15 Screening for Public Purpose: Promoting an Evidence-Based Approach to Screening of Inmates to Improve Public Health

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Introduction

Jail and prison screening procedures have primarily been developed to prevent transmission of communicable diseases, protect staff, and mitigate individual bad outcomes. Detention and incarceration are otherwise opportunities to impact public and individual health by offering evidence-based screening to adult persons who do may not otherwise access routine preventive care. Given the dynamic exchange between correctional facilities and medically underserved communities, effective screening in jails and prisons is generally considered a cost-effective approach to improving population health and that of the incarcerated person.

General Considerations Regarding Screening Tests

Approaches to prevention are broadly categorized into levels that reflect the natural history of a disease (Fletcher & Fletcher, 2005). Primary prevention prevents disease before occurrence, for example immunizations and focused health education. Secondary prevention detects disease early and when early treatment impacts progression and transmission. Screening for conditions like hypertension and sexually transmitted diseases are examples of secondary prevention. Tertiary prevention addresses established disease by reducing morbidity and mortality.

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The goal of screening in primary care is to identify risk factors or disease that can be treated or modified by early intervention. The value of a screening test, then, depends on the value of an early diagnosis. If accurate detection of disease during the asymptomatic phase can meaningfully alter the course of disease and reduce morbidity and mortality or transmission to others, then screening likely has meaningful impact. If an effective screening test is inexpensive relative to the cost of diagnosis and treatment of advanced disease, then the screening is likely to be cost-effective.

Whether a screening test results in better health outcomes depends on the characteristics of the disease, the test, and the patient population. The severity of a disease and its effect on the quality or duration of life, a sufficiently high prevalence, and the availability of acceptable and effective treatment all impact the value of a screening test. Some diseases have an asymptomatic period during which detection and treatment significantly reduces morbidity and mortality. For these diseases, treatment in the asymptomatic phase yields a better therapeutic result than treatment that is delayed until symptoms appear. Other diseases, such as pancreatic cancer, progress rapidly, lack effective treatments for advanced disease, and therefore have only a narrow window of asymptomatic disease during which intervention prevents death.

The operating characteristics of the screening test are crucial. The test must be sufficiently sensitive to detect disease during the asymptomatic period, and sufficiently specific to provide an acceptable positive predictive value. The test should be simple to administer and interpret, relatively low cost, safe, and acceptable to patients and clinicians. "Labeling" and the adverse psychosocial effects of a positive result should be anticipated. Further, a positive screening test is usually not a confirmed diagnosis, rather it should prompt further confirmatory diagnostics. A screening test's utility can be undermined if false-positive cases are labeled as "diseased" or subsequent workups are intolerably expensive or harmful. Screening should only be undertaken if both the clinician and patient will treat a confirmed positive test or otherwise benefit from this new information. Comorbid conditions can also modulate screening and need to be considered by the provider on an individual basis. For example, there is little value in screening and pursuing a particular diagnosis if a patient has a high likelihood of dying sooner from another cause. Studies evaluating new screening technologies must consider lead-time and time-linked sampling biases. Lead time is the period of time between the detection of disease by screening and when it would ordinarily be diagnosed due to symptoms. Studies that do not account for lead-time bias can overestimate a screening test's impact on survival.

Lastly, the characteristics of the patient population are important in critically evaluating a screening program, including age. The prevalence of or harm from the disease must be high. The screening test must have both a high sensitivity so as not to miss cases and a high enough specificity to reduce false-positive tests. For example, in diseases with very low prevalence, a test with a low specificity could produce an unacceptable number of false-positive results. However, by limiting screening to a high-risk population (i.e., universal gonorrhea/chlamydia screening is often offered to sexually active adult men at jail admission but is not recommended for asymptomatic US adult men), the pretest probability and positive predictive value increases and the rate of false positives decreases.

Among the elderly, selecting which cancer screening tests are appropriate for an individual older person requires consideration of his or her life expectancy (Williams et al., 2014). For example, a healthy older person with a favorable life expectancy should be offered cancer-screening tests such as colonoscopy or mammography. In contrast, an unhealthy older person with a limited life expectancy will be more likely to suffer the immediate harms of cancer screening, such as the workup of false negative test results, without having the time to accrue the benefits of screening (Walter & Covinsky, 2001). Thus, in geriatrics, preventive care follows a model of shared decision-making between patient and provider in which the focus is on discussing the risks and benefits of each test based on the patient's life expectancy and individual goals (Table 15.1) (Williams et al., 2014).

Table 15.1 Steps to individualize decision-making for screening tests

1. Estimate the individual's life expectancy
2. Estimate the risk of dying from the condition
3. Determine the potential benefit of screening
4. Weigh the direct and indirect harm of screening
5. Assess the patient's values and preferences

This rationale holds true for preventive medications as well and can support a reduction in polypharmacy and the associated risks. For example, a patient with a life expectancy of less than 2–3 years will not likely benefit from tight blood pressure control to prevent future stroke or myocardial infarction nor will a patient with a life expectancy of less than a year likely benefit from lipid lowering medications (Kutner et al., 2015).

United States Preventive Services Task Force Recommendations

For the general US adult population, the United States Preventive Services Task Force (USPSTF, uspreventivetaskforce.org) conducts reviews the evidence for screening a variety of health issues, and grades the evidence based on the strength of the evidence and the magnitude of net benefit. Recommendations for population-based screening that earned grade A (strongly recommended) or grade B (recommended) in 2020 for adult men and nonpregnant women are the following: obesity, hypertension, HIV, Hepatitis C, depression, smoking and unhealthy drug and alcohol use, and high blood pressure screening for non-elderly persons of all ages; syphilis, tuberculosis, and Hepatitis B screening for persons at increased or high risk, colorectal cancer screening at age 50, abnormal blood glucose as part of cardiovascular risk assessment in adults aged 40–70 years who are overweight or obese, and lipid disorder screening per age and gender (men, age 35; women, age 45) (USPSTF, 2020). Additional procedures are recommended for women: breast cancer screening (mammography) at age 40, cervical cancer screening if sexually active, chlamydial infection screening women 25 and younger or at increased risk, intimate partner violence (IPV) in women of reproductive age, and osteoporosis screening for women 65 or older, postmenopausal, or at increased risk for osteoporotic fractures. Men age 65–75 with a history of ever smoking should be screened for abdominal aortic aneurysm via ultrasonography. Finally, and highly pertinent to older correctional populations is lung cancer screening, which recommends annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 55–80 years who have a 30 pack-year smoking history and currently smoke or have quit within the past 15 years.

These recommendations are based on a critical review of the evidence for screening in the general population and may need to be reevaluated within correctional settings. For instance, all persons in correctional facilities should be evaluated for syphilis, while osteoporosis screening or LDCT lung cancer testing may not be appropriate or feasible in a central intake facility such as a county jail. Many persons cycling through US jails and prisons are at higher than normal risk for many of these communicable and chronic diseases due to health disparities, high rates of smoking, alcohol and unhealthy drug use and mental illness, and historically poor access to primary care and preventive services. Therefore, any correctional facility or system that provides primary care to incarcerated persons should address all of these USPSTF recommendations.

Screening in Jail and Prison Populations

Few public institutions are more important to the surveillance and treatment of communicable disease and mental health disorders than jails, prisons, and other detention centers. Due to the concentration and high turnover of high-risk individuals otherwise out of contact with other public and community health systems, correctional institutions are uniquely situated to implement testing, treatment and referrals for chronic diseases, STDs, HIV, and tuberculosis via cost-effective means (Lee et al., 2006). Proper TB control mandates prompt and uniform screening at facility admission. Finally, adequate screening for suicidality and drug and alcohol withdrawal syndromes helps ensure these two leading causes of preventable death among the incarcerated are greatly minimized. Intake and general screening recommendation are summarized in Tables 15.2 and 15.3.

Table 15.2 Recommended correctional screening for adults: intake

Condition	Recommended procedure
Tuberculosis, active infection	Symptom questionnaire and one or more of the following:
	TST
	Serum QuantiFERON-Gold
	Chest X-ray
Syphilis	Nontreponemal serology (RPR, VDRL)
Chlamydia	Urine or swab NAAT
Gonorrhea	Urine or swab NAAT
HIV	Rapid HIV-1 antibody test, blood, or oral swab
Hepatitis C	Serum antibody test
Cervical cancer	Pap smear
Pregnancy	Serum or urine qualitative hCG
Mental illness	Symptom screen, psychiatric history
Suicidality	Symptom and risk factor screening
Alcohol, opioid, and sedative/hypnotic dependence	Drug and alcohol use and withdrawal history

Table 15.3 Recommended correctional screening for adults: general health assessment

Condition	Recommended procedure
Hypertension	Sphygmomanometry
Cholesterol[a]	Random or fasting serum cholesterol
Diabetes[b]	Fasting serum glucose or hemoglobin A1C
Overweight, obesity	Height and weight measurement
Abdominal aortic aneurysm[c]	Ultrasonography
Colon cancer[d]	FOBT[e], flexible sigmoidoscopy, colonoscopy, or barium enema
Breast cancer[f]	Mammography
Osteoporosis[g]	Bone mineral density

[a]Men age ≥35, women age ≥45
[b]Adults age 40–70 who are overweight or obese
[c]Men who have smoked, age 65–75 only
[d]Persons age ≥50
[e]Fecal occult blood test
[f]Women age >40
[g]Women age >65 or older, postmenopausal, or at increased risk for osteoporotic fractures

Communicable Disease

Active Tuberculosis Infection

Multiple studies have demonstrated a higher prevalence of active TB in correctional environments and evidence of outbreaks in the setting of poor TB control (MacNeil et al., 2005; CDC, 2006). The need to screen for TB on admission to a correctional facility is uncontroversial. Despite these findings, recommended screening protocols in jails and prisons are not uniformly applied, with only 55% (11 of 20) of large jail systems instituting routine tuberculosis skin testing (TST) at admission in a 1998 survey (Roberts et al., 2006).

In 2018, the Federal Bureau of Prisons released the document "Preventive Health Care Screening" to provide clinical guidance for TB screening in correctional facilities. All individuals who are incarcerated, except those with a documented prior positive TST or history of active TB disease, should receive a tuberculin skin test at intake and annually thereafter.

Tuberculosis Skin Testing: TSTs are the most common form of mass screening for TB among correctional and other institutionalized populations. The sensitivity of TST using a 15 mm of induration cutoff in immunocompetent LTBI cases approaches 100%. Past BCG vaccination and exposure to non-tuberculosis mycobacteria, however, generate considerable rates of false positive tests, which lower TST specificity and positive predictive value ("Targeted tuberculin testing", 2000). Different cutoffs of induration are recommended to maximize specificity depending on a person's category of risk (Table 15.4). Induration of 10 mm or more in persons admitted to a correctional facility without HIV, immunocompromise, prior TB, or recent exposure to an active TB case should prompt a medical evaluation and further testing.

Chest Radiographs: Chest radiographs are the most efficacious means of screening for active pulmonary TB. Radiography as universal screening in corrections is limited by cost and logistic considerations, despite data demonstrating that standard, digital, or miniature radiographs increase active TB case findings, decrease time to isolation, and are cost-effective from a combined health and correctional systems perspective (Jones & Schaffner, 2001; Layton et al., 1997).

QuantiFERON-TB Gold Test: QFT-G is equally sensitive and is a more specific test than TST for detecting TB or LTBI (CDC, 2006). Its chief disadvantages to date are cost and the need for laboratory analysis within 12 hours of sampling. Like TST, it does not distinguish between LTBI and TB. The

Table 15.4 Tuberculosis skin testing: Interpretation and cutoffs

Reaction ≥5 mm	HIV
	Recent TB case contact
	CXR fibrosis c/w prior TB
	Organ transplant
	Immunosuppression
Reaction ≥10 mm	Recent immigrants from high-prevalence countries IVDU
	Residents of high-risk facilities (prisons and jails, nursing homes, hospitals, homeless shelters)
	TB lab personnel
	High-risk medical conditions (silicosis, diabetes, CRF, leukemia or lymphoma, malignancy, weight loss)
Reaction >15 mm	Person with no risk factors for TB

Source: American Thoracic Society (2000)

test measures levels of interferon-gamma present in whole blood cells that have been stimulated by peptides unique to *M. tuberculosis*. CDC guidelines endorse QFT-G as a substitute for TST in all situations, including correctional screening (Mazurek et al., 2005).

Sexually Transmitted Diseases

Correctional facilities present an opportunity to screen for STDs among high-risk individuals. Serum-based screening for syphilis and urine-based screening for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* infections are cost-effective practices across correctional settings due to high prevalence, underexposure to community-based screening, frequent asymptomatic infections, end-stage complications including pelvic inflammatory disease and tertiary syphilis, and effective treatments (Kahn et al., 2002; Kraut-Becher et al., 2004). Correctional screening for chlamydia and gonorrhea is particularly cost-effective among adolescents and adult females (Joesoef et al., 2006; Mertz et al., 2002a). In a large, multiyear study of female inmates in the Los Angeles County Jail a high prevalence of chlamydia (11.4%) and gonorrhea (3.1%) were observed (Javanbakht et al., 2014). Reactive syphilis is more likely among men who have sex with men and older adults (Ciesielski et al., 2005). In some localities, STD screening, often for syphilis, is mandated by public health codes.

Syphilis

A 2004 study analyzing national data from 1999 to 2002 demonstrated that 12.5% of all reported early syphilis (primary, secondary, early latent) cases in the United States were identified in correctional facilities, while incarceration rates were on the order of <1% during this period (Kahn et al., 2004). US estimates of syphilis prevalence vary by year, population, and region, with higher rates generally reported in both general and correctional populations among adult women, African Americans, HIV-positive individuals, crack cocaine users, sex workers, and those living within urban centers or the Southeast (Patton et al., 2014). Universal screening should be conducted on the basis of the local area and institutional prevalence of early (primary, secondary, and early latent) infectious syphilis (Barrow et al., 2020).

Serum testing consists of a two-step process which includes a nontreponemal test followed by treponemal confirmation. Nontreponemal tests include rapid plasma reagent (RPR) and Venereal Disease Research Laboratory test (VDRL). Treponemal tests are the fluorescent treponemal antibody absorbed (FTA-ABS) or *T. pallidum* particle agglutination (TP-PA). Nontreponemal positive results should trigger a confirmatory treponemal test due to high false-positive rates on nontreponemal tests secondary to pregnancy, injection drug use, or unrelated medical conditions (Workowski & Berman, 2006). Sensitivity of nontreponemal tests varies with antibody levels and may be 78–86% in primary syphilis, 100% during secondary syphilis, and 95–98% in latent syphilis (USPSTF, 2016).

Newer screening technologies, including rapid syphilis tests, are currently being studied, but are not yet available for commercial use (USPSTF, 2016).

Treponemal tests have 84% sensitivity in primary syphilis, 100% in other stages, and a specificity of 96%. Alternative methods of syphilis screening, including ELISA and IgG, have not been evaluated in mass screening programs. If follow-up of laboratory results cannot be reasonably assured, point-of-care qualitative syphilis assays present an alternative screening method with comparable sensitivity and specificity to traditional nontreponemal screens (Blank et al., 1997).

Chlamydia

Urethral and cervical infections with chlamydia are the most common sexually transmitted bacterial conditions in the United States. Cross-sectional observational trials implementing chlamydia screening in correctional settings have demonstrated infection rates of 15.3–21.5% among women aged 16–74 in Chicago, IL, Birmingham, AL, and Baltimore, MD, 15.6% among adolescent females and 5.9% among adolescent males in 14 US juvenile detention centers, and 4.9% among adult males in Chicago, IL (Kahn et al., 2005; Mertz et al., 2002b; Trick et al., 2006). The Federal Bureau of Prisons Clinical Practice Guidelines recommend routine intake screening for all women age 25 or under, older than 25 with risk factors, HIV-positive, or with history of STD (Federal Bureau of Prisons, 2018).

Screening tests for chlamydia include nucleic acid amplification tests (NAAT), nucleic acid hybridization assays, or by culture. NAAT can be performed on urine samples with minimal compromise of sensitivity as compared to swab samples (91–100 versus 100%). NAAT is the test of choice in males and females in correctional settings where urethral or endocervical swabs are not optimal (Johnson et al., 2002). Because of the high prevalence of chlamydia and the high sensitivities (94–99%) of NAAT, the positive predictive value of NAAT within correctional settings is excellent (Johnson et al., 2002). Thus, positive NAAT screens for chlamydia in correctional populations are presumed evidence of infection and should be treated without further diagnostic testing (i.e., culture).

Gonorrhea

The Federal Bureau of Prisons does not recommend routine screening for gonorrhea at intake unless symptoms of gonorrhea are present, or the individual has been diagnosed with syphilis or chlamydia (FOB Clinical Practice Guidelines). *N. gonorrhoeae* cervicitis and urethritis share risk factors and reservoir populations with chlamydia. Rates of gonorrhea-positive screens in corrections have been documented as 5% in adolescent women, 1% in adolescent males, 2–4% in adult females, and 2% in adult males (Mertz et al., 2002b). Like chlamydia, gonorrhea can also be detected using a NAAT of urine or urethral, oral, or rectal swab samples. Sensitivities vary by NAAT manufacturer (78–100%) and are decreased but acceptable in urine compared to swab samples (Johnson et al., 2002).

HIV Screening

Routine HIV screening is recommended as a component of clinical care in all healthcare settings, including EDs, urgent-care clinics, inpatient services, STD clinics, tuberculosis clinics, substance abuse treatment clinics, public health clinics, and correctional healthcare facilities (Brandoson et al., 2006). Screening for HIV in correctional facilities is cost-effective and recommended for all patients given the HIV prevalence among inmates is approximately four times that of the general US population (Spaulding et al., 2009).

The CDC recommends the use of the fourth-generation HIV-1/2 antigen/antibody combination immunoassay for testing persons who are incarcerated. This assay detects the HIV p24 antigen allowing the test to confirm HIV infection 15 days after HIV RNA is detectable. Individuals with a reactive fourth-generation assay should undergo a reflex HIV-1/2 antibody differentiation assay. If the differentiation assay is negative, an HIV viral load should be obtained (FBOP, 2017). Despite recommendations for routine screening and availability of testing modalities, moving practices into routine use has

been extremely challenging with fewer than half of state prisons using these CDC approved protocols for HIV testing. Barriers to implementation include cost, time commitment, and release of jail inmates before test results are available (Belenko et al., 2013).

Viral Hepatitis

Hepatitis C: Multiple studies have documented rates of chronic viral hepatitis in correctional populations 2–20 times those of the general population, with an estimated one-third of all chronic hepatitis C cases cycling through US jails and prisons in a given year (Hammett et al., 2002; Macalino et al., 2005; Weinbaum et al., 2005). In October 2016, the Federal Bureau of Prisons recommended an opt-out strategy for HCV testing for all sentenced patients (FBOP, 2016). HCV-infected individuals are frequently in and out incarcerated settings and may be unaware of their infection. Multiple studies have shown that HCV testing in jail and prisons can provide an opportunity for linkage to care for those who test positive (Beckwith et al., 2015). Furthermore, screening even without treatment in these high-risk populations could have a substantial effect on the trajectory of HCV (Rich et al., 2014). Testing should include both an antibody screening assay (e.g., enzyme immunoassay [EIA]) and supplemental or confirmatory testing with an additional, more specific assay (e.g., nucleic acid test for detection of HCV RNA). All patients with positive tests should be counseled to abstain from drink alcohol and to avoid transmission to others. They should also be offered vaccinations for HAV and HBV and treatment for HCV (Schillie et al., 2020). Direct-acting antiviral therapies are effective, well-tolerated, and require a relatively short duration of treatment. Treatment of HCV within correctional settings improves overall public health through decreasing community transmission and decreased overall disease burden (MacDonald et al., 2017).

Hepatitis B: Rates of chronic, treatable HBV infection are lower than those of HCV in correctional populations, though HBV transmission has been shown to be more common than that of HCV or HIV among prisoners (Macalino et al., 2004). Generally, the burden of HBV has decreased due to universal HBV vaccination at birth in the United States starting in 1991. Because acute and chronic HBV is preventable via the HBV vaccination series and vaccinating correctional populations is an efficient way to protect high-risk populations, HBV efforts in jails and prisons have focused on vaccine programs rather than serologic screening (Rich et al., 2003; Weinbaum et al., 2003). Pregnant women are the exception and should be screened for HBV at the first prenatal visit.

Hepatitis A: Like HBV, HAV is a preventable infection via vaccination. HAV vaccination is recommended for individuals at high risk for HAV infection or complications (i.e., those in endemic areas and chronic HCV patients). Serologic screening for HAV antibody status is not recommended for general correctional populations.

Mental Health, Drug, and Alcohol Use

Mental Health Disorders

Lifetime prevalence estimates of severe mood or psychotic disorders in correctional populations, excluding substance use disorders, are historically much higher than those of the general population and range from 5% to 50% (Abram et al., 2003; Lamb & Weinberger, 1998; Teplin et al., 2005). Universal screening for severe mental illness at admission to a correctional facility is crucial to ensuring adequate treatment, suicide prevention, and discharge planning.

There are no national guidelines for validated instruments for intake mental health screening. A recent systematic review identified six tools that have published replication studies with independent samples of individuals in correctional institutions. The Brief Jail Mental Health Screen (BJMHS), the Correctional Mental Health Screen for Men (CMHS-M), the Correctional Mental Health Screen for Women (CMHS-W), the England Mental Health Screen (EMHS), the Jail Screening Assessment Tool (JSAT), and the Referral Decision Scale (RDS). While the BJMHS, CMHS-M, CMHS-W, and EMHS take 5 minutes or less and can be administered by health or custodial staff, the JSAT and RDS require 20–30 minutes and must be completed by nursing or psychology staff (Martin et al., 2013). Regardless of screening tool used, every individual should be asked about a history of psychiatric illness or care, psychotropic medications, past suicide attempts or ideation, and symptoms of mood and psychotic disorders, in addition to assessing current mental status (National Commission on Correctional Health Care, 2018).

Suicide Prevention and Screening

Identifying risk of self-harm is paramount given the majority of preventable deaths in correctional facilities are from suicide (Lanphear, 1987; Way et al., 2005). Risk factors for suicide in correctional settings include a history of mental illness, comorbid substance use disorders, "stressors" or behavior changes preceding the attempt, and a history of violent crime (Blaauw et al., 2005; Way et al., 2005). Various screening instruments are designed to identify pertinent risk factors for impending suicide attempts, including a 14-item Suicide Screening Inventory or the Scale for Suicidal Ideation (Holi et al., 2005; Kaczmarek et al., 2006). Most validated instruments assess current suicidality (ideation and plans), a history of ideation or attempts, a history of mental illness and treatment, and recent stressors including loss of job, relationships, or deaths of loved ones. Arrest and incarceration is itself a significant stressor, underlining the need for timely suicide screening at admission. Positive screens should trigger comprehensive psychiatric assessments and effective prevention, including hospitalization or protective housing as needed.

Smoking, Alcohol, and Drug Use Disorders

Drug and alcohol use disorders are pervasive in correctional populations. Rates of nicotine dependence approach 90%; alcohol use disorders, 10–30%; and other drug use disorders, 10–60% (Bronson et al., 2017; Fazel et al., 2006; Yacoubian, 2003). Alcohol use disorder rates trend higher in men, while drug use disorder rates are higher in women. Given that high rates have been consistent over time and across correctional settings, precise screening for gradations of individual substance use disorders is low yield (e.g., mild vs. severe use disorders). Instead, tobacco, alcohol, and drug treatment should be offered universally and independent of an individual's response to intake history items surveying tobacco, alcohol, and drug use.

Effective treatment for drug and alcohol use disorders exists and is associated with improved medical and mental health outcomes. Medication for Opioid Use Disorder (MOUD) significantly reduces post-release overdose deaths (National Academies of Sciences, Engineering, and Medicine, 2019; Bird et al., 2015; Gisev et al., 2015; NCCHC, 2016). Until recently, many correctional facilities have not provided MOUD, even for individuals who had received therapy prior to incarceration despite randomized controlled trial data demonstrating that the continuation of these medications was beneficial (McKenzie et al., 2012). That is rapidly changing in many jurisdictions across the country in the face of the US opioid epidemic and realization that release from corrections is an important and prevalent risk factor for overdose death.

Alcohol, Benzodiazepine/Sedative, and Opioid Withdrawal Syndromes

Within holding and intake facilities, however, alcohol, sedative-hypnotic, and opioid withdrawal symptoms require targeted screening strategies in order to prevent discomfort and death (NCCHC, 2018). Despite national guidelines, a minority of US jails report offering detoxification services (Fiscella et al., 2004). All patients should be asked about daily use of alcohol, barbiturates, benzodiazepines, and opioids. Those with chronic, heavy use should be asked about a history of withdrawal syndromes, pharmacologic treatment for withdrawal, and in the case of alcohol and sedative-hypnotics, a history of seizure and delirium tremens (DTs). Clinical Institute Withdrawal Assessment-Alcohol (CIWA) and Clinical Institute Narcotic Assessment (CINA) scores help classify withdrawal severity and chart symptom course, but do not provide cutoffs for screening purposes. In the case of alcohol and sedative-hypnotic withdrawal, the onset of unstable vital signs, altered mental status, or neurologic deficits necessitates prompt treatment and close observation if not hospitalization (Miller et al., 2019). Opioid withdrawal, while generally not fatal, is marked by severe psychological discomfort and hyper autonomic symptoms. Isolated cases of death related to opioid withdrawal within correctional settings have been observed (Fiscella et al., 2004).

Chronic Disease and Health Maintenance

Cardiovascular and Metabolic Disease

Screening to reduce cardiovascular risk in correctional populations should follow current USPSTF guidelines. While cardiovascular disease rates are thought to be higher both within corrections and following release, the burden of CV disease and diabetes is so high in the general population that universal screening should be employed in all healthcare settings.

The Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure recommends screening every 2 years with blood pressure <120/80 mmHg and annually with systolic blood pressure of 120–139 mmHg or diastolic blood pressure of 80–90 mmHg.

All smokers should be counseled to quit and offered smoking cessation resources. Male smokers between the ages of 65 and 75 should be offered one-time ultrasonography screening for abdominal aortic aneurysm, and lung cancer screening using low-dose CT testing is now a USPSTF grade B recommendation among adults aged 55–80 years who have a 30 pack-year smoking history and currently smoke or have quit within the past 15 years.

Random or fasting serum cholesterol is recommended for men aged 35 and older and women aged 45 and older and should be repeated every 5 years. Fasting serum glucose or hemoglobin A1C should be used to screen for diabetes in all asymptomatic adults age 40–70 with overweight-obesity. All adult persons should be screened for obesity (BMI 30 or higher).

Diabetes Care

Individuals with diabetes should be offered blood pressure and cholesterol screening, annual retinal and foot examinations, and screening for microalbuminuria by measurements of urine albumin-to-creatinine ratios. All diabetics should be considered for primary prevention of myocardial infarction with lipid lower agents if indicated (Arnett et al., 2019).

Cancer Screening

HIV-, smoking-, HCV-, and HPV-related malignancies occur at higher rates in correctional populations (Baillargeon et al., 2004; Mathew et al., 2005).

Cervical cancer screening with cytology should be offered to all females with an intact cervix at facility admission and every 3 years. For females aged 30 to 65, co-testing with HPV should also be offered every 5 years.

USPSTF recommends colon cancer screening for individuals between 50 and 75 years old with the following modalities: (1) annual high sensitivity fecal occult blood testing; (2) sigmoidoscopy every 5 years with high sensitivity fecal occult blood testing every 3 years; or colonoscopy every 10 years.

Women aged 50–74 should be offered screening mammography every 2 years. Either CBE or breast self-examination without mammography is insufficient.

While the USPSTF does recommend annual lose-dose computed tomography (CT) for adults between the ages of 55–80 who have a 30-pack-year smoking history and currently smoke or who have quit within the past 15 years, there is little data available on the use or prevalence of this screening modality in corrections, which typically do not provide access to LDCT testing at scale.

Pregnancy

All females on admission to correctional facilities should be screened for pregnancy. If pregnant, women should be offered screening for the following: blood pressure, Rh (D) incompatibility, HIV, chlamydia, gonorrhea, bacterial vaginosis, syphilis, and UTI or asymptomatic bacteriuria (Kilpatrick et al., 2017).

Annual Screening Procedures for Long-Term Correctional Populations

There are no evidence-based guidelines for annual health screens for long-term correctional populations. However, given high rates of communicable, cardiovascular, and psychiatric disease, we recommend the following annual screening procedures: depression and suicidality questionnaires, blood pressure, cholesterol and measurements of body mass index, fasting serum glucose if the patient has hypertension or hyperlipidemia, TB, HIV, and HCV testing (Table 15.5).

Conclusion

Health screening at admission to a correctional facility and as a routine part of primary care both protects the facility's population and staff and delivers appropriate preventive services to underserved individuals and their communities. Chronic and cardiovascular disease screening in jails and prisons largely conforms to general population guidelines. Mental illness and suicidality, alcohol and drug withdrawal symptoms, and communicable diseases, all conditions with high prevalence in correctional populations, present opportunities for expanded screening not found in other general healthcare settings.

Table 15.5 Recommended correctional screening for adults: annual health screening

Condition	Recommended procedure
Depression and suicidality	Screening questionnaire
Hypertension	Sphygmomanometry
Cholesterol[a]	Random or fasting serum cholesterol
Diabetes[b]	Fasting serum glucose
Overweight, obesity	Height and weight measurement
Colon cancer[c]	FOBT, flexible sigmoidoscopy, colonoscopy, or barium enema
Breast cancer[d]	Mammography
Cervical cancer	Pap testing
Tuberculosis, active infection	Symptom questionnaire and one or more of the following:
	TST
	Serum QuantiFERON-TB-Gold
	Chest X-ray
HIV	Rapid HIV-1 antibody test, blood or oral swab, or ELISA testing
Hepatitis C	Serum antibody test

[a]Men aged ≥35, women aged ≥45; if other CV risk factors, age ≥20
[b]Persons with HTN and hypercholesterolemia only
[c]Persons aged ≥50
[d]Women aged ≥40

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