

# Health service provision for disease control among prisoners: a conceptual note

Health service provision for prisoners

353

Behnam Farhoudi

*Social Determinants of Health Research Center, Amir-Almomenin Hospital, Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran*

SeyedAhmad SeyedAlinaghi

*Iranian Research Center for HIV/AIDS, Iranian Institute for Reduction of High-Risk Behaviors, Tehran University of Medical Sciences, Tehran, Iran*

Omid Dadras

*Department of Global Health and Socioepidemiology, Kyoto University, Kyoto, Japan*

Mehrzaad Tashakoriyan and Mohammad Nazari Pouya

*Health and Treatment Office of Iranian Prisons Organization, Tehran, Iran*

Mohammad Mehdi Gouya

*Iran Ministry of Health and Medical Education, Tehran, Iran, and*

Kate Dolan

*National Drug and Alcohol Research Centre, University of New South Wales, Sydney, Australia*

Received 9 April 2019  
Revised 29 June 2019  
3 September 2019  
Accepted 5 September 2019

## Abstract

**Purpose** – The aim of present study was to integrate vital noncommunicable diseases (coronary artery disease, hypertension, diabetes mellitus and mental health disorders) into Prison-Based Active Health Services Provision (PAHSP).

**Design/methodology/approach** – On Jan 1, 2018, there were 230,000 prisoners in Iran. Timely and systematic detection and diagnosis of chronic health conditions among this population are imperative. The collaboration between healthcare providers in prison and members of the multidisciplinary team of the healthcare community outside prison initiated an active health service provision approach for HIV and tuberculosis (TB). Guidelines for the control of HIV and TB in prison were piloted, and the finalized version was named “Prison-based Active Health Services Provision” (PAHSP), which has been scaled up in 16 of 260 Iranian prisons.

**Finding** – The PAHSP approach emphasizes the importance of early identification of key symptoms and risk factors. This approach provides an opportunity for improved prevention and treatment, enabling prisoners identified at risk or those who have been diagnosed with a target disease to be followed up and receive the appropriate health care.

© Behnam Farhoudi, SeyedAhmad SeyedAlinaghi, Omid Dadras, Mehrzaad Tashakoriyan, Mohammad Nazari Pouya, Mohammad Mehdi Gouya and Kate Dolan. Published in the *Journal of Health Research*. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) license. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this license may be seen at <http://creativecommons.org/licenses/by/4.0/legalcode>

The authors thank Dr. Rebecca Bosworth for her help.



**Originality/value** – Initiatives such as screening for chronic health conditions coupled with treatment will reduce the burden of chronic illness among prisoners and the broader community, thereby saving on healthcare costs and lives.

**Keywords** Active health service provision, Prisoner, Infectious diseases, Noninfectious diseases, Iran

**Paper type** Commentary

## Introduction

The prison environment has been identified as not only a place of healthcare challenges but also an opportunity for the prevention and treatment of HIV, viral hepatitis and tuberculosis (TB) [1]. Despite such opportunities, globally, the provision of healthcare services within prisons remains inadequate, increasing the burden of both communicable and noncommunicable diseases (NCDs) [2]. The United Nations Standard Minimum Rules for the Treatment of Prisoners advocate that prisoners should have access to the “same standards of health care that are available in the community” [3]. Failure to provide such access is considered a violation of human rights [4].

For marginalized populations such as people who inject drugs (PWIDs) or who may have had poor access to health care prior to incarceration, imprisonment may provide an opportunistic setting for them to engage with healthcare services [5]. Prison-based, high-quality, specialized healthcare services can provide effective coverage. However, despite the proven effectiveness of such interventions, opportunities are often lost [6–9].

Therefore, the active promotion of healthcare services for prisoners could be an effective way for early diagnosis and treatment of infectious diseases. Iran’s prevalence of HIV, TB and viral hepatitis among prisoners is higher than the general population [1]. Although there are few studies on NCDs among prisons in Iran, their burden on the community indicates that they may have a large individual and public impact [10].

## Description

Imprisonment is an excellent public health opportunity to provide health services to this high-risk population. In particular, the prison regime and ethos are important in mediating an individual’s exposure to risk factors for NCDs. In a study in the United States, jail and prison inmates had higher odds of hypertension, asthma, arthritis, cervical cancer and hepatitis in comparison with the general population [9].

Aside from HIV and TB, inadequate services exist for prisoners with other illnesses such as NCDs. According to the US CDC, prisoners with noninfectious diseases, such as chronic obstructive pulmonary disease (COPD), asthma, cancer, diabetes mellitus, coronary artery disease (CAD), hypertension, stroke and mental illness, are hidden from the health systems view [11].

### *Diabetes*

Over the last 40 years, the prevalence of obesity has increased from 13 to 30% in women and from 4 to 17% in men, and this is similarly reflected in the diabetes prevalence from 5 to 10% in Iran. In a systematic review of 15 countries, male inmates were less likely to be obese than males in the general population. Australian inmates were more likely to get sufficient activity levels than the general population in Australia compared to prisoners in England. In a study in two large prisons in Mexico City in 2010, which included 496 prisoners, diabetes prevalence was at 1.4% [12, 13].

### *Hypertension and coronary artery disease*

In Iran, 20% of men and women are hypertensive. In a study conducted in two large prisons in Mexico City, (2010), of the 496 prisoners, hypertension prevalence was at 2.1%. Moreover,

---

CAD and strokes are the primary causes of death among adults, and CAD occurs at a lower age in Iran than in the developed countries [12, 13].

### *Mental health*

Mental and behavioral disorders are another important group of health issues facing prison populations. In a study conducted on 351 prisoners in Iran, the majority (88%) of prisoners met the Diagnostic and Statistical Manual of Mental Disorders 5 (DSM – IV) criteria for a lifetime diagnosis of at least one Axis I disorder. Opioid dependence (73%) had the highest prevalence among lifetime diagnoses, whereas major depressive disorder (29%) was the most common current diagnosis. Of the 351 inmates, 88% of the prisoners had experienced at least one Axis I disorder throughout their lives, and 46.9% met the criteria for current disorders [14].

Given the aforementioned figures and Iran's significant prison population of around 230,000, the ninth largest prison population in the world, [15] action must be taken. In order to reduce the rates of morbidity and mortality attributable to communicable and NCDs, early identification and treatment should be prioritized.

One article referenced by the authors regarding nursing services and prison-related health care recommends strategies for reform that includes nurses who practice in all settings and not just prison-based nurses. If nurses are to be at the forefront of future health with responsibility for promoting prison strategies, they must be informed and then embrace the radical health promotion reforms that are emerging from the current literature. Building sustainable group capacity into prison-based health care, through developing social interaction, cohesion, participation and political action, can only benefit the community at large and further emphasize the health promotion role of nursing [16].

Previously, triangular clinics were established to provide HIV, sexually transmitted infections (STIs) and drug treatment services in the community and prisons in Iran. The clinics were launched in Kermanshah and spread across the country, including prisons. This model led to increased coverage of diagnostic and treatment services to people living with HIV (PLWH) [17]. However, the proportion of diagnosed PLWH and coverage of antiretroviral therapy (ART) remains low both in the prisons and in the community in Iran [18]. The extent of the HIV epidemic in Iran and the inadequate coverage of services require revision of this model to meet the UNAIDS targets of 90, 90, 90 by 2020 [19, 20]. Barriers to accessing care and treatment include stigma and discrimination, active drug use, psychiatric disorders, long distances to the services, a lack of knowledge and information and unavailability of services in small towns [19].

WHO recommended decentralizing service provision and providing differentiated care to simplify and adapt HIV services across the HIV diagnosis, treatment and retain cascade [21]. The Ministry of Health in Iran plans to decentralize the provision of HIV services, using triangular clinics as support centers for other health service centers proposed to be engaged in HIV service provision [17]. Another problem is that the approach of triangular clinics is passive in nature rather than providing active case detection. A key group of PLWH in Iran are PWIDs, and this group faces many barriers in accessing health services. This problem has serious consequences, as most prisoners have a history of drug use [19]. These issues required a review of the delivery of services related to HIV and TB infection in Iranian prisons. To address this issue, the guidelines on HIV and TB in prisons were reviewed and revised resulting in a new model of service delivery. In the new model, the triangular clinic is expected to be a proactive unit in the coordination of HIV services to prisoners. The unit staff actively sought infected prisoners with the assistance of related healthcare services in prisons and using peers among prisoners to inform others of the no waiting list system when visiting the clinic. In addition, the unit actively pursued a patient from diagnosis to link to services, care

and treatment and follow-up including connecting to the services after release [10]. Thus, this model was named the “Prison-based Active Health Services Provision” (PAHSP) for HIV/TB.

This model was successfully piloted in one of the large Iranian prisons with a mean population of 6,900 inmates. Briefly, the total number of HIV antibody ELISA tests in the case prison during implementation was 2,840 (41.2%) compared to 199 (3.0%) before the implementation and compared to 228 (4.0%) in the control prison. The intervention significantly increased the total number of delivered HIV tests compared to the period before intervention ( $p < 0.0001$ ) and to the control prison tests ( $p < 0.001$ ), leading to increased numbers of HIV positive patients being diagnosed. The total number of those who tested positive for HIV in prison increased from 33 to 56, compared to the control prison, which decreased from 25 to 16. During the intervention, all patients with a positive screening test underwent a confirmation test while only 70% of patients with positive results were tested before the intervention. The total number of HIV positive patients diagnosed increased from 23 to 85 after the model was implemented. Moreover, coverage of ART was significantly higher in the case group study prison compared to the control group prison (55.4% vs 20%) [22]. After the pilot, PAHSP was implemented in 16 prisons with significant positive results [17, 23].

It is anticipated that findings from this study may be used to inform any future designs of effective programs to detect adverse health conditions. Through the enhanced abilities for early detection and subsequent treatment of diseases, the overall well-being and quality of life among these groups may be significantly improved. Ultimately, such practical interventions will help to reduce morbidity and mortality among inmates with HIV or TB and the broader community.

Early detection, appropriate management and timely follow-ups are critical to effectively monitor and control health conditions in Iranian prisons. Delayed diagnosis and emerging complications can lead to increased morbidity, mortality and burden of the diseases. Even when a disease is diagnosed in good time for treatment, some are at risk of not receiving services due to barriers arising from substance use and the absence of active follow-up. The PAHSP model could thus be very useful in providing services for other infectious or noninfectious diseases that have large individual or public burdens. In any agreement on service delivery based on the PAHSP model, prisoners should be screened and then subsequently receive care and treatment services that should then be actively followed up.

According to the PAHSP model, initially, one dedicated unit will be established for HIV and TB service provision in each prison. Subsequently, additional services for other diseases will be integrated into service delivery for other significant communicable diseases such as hepatitis, STIs and NCDs including CAD, diabetes mellitus, mental health disorders, asthma and COPD. It seems reasonable to believe this model could potentially be adopted for the early detection and identification of infectious or noninfectious diseases. If not recognized and treated early, the result could be a considerable health burden on both a macro (societal) and a micro (individual) level.

One recommendation is that healthcare services specifically targeted at provision for NCDs should be integrated into the TB and HIV service provision structure. This structure is referred to as a unit of PAHSP. In this model, certain prisoners are assigned as healthcare communicators and/or lay healthcare providers who play a significant role in the early detection, identification and prevention of both communicable and NCDs, which then extends beyond a prison setting to follow-up postrelease [24]. They may be selected from prisoner peers or guardians who are in regular contact with other prisoners. Providing specific training for lay healthcare providers to assess and identify prisoners who may exhibit high-risk factors for specific diseases via screening and to identify disease-specific symptoms may aid in the prevention of NCDs within the prison environment.

Retention in care is key to ensuring that optimal health outcomes are met [18]. To ensure the continuity of care for prisoners' postrelease, one example may be the involvement of peer-

based organizations [25] as well as the involvement of external support organizations. Prisoners typically serve short sentences and when healthcare services are not continued outside the prison, there is an increased risk of morbidity and mortality and transmission of communicable diseases to others.

Given the significant burden of chronic diseases, this pilot study proposes to address the unmet healthcare challenges by implementing and expanding the idea from the HIV and TB model only to NCDs as well. As mentioned one prison in Iran has successfully implemented this method, which initially included screening prisoners for communicable diseases such as HIV and TB. Results from this implementation were encouraging, indicating that this method is both applicable and influential [26]. Thus, the study reveals that PAHSP may be adopted as a useful and cost-effective method to address the most prevalent noncommunicable and chronic diseases in prison as well.

We recommend additional future research studies such as conducting cross-sectional studies to gauge the prevalence of NCDs and the associated risk factors among prisoners. Follow-up studies of proposed service provision including postrelease time and determining the most effective timeline for follow-up screening or active case chasing among prisoners would also be useful. Furthermore, carrying out interventions to help test self-management support would be beneficial.

## References

1. Dolan K, Wirtz AL, Moazen B, Ndeffo-Mbah M, Galvani A, Kinner SA, *et al*. Global burden of HIV, viral hepatitis, and tuberculosis in prisoners and detainees. *Lancet*. 2016 Sep; 388(10049): 1089-102. doi: [10.1016/s0140-6736\(16\)30466-4](https://doi.org/10.1016/s0140-6736(16)30466-4).
2. Enggist S, Møller L, Galea G, Udesen C. Prisons and health. Copenhagen: WHO Regional Office for Europe; 2014.
3. Allwright S, Bradley F, Long J, Barry J, Thornton L, Parry JV. Prevalence of antibodies to hepatitis B, hepatitis C, and HIV and risk factors in Irish prisoners: results of a national cross sectional survey. *BMJ*. 2000 Jul; 321(7253): 78-82. doi: [10.1136/bmj.321.7253.78](https://doi.org/10.1136/bmj.321.7253.78).
4. Rubenstein LS, Amon JJ, McLemore M, Eba P, Dolan K, Lines R, *et al*. HIV, prisoners, and human rights. *Lancet*. 2016 Sep; 388(10050): 1202-14. doi: [10.1016/s0140-6736\(16\)30663-8](https://doi.org/10.1016/s0140-6736(16)30663-8).
5. Baybutt M, Chemlal K. Health-promoting prisons: theory to practice. *Glob Health Promot*. 2016 Mar; 23(1 Suppl): 66-74. doi: [10.1177/1757975915614182](https://doi.org/10.1177/1757975915614182).
6. Bick JA. Infection control in jails and prisons. *Clin Infect Dis*. 2007 Oct; 45(8): 1047-55. doi: [10.1086/521910](https://doi.org/10.1086/521910).
7. Harzke AJ, Baillargeon JG, Pruitt SL, Pulvino JS, Paar DP, Kelley MF. Prevalence of chronic medical conditions among inmates in the Texas prison system. *J Urban Health*. 2010 May; 87(3): 486-503. doi: [10.1007/s11524-010-9448-2](https://doi.org/10.1007/s11524-010-9448-2).
8. Wilper AP, Woolhandler S, Boyd JW, Lasser KE, McCormick D, Bor DH, *et al*. The health and health care of US prisoners: results of a nationwide survey. *Am J Public Health*. 2009 Apr; 99(4): 666-72. doi: [10.2105/ajph.2008.144279](https://doi.org/10.2105/ajph.2008.144279).
9. Binswanger IA, Krueger PM, Steiner JF. Prevalence of chronic medical conditions among jail and prison inmates in the USA compared with the general population. *J Epidemiol Community Health*. 2009 Nov; 63(11): 912-9. doi: [10.1136/jech.2009.090662](https://doi.org/10.1136/jech.2009.090662).
10. Assadi SM, Noroozian M, Pakravannejad M, Yahyazadeh O, Aghayan S, Shariat SV, *et al*. Psychiatric morbidity among sentenced prisoners: prevalence study in Iran. *Br J Psychiatry*. 2006 Feb; 188: 159-64. doi: [10.1192/bjp.188.2.159](https://doi.org/10.1192/bjp.188.2.159).
11. Center for Disease Control and Prevention. Correctional health resources. Atlanta: National Health Institute Corrections; 2014.

12. Herbert K, Plugge E, Foster C, Doll H. Prevalence of risk factors for non-communicable diseases in prison populations worldwide: a systematic review. *Lancet*. 2012 May; 379(9830): 1975-82. doi: [10.1016/s0140-6736\(12\)60319-5](https://doi.org/10.1016/s0140-6736(12)60319-5).
13. NCD Countdown 2030 collaborators. NCD Countdown 2030: worldwide trends in non-communicable disease mortality and progress towards Sustainable Development Goal target 3.4. *Lancet*. 2018 Sep; 392(10152): 1072-88. doi: [10.1016/s0140-6736\(18\)31992-5](https://doi.org/10.1016/s0140-6736(18)31992-5).
14. Shariat V, Asadi M, Pakravannezhad M, Yahyazadeh O, Aghayan Sh, Nourouzian M. The prevalence of mental disorders in male prisoners of Qasr prison in Tehran. *Tehran Univ Med J*. 2006 Jun; 64(3): 25-36.
15. Institute for Criminal Policy Research. World prison brief 2018. Birkbeck: School of Law, University of London; 2018.
16. Whitehead D. The health promoting prison (HPP) and its imperative for nursing. *Int J Nurs Stud*. 2006 Jan; 43(1): 123-31. doi: [10.1016/j.ijnurstu.2004.11.008](https://doi.org/10.1016/j.ijnurstu.2004.11.008).
17. Golrokhi R, Farhoudi B, Taj L, Pahlaviani FG, Mazaheri-Tehrani E, Cossarizza A, *et al*. HIV Prevalence and correlations in prisons in different regions of the world: a review article. *Open AIDS J*. 2018; 12: 81-92. doi: [10.2174/1874613601812010081](https://doi.org/10.2174/1874613601812010081).
18. Ministry of Health and Medical Education, National AIDS Committee Secretariat. Islamic Republic of Iran country report on monitoring of the united nations general assembly special session on HIV and AIDS. Tehran: Ministry; 2015.
19. Radfar SR, Nematollahi P, Arasteh M. Factors influencing access and use of care and treatment services among Iranian people living with HIV and AIDS: a qualitative study. *Iran J Public Health*. 2016 Jan; 45(1): 109-11.
20. Karamouzian M, Akbari M, Haghdoost AA, Setayesh H, Zolala F. 'I Am Dead to Them': HIV-related stigma experienced by people living with HIV in Kerman, Iran. *J. Assoc. Nurses AIDS Care*. 2015 Jan-Feb; 26(1): 46-56. doi: [10.1016/j.jana.2014.04.005](https://doi.org/10.1016/j.jana.2014.04.005).
21. Møller L, Stöver H, Jürgens R, Gatherer A, Nikogosian H. Health in prisons: a WHO guide to the essentials in prison health. Copenhagen: WHO Regional Office Europe; 2007.
22. Farhoudi B, SeyedAlinaghi S, Tabarsi P, Mohraz M, Golrokhy R, Farnia M, *et al*. Revision and implementation of 'clinical guideline for tuberculosis and HIV in prisons', great tehran prison, Iran. *Infect Disord Drug Targets*. 2018; 18(1): 72-80. doi: [10.2174/1871526517666170518093529](https://doi.org/10.2174/1871526517666170518093529).
23. UNAIDS. Islamic Republic of Iran: overview. [cited 2019 March]. available at: <https://www.unaids.org/en/regionscountries/countries/islamicrepublicofiran>.
24. World Health Organization [WHO]. Task shifting: Global recommendations and guidelines. Geneva: WHO; 2007.
25. Farhoudi B, Seyed Alinaghi SA, Hosseini M, Firouzeh MM, Mohraz M, Tashakoriyan M. A follow-up program after prison release for HIV-positive patients. *Asian Pac J Trop Dis*. 2015; 5(12): 1001-2. doi: [10.1016/S2222-1808\(15\)60972-0](https://doi.org/10.1016/S2222-1808(15)60972-0).
26. Farhoudi B, SeyedAlinaghi S, Ataenia B, Hosseini M, Jafari S, Alasvand R, Tashakoriyan M, Mohraz M. Comparison of HIV indicators after implementation of a new model for TB and HIV management in an Iranian prison. *Infect Disord Drug Targets*. doi: [10.2174/1871526519666191015151639](https://doi.org/10.2174/1871526519666191015151639).

**Corresponding author**

SeyedAhmad SeyedAlinaghi can be contacted at: [s\\_a\\_alinaghi@yahoo.com](mailto:s_a_alinaghi@yahoo.com)

---

For instructions on how to order reprints of this article, please visit our website:

[www.emeraldgroupublishing.com/licensing/reprints.htm](http://www.emeraldgroupublishing.com/licensing/reprints.htm)

Or contact us for further details: [permissions@emeraldinsight.com](mailto:permissions@emeraldinsight.com)