20110.Preventing violence and sexual assault in Jail; a situational crime prevention approach.Justice Policy Center Brief

[55] Yap L. Richters J.etal(2011).The decline in sexual assaults in men`s prisons in New South Wales: a systems approach.J interpers violence,26 915) 3157-3181.

[56] Kerbs JJ.Jolley JM(2007).Inmate-on-inmate victimization among older male prisoners. Crime and Deliquency,31(5) 385-393.

Drug Dependence Treatment: The review of literate continues to support and demonstrate positive outcomes associated with drug dependence and treatment in prison that includes a reduction for high risk dangerous behavior and drug use[57,58] .Though delays in implementation in prison may have negative impact on the health of prisoners. Health promotion needs strengthening in such settings[59].The prison authorities should also provide a range of options for drug dependence treatment option for inmates with problematic drug use.

HIV Counseling and Testing: In the 2007, WHO document indicate that there has been overwhelming evidence on programs that provide HIV testing and counseling must be easily accessible to prisoners at entry to prison and throughout incarceration and strengthen increased uptake of counseling and testing. This has been important for HIV possible prisoners and HIV testing results that are kept confidential and promote voluntary disclosing of their HIV positive status. Mandatory testing for HIV has been cited to be unethical and segregation prisoners has been inefficient costly and have been found to have negative impact with health consequence for segregated prisoners. In the 2007, WHO document it has been recommended that HIV counseling and testing in prison must be easily accessible to all prisoners on entry and during the phrase of imprisonment. The activity has been recommended to remain confidential and everyone to be tested after having given an informed consent and receiving counseling. The service must be closely linked to equity of access to treatment, care and support for those testing positive and be part of a comprehensive HIV care program that includes accessibility to preventive measures. It has been advised that the prison system must not adopt mandatory policies for testing and segregation for they are counterproductive and have negative health consequences including those of segregation prisoners.

The Needle and Syringe Exchange Program: The needle and syringe exchange program have been feasible in a wide range of prison settings and these programs appear to have additional and worthwhile benefits included a reduction in over dose risk and decreased abuses. Prisons need to have equity of access to confidential needle and syringe programs. Both prisoners and prison staff must receive education and information about the program and need to be involved in the design and implementation of their programs. The WHO review of 2007 supports the current recommendations and demonstrates what happens in occurrence to needle sharing in prisons[60].There has been evidence of reduction in needle sharing practice after the needle syringe program[61] and there has been reported decrease in drug abuse and reduction in HIV infection after introducing the needle syringe program. Staff and prisoners interviewed did not believe that needle syringe program increase drug use but that they improve hygienic living conditions.[62]

DISCUSSION

This report brings together all known records of prison health since the 1900. There seem to be many people dying in prisons due to poor health care and ill-treatment. In the introduction section an overview on the prevailing conditions in prison were indicated. These include severe overcrowding, poor ventilation, and limited access to quality health care. High risk behavior, including self injection, drug use, sexual activity, tattooing and body piercing have been found to be wide spread within prison settings leading to transmission of HIV/STIs/TB and Drug Abuse contributing to many reported deaths and mental cases. This section begins with interventions that must be implemented to prevent disease transmission and those that must stop the disease from developing. The discussion, has summarized the main results by largely concentrating on most recent developments under health care practices (interventional areas) in prison settings. TB/HIV/STI transmission and Drug abuse are among the major public health problems worldwide. The scourge of TB/HIV/STI transmission and Drug abuse in prisons have devastating effects on the nation's economy and social development. The prison settings, where segregation criteria are usually based on crime characteristics rather than well-known public health concerns that must facilitate transmission of diseases are not taken into consideration by prison authorities. Late detection and treatment of infections of individual cases have been frequent. Inmates may have higher risk of tuberculosis that has followed a recent infection or reactivation of hidden infection through co-immune suppression pathologies in particular HIV infection and intravenous drug use followed by poor nutrition[63]. Prisons have been found to be reservoirs of disease transmission and prisons represent a reservoir of transmission of various diseases to communities through prison staff, close contacts and visitors with active diseases like tuberculosis.[64] The disease transmission dynamics among prisoners and the general population play a key role in driving incidence prevalence mortality rates of HIV and TB. Many factors happening in prison may worsen poor treatment outcomes and precipitate malnutrition, drug addiction and promote co-morbid disease.HIV, diabetes and hepatic insufficiency and other factors have been related to weak health service delivery of care. Prisons export HIV, STIs and TB from inmates to unsuspecting population through contact with visitors and prison staff as well as when prisoners are discharged and probably have not yet finished their treatment.

What must be done to reduce HIV/TB/STI and drug abuse in prisons?

Given the recommendations of mitigating infections in prisons in order to reduce the spread of the diseases, behavior interventions must be directed at:

[57] Asl RT.Eshrat ,etal (2013).Outcome assessment of a triangular clinic as a harm reduction intervention in Rajaea prison.Iran.Harm Reduction Journal,10(41).

[58] Freudenberg N.Ramaswamy M.,etal (2010).Reducing drug use,human immunodeficiency virus risk,and recidivism among young men leaving jail;Evaluation of the REAL MEN re-entry program.J Adolex Health,475(5) 448-455.

[59] Favrod –Coune T Baroundi M,etal (2013).Opioid substitution treatement in pretrial prison detention: a case study from Geneva,Switzerland.Swiss Medical Weekly,1143.

[60] Moller L.F Van Den Bergh BJ, etal (2008) Drug use in prisons in Kyrgystan; a study about the effect of health promotion among prisoners. Int jour of prisoner health,4(3) 124-133.

[61] Ferrer –Castro V,Crespo-Leiro MR,etal(2012) .Evaluation of a needle exchange program at pereiro de Aguiar prison(Ourense-Spain); aten year experience.Rev Esp Sanaid Penit.14(1) 3-11.

[62] Roshanfekt P. Farnia M,etal (2013).The effectiveness of harm reduction programs in seven prisons of Iran.Iranian J Public Health,42(12) 1430-1437.

[63] Stuckler D etal.Mass incarceration can explain population increases in TB multi drug-resistent Tb in European and Central Asia countires.Proceedings of the National Academy of sciences USA,2008.105:13280-13285.

[64] Niveau G. Prevention of infectious disease in correctional settings: A Review. Public Health,2006,120:33-41

- Prevention of transmission of HIV/TB/STI from people with similar infection to their contacts
- Preventing from developing the disease once it is identified.

To prevent further transmission early detection of cases in prison, immediate treatment and infection control interventions need to be strengthened.

Case finding: If case detection has been conducted properly, systematically, effectively and well followed with adequate treatment regimen can lead to reversal growing incidence of HIV and TB. Two strategies for case finding have been identified and these are through self-referral and passive case finding during incarceration and regular routine active case finding during incarceration.

Passive case finding: This approach has been found to examine HIV/TB/STI and Drug Abuse suspects. Passive case finding for HIV/TB/STI and Drug Use have limited success in closed settings. Some inmates may have difficulties due to fear of repercussion and stigma of being diagnosed of TB and HIV. If one is diagnosed of TB, it has been a secondary gain for a prisoner to be transferred to a better setting. Close contact in prisons has been responsible for the transmission of infectious diseases. HIV/AIDS and Tuberculosis are the most important cause of illness and death from infectious diseases the world over and prisons have become reservoirs for such diseases in many settings.[65]

Active case finding: Prisoners have to be screened at various points of their incarceration and there has been a need to have many various methods such as chest radiography, tuberculin skin testing and immunoglobulin or combing all these methods. Screening at times must be done using a questionnaire. Co infection has been well documented for HIV in prisoners with latent and active tuberculosis and this has been found to present difficulties such as management and diagnostic challenges to prison health care systems[66,67]. It has been recommended that in prisons active and passive case finding has been carried out systematically and simultaneously. When the two approaches have been combined the must substantially increase case detection.

Screening Strategies for HIV/TB/STI and Drug Abuse: Screening of these diseases and behavior depend on many factors such as the type of facility, the prevalence of the diseases and behavior in the inmates' communities and also the prevalence of risk factors for TB such as HIV to the prison population and also how long the inmates have stayed at a particular facility. The recommended screening type for each facility has to be determined by an assessment of risk of HIV/STI and TB transmission within a particular facility.[68]

Screening for HIV/TB/STI and Drug Use on Entry- According to WHO, prisoners are entitled to medical examination at entry and there has been a need for prison authorities to safe guard prison health care for prisoners. Screening at entry detects undiagnosed HIV/TB/STI including Drug Use. This helps identifying prisoners who were receiving treatment elsewhere before incarceration to help them complete their treatment. Medical screening on entry has been described to be essential as those with diseases cannot enter the body of prison population until their illness has been verified. Newly recruited inmates must not be housed with other prisoners until after having gone through proper screening for HIV/TB/STI and Drug Abuse. The initial segregation of prisoners has been an opportune time to check for HIV/TB/STI and drug abuse.

Contact investigation in prison: Tuberculosis contacts share air for prolonged periods usually with active tuberculosis cases. These contacts include inmates who sleep in the same rooms or cells or housing units. Some inmates have been found to spend time in poorly ventilated places. Apart from immune suppression because of HIV infection, high TB. Concentration in prisons has been often related to inmate-associated risk factors such as stress poor nutrition, drug and alcohol abuse chronic illness and malnutrition. It has been reported that poor prison living conditions, inadequate ventilation and mass incarceration in closed settings promote mycobacterium tuberculosis transmission among prisoners.[69]

Mass Screening of prison population: The whole prison population and other segment population must undergo mass screening that helps to identify suspected cases of HIV/TB/STI and Drug Abuse. Regular mass screening and follow up twice a year has been found to be ideal. The mass screening has been preferred in the initial stage of project implementation and has to be complemented with other screening passive strategies and on entry. However, mass screening has been found difficult to sustain in resource limited settings due to logistical and cost barriers but can be used where resources permit. Although the strategy for TB initial standardized supervised treatment and pharmaceutical supplies are un interrupted, several closed settings encounter challenges in supervising treatment.[70]

Screening Methods in Prisons

Symptom Screening

Prison health care workers must conduct screening of prisoners by use of special questionnaire and this questionnaire must be based on three crucial aspects such as history of former disease (previous treatment, interrupted treatment clinical symptoms and body/mass index. Those with a previous history of TB and clinical signs: *cough of any duration, fever, night sweat, sputum production, loss of weight*. Radiography screening has been found to be more expensive than the use of the questionnaire. Questionnaire screening is simple and does not require special equipment. Case finding staff should be trained

[65] Joint united nations program on HIV/AIDS, global report: UNAIDS report on the global AIDS epidemic 2010.Geneva joint United Nations program on HIV/AIDS 2010 world health organization Multidrug and extensively drug resistant and response. Genera WHO 2010)

[66] DubrovinaI, Miskinis K, lyepshina S,etal Drug=resistant tuberculosis and HIV in Ukraine a threatening convergence of two epidemic? Int J Tuberc lung dis 2008; 12:756-762

[67] World Health Organization. Status Paper on Prisons and Tuberculosis. Coper Hagan WHO, 2007).

[68] Prevention and control of HIV/TB in correctional and detain facilities recommendation from CDC. Morbidity and Mortality Weekly Report.2006.55RR-9 http://www.cdc.gov/mmw/pdf/u/r5509.pdf,accessed 20 Nov/2013.

[69] StucklerD, Basu S, MckeeM, etal Mass incarceration can explain population increase in TB and multidrug –resistant TBIN European and central Asia countries. Proc National Academy Science USA 2008;105:13280-13285.

[70] Tadolini etal.The WHO Strategy for TB Control and elimination.2012, p 242-253

in interview techniques and how to correctly complete the questionnaire.[71] Prisoners must not be guided to one answer or the other and merely giving prisoners a questionnaire for self-completion has been described as unacceptable. Symptom screening has been found to be unacceptable and unsatisfactory in facilities with a minimal risk.

Screening through Chest Radiography: This type of screening from various studies shows that a substantial number of people who have been missed at symptom screen must be identified here. Those inmates with abnormal chest results are followed up with the examination of sputum.[72]

Other Screening Methods: Latent TB infections are detected by the tuberculin skin test and have been used by countries with low incidence of TB.[73] Diagnosis must be strengthened in areas of chest radiography and sputum smear microscopy, culture specimen expert MTB /RIF diagnostic molecular test. WHO recommends that expert MTB/RIF should be used as an initial diagnostic test to those suspected of having MDR-TB or HIV associated TB.[74]

Multi-Drug Resistance-Tuberculosis MDR-TB - MDR-TB illustrates the health system failure to effectively treat the disease. The emergence and spread of the disease has been contributed by the social determinants that make the disease still prevail in most closed settings. Those living with HIV, prisoners, the migrants and other vulnerable groups are at most risk of getting the diseases. WHO released an important document regarding MDR –TB (2011) providing *Guidelines for the programmatic management of drug resistant tuberculosis.*[75]

TB/HIV Co-infection in Prison- High TB and HIV/AIDS in the Sub Saharan African countries have been reported with high rates of HIV co-infection inmates with tuberculosis: This has been described as a time bomb disrupting the recent progress made in HIV and TB control.[76] HIV has been known to be the strongest risk factor for developing tuberculosis disease infection for those with latent or reported new M-tuberculosis infection. It has been reported that the risk of developing TB has been between 20 and 37 times greater for people living with HIV. TB has been recorded to have caused more than a quarter of mortalities for people living with HIV infection .WHO has responded to this and recommended about 12 collaborative /HIV activities for HIV/STIs and TB prevention treatment service and care[77]. The HIV/AIDS/TB/STIs must be prioritized in prisons where high prevalence of both diseases has been recorded. Such programs decrease the TB /HIV/STI burden. The collaborative activities have to be established with mechanisms for collaboration between both programs to decrease the burden of TB in people living with HIV/AIDS and the burden of HIV in TB patients. Community activities must also be given to inmates such as disease surveillance in prisoners, joint planning and mobilization for TB/HIV interventional resources and capacity building for HIV/TB patients. Voluntary HIV testing and counseling of TB have to be implemented.[78] Prison staff and public health staff have to have their capacity built and all individuals living with HIV have to be screened for TB author at time of HIV diagnosis or before staring ART.

Environmental Controls: Prisons globally have been found to share generic problems such as poor accommodations, inadequate health care facilities, overcrowding and poor ventilation. These tend to be more pronounced in low-income and middle income countries where budgetary resources are much lower for correctional systems.[79] Infrastructure in closed settings must comply with national buildings and regulations for the prisons. Ideally cells and wards must have big windows and regulations to promote proper ventilation. When emphasis has been made it must be on natural ventilation through maximization of opening windows. Exhaust fans must also be encouraged in prison settings.

Personal protective equipment in closed settings: There has been a need to use respirators when caring for TB patients. This protection has been quite important for health staff when practicing cough inducing procedures. Prisoners who are TB patients must be encouraged to use surgical gloves when moving around hospital grounds.

Advocacy, Communication and Social Mobilization: This approach constitutes important components of the stop TB strategy. Prison health authorities must address strategies for improving TB case detection and compliance with treatment combating stigma and discrimination, empowering people with TB and mobilizing political commitment and resource to fight the TB/HIV/STI and Drug Abuse. Good health promotion results have been achieved through involving peer educators.[80]

Post –release follow up: Referral forms have to be completed by the prison health staff and must follow the NTP/HIV information system. Equally transferred prisoners must be introduced wherever they are transferred and health staff must continue working with advocacy groups. NGOs must be used to support follow ups of prisoners undergoing TB treatment after their release in prisons. Partnerships must be established with defined roles and responsibilities and these must be involved in planning and monitoring of activities.[81]

Notification of unplanned releases and unplanned transfers- Amnesty releases as unplanned releases often create unforeseen problems with continuity of medication to released prisoners. Prison administration need to inform health staff

[71] Dara M etal. Guidelines for the control of Tuberculosis in Prisons.

[72] Saunders DL etal. Tuberculosis Screening in Federal Prison System; an opportunity to treat and prevent tuberculosis in foreign borne populations.

[73] Prevention and control of tuberculosis in correctional and detention facilities. Recommendation from CDC. Morbidity and mortality weekly report 2006 55(RR9) http://www.cdc.gov/MMWR/pdf/u/r865509:pdf.accessed 20 Nov,2013.

[74] Rapid assessment of the expert MTB/RIF diagnostic test .Technical and operational "*How to practical considerations* .Geneva, WHO 2011. (http://whqlibidoc.WHO.Int/publications/2011 /9789241501569_eng pdf. Accessed 20 Nov, 2013.

[75] *Guidelines for the programmatic management of drug resistant tuberculosis*.2011 Update. Genera WHO, 2011/9789241501583 -eng.pdf. Accessed 19 Nov, 2013.

[76] O`Grady J, Mwaba P, Bates M, etal Tuberculosis in Prisons in sub Saharan Africa –a potential time bomb. S African Med J 2011;101:107-108.

[77] Interim policy on collaborative TB/HIV activities. Geneva WHO.2004

[78] Guidance of provider initiated HIV testing and counseling in health facilities .Geneva .world health organization 2007(http://www,who.int/

[79] Baussano I Williams BG,NunnP,etal Tuberculosis incidence in prisons; a systematic review.Plos Med 2010:7: e1000381.

[80] Mangan JM.Establishing a national prison IEC program:the Honduras experience.In Kimmerling ME.Tuberculosis in prisons and closed institutions.Paper presented at a symposium at the 35th International Union against Tuberculosis Union against Tuberculosis and Lung Disease World Conference.Paris, France. October 2004.

[81] Dara M, etal. Guidelines for control of tuberculosis in prisons.Cambridge

about scheduled releases and unscheduled releases as soon as information has been made available. Remedial prompt steps have to be taken in collaboration with the NTP/HIV supervisors or district supervisors. Prompt communication must be made by fax, telephone, phone and text messages if possible. Patient card has to deliver to where the patient has been transferred. A referral register has to exist for monitoring and evaluation of referral and must include feedback. Indicator for the number of prisoners has to be registered in civilian registers.

Major Findings: This study has shown that proposed prison health care framework relationships are important for prison health care. One of the most significant findings to come out of this effect has been that the proposed frame work provides a basis for strategic planning for prison health care. Addressing the threat of HIV/AIDS/STI and Drug Abuse has no effective and full implementation of conventional HIV/TB control activities and a need for rapid uptake of new diagnostic and preventive strategies. Prison authority has less ensured a full HIV comprehensive care, prevention and treatment option incorporation. An integrated approach to HIV/TB programming has not addressed all interventions. Existing interventions have only been designed to address clinical and not very much be looking at structural and environmental drivers of disease transmission such as overcrowding and poor ventilation. The Interventions put across have not matched with the epidemiological profile of each prison population. Typical evaluations have not been done on safety, effectiveness, acceptability and coverage of the interventions. The most obvious finding is that the proposed framework is multifaceted issue, whose roots are committed leadership (policy), comprehensive prison systems and equity of access to cost –effective quality health care and motivation for adequate resources. These are backed by good knowledge of disease transmission, positive attitude by inmates and prison health staff coupled with good practice by all players.

Limitation of Study: The study has experience a good number of important limitations that need to be further considered. First, the review of literature relied on secondary data sources that are published and also some unpublished gray literature. The most significant limitation lies in the fact that there has been inadequate literature for prison health care in Sub-Saharan African countries and other developing countries. The study looked at prison health care although prison has many levels with different operating systems. Inadequate time was another limiting factor for my study.

Recommendations for Further Research: The review of literature has given rise to many questions that need further investigations. I recommend that there is need to document diseases burdens in prisons including epidemiological patterns and behavior dynamics. Details of demographic profile and clinical characteristics and risk behaviors among prisoners and prison health and non health staff have to be provided.

Conclusions

- Prison health frame work has been the right collection of tools linked to the philosophical concepts of systems thinking whereas, it is also a strategic tool for strategic planning and the implementation of prison health care interventions.
- The legal and policy frame work, Judicial reform, prison management systems, prison living conditions and prison health service delivery are famous for the achievement of equity of access to quality health care in all closed settings.
- Adequate knowledge on disease transmission by prisoners and prison staff, modified attitude and practice strategically promote good prison health by providing a basis for promoting equity of access to health care and quality systems, performance monitoring and evaluation of prison health care, and quality activities.

Acknowledgements

The support for this work in terms of knowledge gain were solely provided by my office to improve public health interventions in closed settings. It has been a credible privilege to enter this environment to work with people in correctional community, the enormity of which I cannot overstate. There are many pieces of literature that have helped me learn about prison health and the gaps therein. I would like to thank my wife without her encouragement and helping hand this article would have not been finished. Many, many thanks to the almighty God for his wonderful guidance and marvelous protection in whatever circumstances surrounding my family and health. Iam also indebted to my family and young ones who could not understand my being on the laptop all the time. To my wife and love and all my children. I say to them thank you so much.

REFERENCES

AMA (Australian Medical Association) 2012.Position Statement on Health and Criminal Justice System. Canberra. AMA.

Asl RT. Eshrat , etal (2013).Outcome assessment of a triangular clinic as a harm reduction intervention in Rajaea prison. Iran. *Harm Reduction Journal*, 10(41).

Baussano I Williams BG,NunnP,etal Tuberculosis incidence in prisons; a systematic review.Plos Med 2010:7: e1000381.

Bingwaho,P.Kyamanya P.Farmer, etal., "Reshaping the architecture of global health partnerships: Rwanda`s Human Resources for Health Program," New England Journal of Medicine.

Bjorngaard J, Rustard A & Kjelsberg E 2009.The Prisoner as patient-a health services satisfaction survey.BMC Health Services Research 9:176.

Butler I Richter J, etal (2013). Condoms for Prisoner's: No new evidence that they increase sex in prison but they increase safer sex. Sex transform infect 89 (5) 377-379.

Constitution of the Republic of Rwanda (2003). Article.41. Available at www.mod.gov.rw/img/doc/constitution of the republic of Rda.doc).

Corrective Services WA 2010.Assessment of clinical service provision of health services of Western Australian Department of Corrective Services. Perth: Corrective Services WA.

Dara M etal. Guidelines for the control of Tuberculosis in Prisons.

Dara M, etal. Guidelines for control of tuberculosis in prisons. Cambridge.

Derlaga VJ, Ninstead BA, etal (2008). AIDS stigma among inmates and staff in a USA State Prison. Journal of STD and AIDS, 19(4) 259-263.

Derlega VJ, Ninstead BA, etc (2008). AIDS stigma among inmates and staff in a USA State Prison. Journal of STD and AIDS, 19(4) 259-263.

Donabedian A. Evaluating the quality of car, 1966 Milbank quality measures, 1970.

DubrovinaI, Miskinis K ,lyepshina S, etal Drug=resistant tuberculosis and HIV in Ukraine a threatening convergence of two epidemic? *Int J Tuberc lung dis* 2008; 12:756-762.

Exworthy T, Samele C, Urquia N & Forrester A 2012.Asserting prisoners` rights to health: Progressing beyond equivalence Psychiatric Services 63: 270-5

Farmer .P, C Nutt, C.Wagner, etal., Reduced premature mortality in Rwanda: Lessons from success," British medical Journal 346(2013),pp.346.

Farmer, P, C. Nutt,C. Wagner, etal., "Reduced premature mortality in Rwanda :Lessons from success "*British Medical Journal* 346 (2013), pp. 346.

Favrod –Coune T Baroundi M,etal (2013). Opioid substitution treatment in pretrial prison detention: a case study from Geneva, Switzerland. Swiss Medical Weekly,1143.

Feron J,Paulus D,Tonglet R,Lorant V& Pestiaux D 2005.Subtantial use of primary health care by prisoners; epidemiological description and possible explanations. Journal Epidemiology and community Health 59:651-5.

Ferrer –Castro V,Crespo-Leiro MR, *et al.,* 2012. Evaluation of a needle exchange program at pereiro de Aguiar prison (Ourense-Spain); a ten year experience. Rev Esp Sanaid Penit.14 (1) 3-11.

Fields J,Ganzalez I etal (2008).Learning from Prisons with incarcerated.

Freudenberg N. Ramaswamy M.,etal (2010).Reducing drug use, human immunodeficiency virus risk, and recidivism among young men leaving jail; Evaluation of the REAL MEN re-entry program's Adolex Health,475(5) 448-455.

Grinstead O, Eldridge G, etal (2008). An HIV, STD, and Hepatitis prevention program for young men leaving prison: Project START. Journal correctional health care 17(8) 2676-2684.

Guidance of provider initiated HIV testing and counseling in health facilities .Geneva .world health organization 2007(http://www,who.int/

Guidelines for the programmatic management of drug resistant tuberculosis.2011 Update. General WHO, 2011/9789241501583 -eng.pdf. Accessed 19 Nov,2013.

Gurdin J, Niego S,etal (2008). Rikers Health Advocacy program (RHAP): An STI/HIV/AIDS prevention program for young men, in model programs for adolescent sexual Health: Evidence-Based HIV/STI, and pregnancy prevention interventions, Josefina J and Card T ed pg 263-271.

HIV/AIDS prevention care, treatment and support in prison settings: a frame work for an effective national response. New York: Joint united nation program on HIV/AIDS, 2006.

HIV/AIDS prevention care, treatment, and support settings a frame work for an effective national response. New York: joint united nations program on HIV/AIDS, 2006.

Interim policy on collaborative TB/HIV activities. Geneva WHO.2004.

Javambakt M. MUMPHY R.etal (2007) .Sexually transmitted infections and HIV prevalence among incarcerated men who have sex with men.200-2005.Sexually transmitted infections .36(s@) s17-21.

Joint united nations program on HIV/AIDS, global report: UNAIDS report on the global AIDS epidemic 2010. Geneva joint United Nations program on HIV/AIDS 2010 world health organization Multidrug and extensively drug resistant and response .Genera WHO 2010).

Kerbs JJ.Jolley JM(2007).Inmate-on-inmate victimization among older male prisoners. Crime and Deliquency,31(5) 385-393.

Kerbs JJ. Jolley J.M (2007).Inmate-on-inmate victimization among older male prisoners. Crime and Delenquency, 31(5) 385-393.

La vigna, Debus-Shrerrill S. etal (2011). Preventing violence and sexual assault in jail. a situational crime prevention approach. Justice Policy Center Brief.

La vigne NG. Debus-Shrerrill S etal (20110.Preventing violence and sexual assault in Jail; a situational crime prevention approach. Justice Policy Center Brief.

Leibowitz AA, Harawa N, etal 2012). Condom distribution in fail to prevent HIV infection. AIDS Behavaviour, 17 (8) 2695-2702.

Mangan JM. Establishing a national prison IEC program: the Honduras experience. In Kimmerling ME. Tuberculosis in prisons and closed institutions. Paper presented at a symposium at the 35th International Union against Tuberculosis Union against Tuberculosis and Lung Disease World Conference. Paris, France. October 2004.

Moller L.F Van Den Bergh BJ, etal (2008) Drug use in prisons in Kyrgyzstan; a study about the effect of health promotion among prisoners. Int jour of prisoner health,4(3) 124-133.

Niveau G. 2007. Relevance and Limits of the principle of "equivalence of health care" in prison Medicine. Journal of Medical Ethics 33: 610-13.

Niveau G. Prevention of infectious disease in correctional settings: a Review. Public Health,2006,120:33-41.

Nobile C,Flotta D,Nicotera G,Pileggi C&Angelillo 1 2011.Self-reported health status and access to health services in a sample of prisons in Italy.BMC.Public health 11: 529.

O`Grady J, Mwaba P, Bates M, etal . Tuberculosis in Prisons in sub Saharan Africa –a potential time bomb. *S African Med J* 2011;101:107-108.

O`Grady, Mwaba P, Bates M, etal Tuberculosis in prisons in sub-Saharan Africa-a potential time bomb. African Med J 2011: 107-108.

Powell J, Harris F, Condon L & Kemple T2010.Nursing care of prisoners: Staff views and experiences. Journal of Advanced Nursing 66: 1257-65

Prevention and control of HIV/TB in correctional and detain facilities recommendation from CDC. Morbidity and Mortality Weekly Report.2006.55RR-9 http://www.cdc.gov/mmw/pdf/u/r5509.pdf,accessed 20 Nov/2013.

Prevention and control of tuberculosis in correctional and detention facilities. Recommendation from CDC. Morbidity and mortality weekly report 2006 55(RR9) http://www.cdc.gov/MMWR/pdf/u/r865509:pdf.accessed 20 Nov, 2013.

Rapid assessment of the expert MTB/RIF diagnostic test .Technical and operational "*How to practical considerations*. Geneva, WHO 2011. (http://whqlibidoc.WHO. Int/publications/2011 /9789241501569_eng pdf. Accessed 20 Nov, 2013.

Roshanfekt P. Farnia M, etal (2013).The effectiveness of harm reduction programs in seven prisons of Iran. *Iranian J Public Health,* 42(12) 1430-1437.

Rwanda Biomedical Center, Country progress report for joint United Nations Program on HIV/AIDS (March 30, 2012).

Saunders DL etal. Tuberculosis Screening in Federal Prison System; an opportunity to treat and prevent tuberculosis in foreign borne populations.

Sifunda S Reddy P, S etal (2008). The effectiveness of a peer-led HIV/AIDS/ STI and Health Education intervention.

Sifunda S, Reddy P,S etal (2008).The effectiveness of a peer-led HIV/AIDS and STI health education for prison inmates. Health Edu & Behaviour,35(4) 494-5.

Stephen I Conerly R etal (2009). HIV/AIDS, STIs and condom use beliefs among male prison in mats in two South African provinces: Mpumalanga and Kwazulu – Natal. Global Health 4 (5) 423-432.

Stewart E. The sexual health and behavior of male prisoners: The need for research. The Howard Journal,2007;46(1) 43: 59.

Stuckler D et al. Mass incarceration can explain population increases in TB multi drug-resistant Tb in European and Central Asia countries. Proceedings of the National Academy of sciences USA, 2008.105:13280-13285.

Stuckler D, Basu S, Mckee M, et al Mass incarceration can explain population increase in TB and multidrug –resistant TBIN European and central Asia countries. Proc National Academy Science USA 2008;105:13280-13285.

Sytla M, Harawa N, etal (2010). The first condom machine in the USA fail: The challenge of harm reduction in a law and order environment. Am J. Public Health, 100 (6) 982-985.

Tadolini etal. The WHO Strategy for TB Control and elimination.2012, p 242-253.

The world prison population list -7th educations Jan 2007. International center for prison studies, Kings College, London.

Todrys K W, Amon JJ. Criminal Justice Reform for HIV and TB Prevention in African prisons. PLOS Med, 2012, 9 (5): e001215.

UAC, 2007. Moving towards Universal Access: National HIV/AIDS Strategic Plan 2007/8-2010/11.Uganda AIDS Commission, Republic of Uganda.

UN (United Nations) 1955.Standard minimum rules for the treatment of prisoners.

UN (United Nations) 1955.Standard minimum rules for the treatment of prisoners.

UN 1990.Basic principles for the treatment of prisons. Adopted and proclaimed by the General Assembly resolution 45/111 of 14 Dec, 1990.

UN 1991.The protection of persons with mental illness and the improvement of mental health care. Adopted by General Assembly Resolution 46/119 of 17 December, 1991.

UN Office for the Coordination of Humanitarian Affairs "Rwanda: New HIV awareness drive targets prisoners, IRIN News (February18th,2010).Available at http://www./rinnews.org/report/88152/RWANDNEW-HIV-awareness -drive-targets-prisoners)

UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance, Guidelines for second generation HIV Surveillance (200).

UNDOC, HIV/AIDS in places of detention; A tool kit for policy makers, program managers, prison officers and health care providers in prison settings. Vienna. UNDOC, 2008.

UNODC, HIV and AIDS in places of detention: A toolkit for policy makers, program managers, prison officers and health care providers in prison settings. Viena; UNODC, 2008.

UNODC, UNAIDS, WHO (2009) HIV Testing and Counseling in prisons and closed settings. Technical paper.

WHO 2007.Health in prisons: a WHO guide to essentials in prison health, Geneva: WHO.

WHO 2007.Health in Prisons: a WHO Guide to the essentials in Prison Health. Geneva: WHO

WHO, 1986. The Ottawa Charter for Health Promotion, Ottawa, 21 November, 1986.

WHO,2008. Trencin Statement on prisons and mental health. Copenhagen, Denmark: WHO Regional Office for Europe.

WHO. Health Care Financing: A strategy for African Region. Report of the Regional Director. WHO, Addis Ababa. 2004.

WHO. Tuberculosis control in prisons. A manual for program managers. Geneva: WHO, 2001.

World Health Organization .Status Paper on Prisons and Tuberculosis. Copen Hagen WHO, 2007).

World Health Organization. Effectiveness of interventions to address HIV in prisons. Geneva, Switzerland: World Health Organization; 2007.

Yap L, Butler T etal (2007). Do condoms cause rape and mayhem? The long-term effects of condoms in New South Wales prisons. Sex Transmit infect, 83 (3) 219-222.

Yap L, Richters J,etal (2011).The decline in sexual assaults in en`s prison in New South Wales: a systems approach's inters Violence,26(15) 3157-3181

Yap L. Richters J.etal(2011).The decline in sexual assaults in men`s prisons in New South Wales: a systems approach's interpers violence,26 915) 3157-3181.

Zambia HIV and AIDS estimate (2012 internet). General: Joint United Nations program on HIV/AIDS 2013. Available from (http://www.unaids.orga/en/region countries/countries /Zambia/cited2013 March,2015).

****