

10. Noncommunicable diseases and prisoners

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Key points

- The global burden of and threat from noncommunicable diseases (NCDs) constitute a major public health challenge that undermines social and economic development throughout the world. Prisoners are at greater risk for such diseases.
- Most information on NCDs in prisoners comes from high-income countries despite the fact that globally, 80% of these deaths from these diseases are in low- and middle-income countries.
- NCDs comprise mainly cardiovascular diseases (48%), cancers (21%), chronic respiratory diseases (12%) and diabetes (3.5%). They share four key behavioural risk factors: tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol. Prisoners are more likely to smoke and to drink harmful amounts of alcohol than the general population.
- Prisoners' diets are often unhealthy with either under- or over-provision of calories and with excessive levels of sodium.
- The primary prevention and treatment of NCDs in prisons has largely been neglected.

Introduction

NCDs are increasingly recognized as a considerable global public health issue (1). Cardiovascular diseases, cancers, diabetes and chronic respiratory diseases are the four most common NCDs, causing an estimated 36 million deaths each year – 63% of all deaths globally (1). While these diseases affect people of all nationalities, ages and wealth, there are clear global inequalities in the burden of NCDs, with those in vulnerable situations particularly affected. There is a clear link between socioeconomic disadvantage and NCDs; given that most of the 10 million people imprisoned worldwide are from the poorest and most marginalized sections of society, they are likely to be at greater risk for NCDs. The primary prevention and treatment of NCDs in prisons have, however, been largely neglected. In part this may be because of a lack of awareness of the global importance of NCDs, but there is also a perception that prisoners tend to be younger than the general population and thus NCDs are not likely to be an issue – despite the fact that 44% of all deaths in the general population are in people under the age of 70 years (2).

This chapter will highlight the importance of tackling NCDs in the prison population. It will focus on the burden

of NCDs and risk factors in prisoners and examine the challenges in providing appropriate prevention and treatment in prisons.

Burden of disease and risk factors for NCDs in prisoners

Most of the information on the prevalence of cardiovascular diseases, cancers, diabetes and chronic respiratory diseases in prisons comes from high-income countries despite the fact that globally, 80% of deaths from these diseases are in low- and middle-income countries. Evidence from Australia, the United Kingdom and the United States shows that NCDs are an important public health problem in prisons. A study in the United States showed that prisoners had a higher prevalence of hypertension, diabetes, myocardial infarction, asthma and cancer (cervical) than non-imprisoned adults of similar ages and sex (3). Another United States study looking specifically at cancers found that the most common cancers in prisoners were lung carcinoma, non-Hodgkin lymphoma and carcinomas of the oral cavity and pharynx (4). Among women, cervical carcinoma was the most common. Lung carcinoma, non-Hodgkin lymphoma and hepatic carcinoma accounted for more cancer deaths among inmates than in a community comparison group, and the median survival time in prisoners was lower than in the comparison group: prisoners' median survival time from diagnosis was 21 months compared to 54 months in the community cohort (4).

NCDs are an issue in other countries too. Women prisoners in Queensland, Australia, were three times more likely to suffer from asthma than women in the general population, with a prevalence of 36.3%. Diabetes was also more common in imprisoned women, found in 6.2% of women prisoners compared to 0.3% of women aged 25–34 years in the general population (5). Important differences have been found within subgroups in the prison population, particularly ethnic/racial differences. Data from the United Kingdom and United States suggest that the prevalence of chronic conditions is greater in white populations compared to ethnic minorities. This is not, however, the pattern seen in Australian prisons where indigenous prisoners are more likely to suffer from NCDs.

It is important to note that NCDs are preventable. Up to 80% of heart disease, stroke and type 2 diabetes and

over a third of cancers could be prevented by eliminating the common risk factors (6). The four key modifiable risk factors are smoking, the harmful use of alcohol, inadequate physical activity and unhealthy diet. The available evidence suggests that prisoners are likely to be at high risk of NCDs because of high risk behaviour. Smoking in prisons is a huge public health problem (see Chapter 16). Between 64% and 91.8% of prisoners smoke. In some countries, these rates were more than three times as high as in the general population (7). This may in part explain why lung cancer and cancers of the oral cavity and pharynx are higher in prisoners than in the general population.

The harmful use of alcohol is also an issue for many prisoners (Chapter 15). Estimates of the prevalence of alcohol abuse and dependence in male prisoners range from 18% to 30% and in female prisoners from 10% to 24% (8). These figures may be an underestimate because of the strict inclusion criteria of the review but they point to a substantial health issue. In most prisons across the world, prisoners are allowed to smoke but the use of alcohol is prohibited. It is harder to smuggle alcohol in to prisons than illegal drugs; while prisoners may attempt to brew their own alcohol, it is rarely possible to do so in large quantities. As a result, alcohol is not widely consumed in prisons and prisoners may be protected from the immediate adverse effects, such as alcohol-related injury, although many prisoners remain at high risk of the longer-term consequences, such as hepatocellular carcinoma.

A recent review of 60 000 prisoners in Africa, Asia, Australia, Europe and North America indicates that unhealthy diets and a lack of physical activity are important health issues for prisoners (9). Diets for male prisoners in high-income countries provide an appropriate calorie intake but diets for women prisoners provided a substantial excess of total energy. This may be because women prisoners are detained in institutions designed by men for men with little concern for the needs of women, who form a minority of the global prison population; they are thus supplied with a diet appropriate for males. This is likely to contribute to obesity in the female prison population. Women prisoners are more likely to be overweight and obese than the age- and sex-adjusted population, with high prevalence rates estimates of 37% to 70%. Male prisoners, by contrast, were less likely to be overweight or obese than the general population; this held true in high-, middle- and low-income countries.

Other aspects of prisoners' diets also put them at increased risk of NCDs. The review showed that dietary salt intake was over twice the recommended levels in

diets for both males and females and that diets were high in carbohydrates, with an excess of percentage energy intake of fat. The problem may be compounded in high-income countries by the availability of extra snacks; prisoners are able to buy these to supplement their diet, but they tend to be energy-dense and salt-rich.

WHO recommends that all adults aged 18–64 years should undertake at least 150 minutes of moderate physical activity each week to benefit their health (10). Physical activity data on prisoners in Australia and the United Kingdom showed a contrasting picture, in which United Kingdom prisoners were less likely to achieve the recommended guidelines for physical activity in comparison both to Australian prisoners and to the general United Kingdom population. Australian prisoners were more likely than the sex-adjusted general population to do more than 150 minutes of moderate exercise per week. This is an important difference, which highlights the fact that it is possible to enable prisoners to take enough physical activity in the prison setting.

Challenges in providing appropriate prevention and care to prisoners

Primary prevention of NCDs

Smoking

Tackling smoking in prisons is a complex issue involving not simply health concerns but concerns about other important issues such as human rights. Smoking plays a complex role in prison life. Prisoners smoke for a variety of reasons, not just because they are addicted but also because of the perceived benefits in social situations, managing stress and alleviating boredom. Cigarettes may also be an important form of currency. Many prison staff smoke too, making the acceptability and implementation of smoking bans in the prison environment challenging. While total smoking bans in prisons may be seen as coercive and unrealistic as cigarettes would become, like drugs, an illicit substance to be smuggled and traded, partial smoking bans may be more effective. In the United Kingdom, smoking in public places in prisons is banned but prisoners are allowed to smoke in their own cells. The stated aim of the Prison Service in the United Kingdom (England and Wales) is for prisons to be smoke-free in the future. In the short term the partial ban has delivered health benefits, particularly where it is supported by appropriate interventions, such as counselling and nicotine replacement therapy, while enabling individual prisoners to retain the right to smoke. These issues are discussed further in Chapter 16.

Alcohol

In most prisons throughout the world, the consumption

of alcohol by prisoners is banned, which largely prevents excessive consumption in prisons. As already highlighted, however, a significant proportion of prisoners enter prison dependent on alcohol and needing appropriate care and treatment (11). This is discussed in detail in Chapter 15.

Diet

Prison administrations need to ensure that prisoners have access to a nutritionally adequate and balanced diet. The provision of healthy options does not, however, mean that prisoners will benefit from a good diet. As with tobacco, prisoners have a complex relationship with food and it is often used, for example, to relieve the boredom of imprisonment. There is also some evidence to support the high prevalence of eating disorders in women prisoners in high-income countries (12,13). Prisons need to ensure that all the options are healthy and should provide guidance to prisoners on the nutritional content of the food provided. Special diets must be provided for prisoners with specific cultural, religious or medical needs, and the different dietary needs of men and women should be catered for. In those countries where prisoners are able to supplement their diets with items they can purchase, there should be mechanisms in place to ensure that these snacks are healthy and not highly processed and calorie-dense. The prison environment can contribute to the development of healthy eating patterns in prisoners. A recent study in Spain demonstrated how the provision of a special diet to prisoners at high risk of cardiovascular disease led to positive changes in their weight, body mass index and blood pressure (14). In Japan, the metabolic profile of diabetic prisoners improved when in prison because of the high-fibre diet and increase in physical activity (15). Other prisons in Japan where prisoners are physically active at work for up to eight hours each day and have a calorie-restricted diet have also demonstrated improvements in prisoners' cardiovascular risk factor profiles following imprisonment (16).

In many prisons across the world, food is scarce and prisoners are not provided with sufficient calories or nutrients. Indeed, there have been documented outbreaks of nutritional deficiencies (17). Prisoners in such situations are at risk of health problems because of these deficiencies, and also because food becomes a commodity traded between prisoners and may be instrumental in bullying. Those denied food are at particular risk of developing health problems. It is important, therefore, that prison authorities provide not only an adequate diet but also ensure that the security and safety of prisoners include specific measures to reduce bullying.

Evidence is emerging to show that there are other good reasons why prison authorities should provide a nutritional

diet. There is some suggestion that micronutrient deficiencies in young offenders play a role in poor behaviour while they are imprisoned and that correcting these deficiencies leads to a decrease in infractions of the rules (18). There is also increasing evidence to show that poor diet and poor mental health are related, and that dietary interventions may be of therapeutic value in conditions such as depression. Given the high prevalence of mental illness in prisons, this supports the need for efforts to prioritize the provision of a healthy diet for all prisoners.

Physical activity

Prison authorities have an important role in ensuring that there are appropriate opportunities for prisoners to undertake sufficient physical activity to benefit their health. In many countries this does not happen, and it is likely that the prison environment prevents individuals who want to exercise from doing so (19). There are a number of barriers to adequate physical activity in the prison setting, including security concerns, overcrowding and understaffing which make supervision of activities outside cells more difficult. As already outlined, however, there are health benefits for prisoners in the longer term, as well as immediate benefits (relief from boredom, an opportunity for positive social interaction, a feeling of wellbeing) (Box 1). The provision of adequate opportunities for physical activity is also likely to benefit the whole prison, including improved staff–prisoner relationships (20).

In prisons worldwide, overcrowding is one of the greatest threats to prisoners' ability to exercise. In some countries, prisoners have been so tightly packed in cells that they can barely move, let alone undertake the necessary moderate physical activity necessary to benefit their health. This is clearly not acceptable on health or human rights grounds and highlights the importance of decency within prisons. A "decent" prison regime will ensure that prisoners are able to meet WHO guidelines on physical activity, should they choose, and will provide them with appropriate health education materials to enable them to make an informed choice.

The care and treatment of prisoners with NCDs

The guiding principle for all prisoners with cardiovascular diseases, cancers, diabetes or chronic respiratory diseases must be that of equivalence of care, that is, they should receive the same standard of care and treatment for their disease in prison as they would if they were in the community. Care and treatment for these chronic diseases have some key elements that should also be provided in the prison setting. Some opportunities and challenges in making such provision are discussed below.

Box 1. Example of effective intervention for nutrition and physical activity, Canada

This project started in 2007 and was carried out in the main short-sentence (two years or less) minimum/medium security women's correctional centre in Canada, housing up to 150 women. At the time, incarcerated women who were engaged in a prison participatory action research project had identified nine health goals that were essential for their successful reintegration into society following release from prison. One goal was improved awareness and integration of healthy lifestyles, including exercise and nutrition. In keeping with this health goal, incarcerated women on the research team designed, implemented and evaluated a prison pilot nutrition and fitness programme. Interested women attended a general gym facility orientation and were offered the option of exercising in group circuit classes or of developing an individual exercise plan. The circuit stations and aerobic routine were altered every two weeks and group circuit class sessions were held twice a day. Pre-and post-programme assessments included a self-administered questionnaire and body measures. Sixteen women in prison completed the programme. Weight, body mass index, waist-hip ratio and chest measurements decreased, and energy, sleep and stress levels improved by the end of the programme. Having fun was a recurrent theme in the open-ended responses. Some women continued their exercise programme in the community after release from prison. In conclusion, a prisoner-designed and led fitness programme is feasible and in this case resulted in improved body measures and self-reported health benefits. Incarceration provides opportunities to engage women in health programmes with potential long-term healing benefits.

Source: Martin RE et al (21).

Identification of NCDs – initial screening

When prisoners are first received in prison they should undergo health screening, including for detection of NCDs. Prisoners who are aware that they have an NCD must be given the opportunity to tell health care staff about their condition and medication. The initial screening also gives staff an opportunity to diagnose hitherto undetected diseases, such as diabetes by urinalysis or blood test and hypertension by blood pressure monitoring. This is particularly important for prisoners who, for a variety of reasons, are often not in contact with the appropriate health services in the community.

Encouragement of self-care

In the community, patients with long-term conditions are encouraged to care for themselves. The prison environment poses particular problems for self-care as security concerns preclude many prisoners from keeping their own medication and monitoring devices. The promotion of self-care runs contrary to the ethos of prison regimes, which are designed to disempower prisoners. There have, however, been some promising local initiatives in some countries. The model described in Box 2 may prove a cost-effective way of ensuring adequate care.

Ensuring access to secondary care

While most prisoners with NCDs can be managed in primary care in prisons most of the time, many will need to visit hospitals for specialist care as outpatients. These visits can pose particular problems as appropriate transport must be arranged and escorts provided. Resource constraints often make this difficult for many

prisons, but it is important to recognize and prioritize this particular health need. In some countries, innovative developments to circumvent these difficulties have encompassed the use of telemedicine or initiatives to bring specialists into prisons to visit patients. However, some aspects of the care of NCDs, such as the use of sophisticated scanning procedures, must necessarily be accessed in hospitals and prison regimes must adapt accordingly.

Throughcare

The majority of prisoners will be released into the community at some stage of their lives. Adequate planning to ensure appropriate throughcare is particularly important for those with NCDs. Prisoners should not be released without adequate medication and appropriate arrangements for follow-up in the community.

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Box 2. Example of good practice regarding the encouragement of self-care by prisoners, United Kingdom (Scotland)

The health care team in a young offenders' institution in Scotland is committed to delivering a high degree of professional health care. They consistently achieve a positive effect on the general health of the young offenders through a model of care that adapts the concept of specialist teams for primary care, mental health and addictions. In the sphere of primary care, each nurse has developed at least one area of specific need and interest. The development of health care has enabled the team to progress from the traditional route of a young offender reporting sick to a self-referral system that allows each young offender to specify which clinic he/she wishes to attend. Specialist clinics exist for individuals with a wide range of health needs, including a number of clinics for NCDs such as asthma, diabetes and epilepsy.

There are some benefits to this model. The service mirrors the service provided in the community and is primarily nurse-led. There is a high patient satisfaction rate: young offenders feel empowered by the service and are interested in their own health. Adopting the principle of self-care has allowed prisoners to become involved in caring for themselves, or at least sharing the responsibility for their care. This not only allows them to learn more about their health and illnesses but also prepares them to access and deal with health care services in the community once they are liberated, thus facilitating throughcare (in prison and post-release). Once involved, prisoners tend to access more health care services and become involved in promoting the services to other prisoners. They also become more involved in health care committees and make suggestions and recommendations to the team for change.

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