Addressing the Aging Crisis in U.S. Criminal Justice Health Care

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The U.S. criminal justice population is aging at a significantly more rapid rate than the overall U.S. population, with the population of older adults in prison having more than tripled since 1990. This increase is at the root of a prison healthcare crisis that is spilling into communities and public healthcare systems because nearly 95% of prisoners are eventually released. The graying prison population is also straining state and local budgets. In prison, older prisoners cost approximately three times as much as younger prisoners to incarcerate, largely because of healthcare costs. In the community, older former prisoners present the least risk of recidivism yet are vulnerable to serious and costly social and medical challenges such as housing instability, poor employability, multiple chronic health conditions, and health-related mortality; however older current and former prisoners are largely ignored in the current geriatrics evidence base. Knowledge about the health, functional, and cognitive status of older prisoners is limited, with even less known about risk factors for long-term poor health outcomes during and after incarceration. This article provides an overview of aging in the criminal justice system. It then describes how geriatric models of care could be adapted to address the mounting older prisoner healthcare crisis and identifies areas where additional research is needed to explore prison-specific models of care for older adults. J Am Geriatr Soc 60:1150–1156, 2012.

Key words: aging; health disparities; prisoner

The aging of America is having a profound effect on the economy, social services, and health care. Although there is a common misperception that prisoners are young, the criminal justice population, including those in jail, in prison, or on community probation or parole, is aging at a more rapid rate than the U.S. population. The increasing number of older prisoners is at the root of a healthcare crisis in the U.S. criminal justice system that is spilling into communities and public healthcare systems. The field of geriatrics has an opportunity to help address this crisis.

Before incarceration, prisoners have high rates of behavioral health risk factors and limited healthcare access. Older prisoners, on average, have early-onset chronic medical conditions, untreated mental illness, and unmet psychosocial needs. Data from the three largest state prison systems show that incarcerated older adults use more prison healthcare services than younger adults and are commonly treated in outside community hospitals for costly acute events related to chronic disease. As a result, aging prisoners are stressing criminal justice healthcare systems and state budgets nationwide.

Nearly 95% of all prisoners are eventually released to the community, between 600,000 and 700,000 annually, and the mean age of parolees nationwide rose 5 years in the 1990s. After release, older former prisoners present the least risk of re-incarceration yet prove particularly vulnerable to social and medical challenges such as homelessness, poor employability, multiple chronic medical conditions, and mortality. As a result, emergency health care and hospitalization are commonplace among former prisoners. Thus, the aging prison population also has an important effect on resources in communities challenged with reintegrating a growing number of older former prisoners.

Criminal justice institutes, policy-makers, and the media increasingly view the growing older prisoner population as a health and economic crisis for the criminal justice system and communities, yet the current evidence base describing the health and healthcare needs of incarcerated older adults is insufficient and not widely disseminated among nonprison healthcare providers. As a result, effective models of geriatric care for this population

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remain largely unexplored. This article provides an overview of the aging crisis in the criminal justice system. It then discusses how geriatric models of care could be adapted to address this mounting healthcare crisis and ends by identifying areas of further research that are needed to better provide cost-effective, quality health care to older prisoners.

THE AGING PRISON POPULATION

The age that a prisoner is considered to have reached the “older” or “geriatric” threshold varies according to jurisdiction.12 In general, the age cutoff is lower than for non-prisoners because of the common perception that many incarcerated persons experience accelerated aging, which takes into account the high prevalence of risk factors for poor health common in incarcerated persons, such as a history of substance abuse, head trauma, poor health care, and low educational attainment and socioeconomic status.4,5 Although empirical studies of accelerated aging in prisoners are lacking, research shows that incarcerated individuals aged 50 and older are significantly more likely to have one or more chronic health conditions or disability than their community-dwelling counterparts.17,18 Evidence also suggests that correctional authorities recognize accelerated aging; at least 20 state departments of correction and the National Commission on Correctional Health Care now set the age cutoff for “older” prisoners at 50 or 55.12 This article, to be consistent with the data reported by the Bureau of Justice Statistics, uses 55 as the definition of an older or geriatric prisoner.

Although the population of older adults in the United States grew by more than half from 1990 to 2009, and the overall prison population doubled, the population of older adults in prison more than tripled (Figure 1).1,2 This population increase has been attributed to many factors, including mandatory minimum sentencing laws, more older adult arrests, reintroduction of indeterminate and life sentences, and third-strike legislation.4,10 The aging trend has been observed in prisons, which generally house persons serving more than 1-year sentences, and jails, which are designed for those awaiting trial, on probation or parole violation, or with short-term sentences. Moreover, the aging trend has accelerated in recent years. From 2000 to 2010, the number of older U.S. prisoners increased 181%, whereas the overall prison population increased only 17%.1 For many state prison systems, the demographic shift toward greater numbers of older prisoners has been dramatic. Twenty-eight states now hold more than 1,000 older prisoners, compared with just two in 1990 (Figure 2).19,20

The increasing number of older prisoners has had significant economic consequences. In 2008, approximately $50 billion was spent on the criminal justice system, accounting for $1 of every $15 of state spending.10 Older prisoners are the most expensive subset of prisoners—mostly because of healthcare costs.4,10 Two of the nation’s three largest state prison systems report that per capita healthcare costs for older prisoners are 3.5 times what they are for younger prisoners.3,9 The third state, California, does not make healthcare cost estimates per prisoner publicly available but, in 2008, reported spending more than $470 million on outside contract medical care and reported that older inmates were the most expensive prisoners on average.7

Given that older adults have more medical needs than younger adults, research is needed to identify risk factors for high medical expenditures for older prisoners and to test interventions designed to decrease medical care costs while improving or maintaining healthcare quality. The first step toward identifying cost-effective quality care for older prisoners is to align the research agenda for older prisoners with models of geriatric care already developed and tested in the fields of geriatrics and gerontology (Table 1).

GERIATRIC CARE MODELS, THE RESEARCH AGENDA, AND OLDER PRISONER HEALTH CARE

Multimorbidity

On average, older prisoners nationwide have three chronic medical conditions12 and a substantially higher burden of chronic conditions such as hypertension, diabetes mellitus, and pulmonary disease than younger prisoners and older nonprisoners.17 In Texas, prisoners aged 55 and older account for 46.7% of those with three or more chronic conditions21 and are prescribed an average of 7.3 classes of chronic medications.22 These surpass averages for non-incarcerated older Americans.

The reported prevalence of serious mental illness in older prisoners is similar to that in older nonprisoners (15–20%),23 but studies also suggest that psychiatric conditions are commonly underdiagnosed and undertreated in older prisoners.3,5 The prevalence of co-occurring mental and physical health conditions in older prisoners has not been comprehensively studied.

Given the high prevalence of comorbidity and healthcare use of older prisoners, the multimorbidity model of geriatric care24 is well suited for the older prisoner population. The multimorbidity model advocates for shifting care from a focus on single diseases to a model of care that

![Figure 1. The older prisoner population has grown faster than the total prison population and the population of nonincarcerated older Americans.](image)
emphasizes prioritizing the chronic medical conditions that most affect health status and quality of life for individuals. The model incorporates care coordination, education, and shared decision-making for every potential intervention. Quality standards for the management of comorbidity in older adults are still being optimized in the nonincarcerated population. In the criminal justice system, the National Commission on Correctional Health Care sets standards for health care, but more knowledge is needed about the coexistence of mental and physical illness, polypharmacy risk, and barriers to chronic disease management in older prisoners so that multimorbidity models, once optimized, can be integrated into National Commission on Correctional Health Care standards.

### Functional Impairment

Functional impairment is a strong predictor of high healthcare costs, morbidity, and mortality in older adults. The few studies of functional impairment in older prisoners suggest that it is common and likely to occur at a younger age than in nonprisoners, yet functional impairment is difficult to measure in prisoners. The traditional measure of function—activities of daily living (ADLs: eating, bathing, toileting, dressing, continence, and transferring)—identifies profoundly disabled persons. In community-dwelling older adults, moderate impairment is typically assessed using instrumental activities of daily living (IADLs, e.g., ability to shop, cook, do laundry, take transportation, balance a checkbook), measures with limited application for incarcerated individuals.

Given that optimal care for functionally impaired older adults includes decreasing the mismatch between their functional abilities and the functional requirements of their environment, limitations in the application of IADL measures in prison could impede functional assessment and accommodation for older prisoners. One study identified new ADLs for Prison (e.g., ability to climb onto one’s assigned bunk, drop to the floor for alarms, and hear orders from staff) that could be used to identify moderate...
functional impairment in prisoners, but activities necessary for independence may differ according to institution, and to be most effective, more research is needed to identify measures with the greatest utility in the most settings. Future studies might also incorporate the perspective of guards (correctional officers and deputies) to better understand the unique nature of functional impairment in prisoners.

Geriatric Syndromes
The interplay between a person and his or her health and environment defines geriatric syndromes, common conditions associated with aging. These syndromes (e.g., visual or hearing impairment, incontinence, falls) can profoundly affect quality of life, medical management, healthcare use, and morbidity. Studies about geriatric syndromes in older prisoners, although limited in number, have found that rates of vision and hearing impairment, incontinence, and falls are high.

Because of the strong association between geriatric syndromes, adverse health outcomes, and high healthcare costs, research is needed to understand the prevalence and nature of geriatric syndromes in older prisoners and the unique risks that such syndromes can cause. For example, elderly adults can decrease isolation and depression. Could addressing hearing impairment in older prisoners decrease rule violations related to failing to hear staff orders? More research is needed to understand how modifying the prison/jail environment could improve common geriatric syndromes (e.g., frequent falls) or unique adverse outcomes associated with geriatric syndromes (e.g., vision or hearing impairment).

Cognitive Impairment
The most common and costly geriatric syndrome is cognitive impairment. Substance abuse, posttraumatic stress disorder, and a history of traumatic brain injury, all common in prisoners, further increase the risk of cognitive impairment. Cognitive impairment can be associated with poor judgment and changes in personality, and persons with dementia are at high risk for victimization, yet research about cognitive impairment in older prisoners is sparse. One study found that 40% of prisoners aged 55 and older had a diagnosis of cognitive impairment in their medical records, a prevalence far higher than found in community-dwelling older adults of the same age. In another study, correctional officers identified cognitively impaired prisoners at nearly five times the rate of prison officials. Others have explored the philosophical tension

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**Table 1. Geriatric-Focused Research Agenda for Understanding and Improving Older Prisoner Health and Health Care**

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<thead>
<tr>
<th>Geriatric Focus</th>
<th>Current Knowledge Limitations and Suggested Research Agenda Item</th>
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<tr>
<td>Healthcare cost</td>
<td>What are risk factors for high medical expenditures of older prisoners?</td>
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<td>Which interventions can be developed and tested to decrease medical care costs while improving or maintaining quality?</td>
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<td>What are the financial (and other) pros and cons of integrating older inmates within the general inmate population versus</td>
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<td>cohabiting them separately?</td>
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<td>Multimorbidity</td>
<td>What is the prevalence of coexisting chronic mental and physical health conditions in older prisoners?</td>
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<td>What are barriers to optimal chronic disease management in the criminal justice system?</td>
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<td>What are risk factors for adverse health outcomes (polypharmacy, disability, hospitalization, falls, mortality) for incarcerated</td>
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<td>older adults with chronic medical or mental illness?</td>
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<td></td>
<td>What longitudinal changes commonly occur in inmates with personality disorders (or other mental health diagnoses) as they</td>
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<td>age, and how might these changes affect parole or probation success?</td>
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<td>Functional impairment</td>
<td>Which activities of daily living have the greatest utility in most settings for measuring functional impairment in prison/jail?</td>
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<td>How do prison and jail guards (correctional officers and deputies) think about prisoner functional impairment? How should they</td>
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<td>adapt their practices for older prisoners with functional impairment?</td>
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<td>Is there a role for formal training in disability assessment for guards (correctional officers and deputies)?</td>
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<td>What environmental modifications could best mitigate the functional requirements of prison or jail?</td>
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<td>What are the pros and cons of integrating programs for older inmates with programs for inmates with disabilities?</td>
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<td>Geriatric syndromes</td>
<td>What is the prevalence and nature of geriatric syndromes in older prisoners?</td>
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<td>Do geriatric syndromes pose greater risks to older prisoners than to nonincarcerated older adults?</td>
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<td>How might traditional models of care (e.g., assistive devices that could be used as weapons) pose safety hazards in the</td>
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<td>prison/jail setting, and how can they be adapted?</td>
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<td>Cognitive impairment</td>
<td>What is the best way to screen for cognitive impairment or dementia in older prisoners?</td>
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<td>What is the prevalence of dementia in older adults who are arrested and in those who are incarcerated?</td>
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<td>What role should correctional officers (guards) play in recognizing early signs of dementia and in keeping prisoners with</td>
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<td>dementia safe?</td>
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<td>What programs are needed for persons with dementia upon release from prison?</td>
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<td>Transitional care</td>
<td>What interventions can successfully link older persons to community health resources upon release?</td>
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<td>Can transitional healthcare programs be created that are cost effective?</td>
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<td>Can transitional healthcare programs improve community health as well as the health of former prisoners?</td>
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<td>Palliative care</td>
<td>What are barriers to optimal care of dying prisoners and how can these barriers be overcome?</td>
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<td>What are the elements of a successful prison-based palliative care or hospice program?</td>
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<td>What is the nature of suffering in seriously ill prisoners, and what are the best ways to address this suffering?</td>
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<td>Can prison-based palliative care programs improve care while lowering costs?</td>
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related to incarcerating persons with profound dementia who may no longer be capable of understanding punishment or posing a threat to society.27

Lack of knowledge about the prevalence of dementia and the ways that dementia puts older prisoners at risk for adverse outcomes limits optimal care for older prisoners with dementia. Therefore, more research is needed to understand the prevalence of dementia in older adults who are arrested and incarcerated, including which screening and diagnostic tests are most effective, the optimal role of correctional officers in keeping prisoners with dementia safe, and the unique ethical concerns that arise when incarcerating older persons. Addressing these basic questions will help inform strategies to manage health and risks for older prisoners with cognitive impairment and dementia.

Transitional Care

Geriatric medicine focuses on the period of transition from one clinical setting to another. Models have been developed that successfully decrease rehospitalization, morbidity, and mortality through careful discharge planning, close primary care follow-up, case management, and medication reconciliation and planning.24 Transitions between correctional institutions and the community have a great effect on public health3 and on older former prisoners.14 Nearly 700,000 prisoners are released to the community each year,15 and older prisoners are far less likely than younger prisoners to be re-incarcerated,12 making the transition period from incarceration for older prisoners vitally important for individuals and public health, yet the transition period out of prison can be particularly complex for older adults. In the United States, prisoners generally are disenrolled from public health benefit programs (Medicare, Medicaid, Social Security Insurance, Veterans Health Administration) upon incarceration. After release, there generally exists a substantial lag time, frequently several months, until benefits are reinstated.14 During this time, former prisoners may experience health decline and rely on costly and inefficient use of emergency services for health care. A survey of returning prisoners of all ages showed that one-third of those with physical or mental health conditions used emergency department care and one-fifth were hospitalized within a year of release.15 Furthermore, because most state correctional departments provide only a 1- to 2-week supply of medication,14 many former prisoners have little or no access to medication while they await their initial healthcare appointment. A study of former prisoners in Washington State found that older adults were considerably more susceptible than younger adults to health-related mortality in the 2 weeks after release from prison.13 The transitional period may be particularly problematic for older adults with cognitive impairment or mental illness.15

Given the high prevalence of chronic and communicable diseases and of serious mental illness in older prisoners,4,17,23 research is needed to develop and test interventions that improve transitional health care for newly released older inmates.3 Successful geriatric models have primarily focused on preparing individuals for the transition using a “transition coach” (generally a nurse or advance practice nurse) to provide healthcare and self-care education and training in communication strategies.24 Studies are needed to determine whether a similar coach model in concert with timely linkage to community-based health care for older former prisoners could decrease costly emergency service use and improve health, resulting in a positive effect on public health and lower healthcare costs borne by the community.

Palliative Medicine

Longer prison sentences combined with an aging population have resulted in the deaths of many older prisoners during incarceration. From 2001 to 2007, the death rate for prisoners aged 55 and older (2,123/100,000) was nearly four times that of prisoners aged 45 to 54 (559/100,000), and in 2007, 1,550 state prisoners aged 55 and older died while in state custody, 45.7% of all state prison deaths that year.28

The field of geriatrics promotes the palliative care framework, which emphasizes optimization of symptom control and advanced care planning at an earlier stage than end-of-life hospice care, yet, despite high mortality rates in older prisoners, little is known about the optimization of symptom control or the relief of suffering in older prisoners. There are few prison hospices, and barriers to optimal palliative care exist in many prisons, including limitations in the use of opioid analgesics and significant patient–provider mistrust.4,29 Although innovative hospice and palliative care programs are emerging in the criminal justice setting,29 few have engaged prisoner–patients in the assessment of such programs, and little is known about the subjective nature of suffering of prisoners with serious medical illness. Moreover, little is known about whether the better care and lower costs found in community-based palliative care programs is replicable in prisons.

CONCLUSION

Demographic trends over the last 2 decades have led to a crisis in which the number of incarcerated older adults exceeds the criminal justice system’s capacity to provide sufficient, cost-effective healthcare. Communities simultaneously struggle with incorporating formerly incarcerated older adults into overburdened social services and health-care infrastructures. Research and policy-making initiatives have failed to keep pace with the mounting problem, leaving providers and healthcare systems ill equipped to meet these challenges. This article proposes applying widely cited geriatric models and principles to improve geriatric prison/jail-based and transitional health care and call for more health-related research on the health and healthcare needs of older prisoners.

Aging research has developed models to address multi-morbidity, functional health and person-environment mismatch, geriatric syndromes, and transitional and palliative care. Each of these topics is of paramount significance to prisoners who age in an environment designed for much younger inhabitants, with unusual functional requirements (e.g., climbing onto the top bunk or dropping to the floor for alarms), 95% of whom will transition out of this setting back to community healthcare systems.11 It is likely that applying geriatric care models to this population...
would provide better patient outcomes while having the potential to lower lifetime costs of care and improve post-release housing and employment prospects. The fields of geriatrics and gerontology have an unparalleled opportunity to inform this critical health policy and economic issue.

More aging research in the criminal justice system is needed to guide the implementation of these geriatric care models in prisons and jails. Knowledge about the health of older prisoners is limited, and even less is known about risk factors for poor health outcomes in prison or jail. This knowledge gap exists in large part because of a historical dearth of prisoner health research and a profound lack of good national data about prisoner health.16 Many factors contribute to this research and knowledge vacuum. Probably most importantly, prisoners are a hidden and frequently unsympathetic population. In addition, human research guidelines can be daunting to investigators, there is no clear National Institute of Health funding commitment, and there may be an understandable reluctance of correctional administrations to examine the system, given potential legal complications and the general scarcity of resources.

Recently, academic and state correctional health program affiliations have led to more research and innovative interventions that may improve quality and cost of care.20 Such collaborative approaches should be a priority in addressing the current correctional health crisis. Incorporation of a geriatric approach to health care that includes evaluation of geriatric syndromes and functional impairment in the context of the prison environment could enable prisons and jails to better risk-stratify older prisoners and perhaps to more efficiently house those at highest risk of adverse health events in facilities with greater access to assistance, supervision, and health care. Achieving such efficiencies is no longer a small matter as the aging criminal justice population continues to generate increasing costs. Ultimately, developing a greater understanding of older prisoners’ health and healthcare needs will have clinical and public health relevance that extends far beyond prison walls.

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REFERENCES


