

Aging in Custody

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Learning Objectives

At the conclusion of this presentation, the attendees will be able to:

1. Describe how the demographics of the incarcerated population (with regard to age) are changing.
2. Discuss how the aging of the incarcerated population will affect the provision of healthcare in correctional settings.
3. Identify conditions that will be expected to become more common as the incarcerated population ages.
4. Discuss methods to better identify problems affecting the physical and mental health of older incarcerated individuals.

In the 1976 decision *Estelle v. Gamble*, the United States Supreme Court concluded that deliberate indifference to serious mental illness in a prisoner was a violation of the Eighth Amendment prohibition on cruel and unusual punishment.

The Court also concluded that denying medical care could lead to pain and suffering that no one proposed would serve a penological function.

Demographics

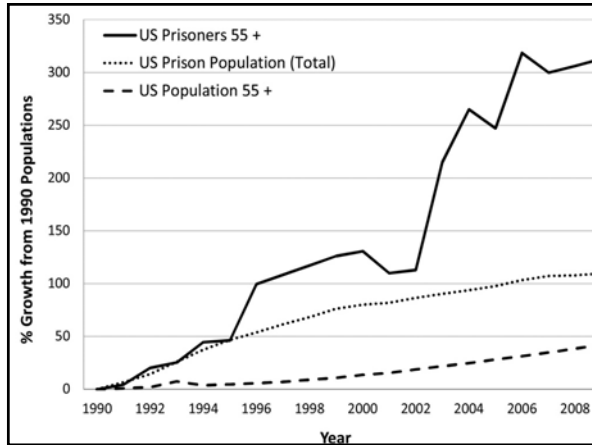
In 2010, 11% of inmates in the United States prison population were 50 years and older.

The incarcerated population in the United States is aging much more rapidly than the overall population in the United States.

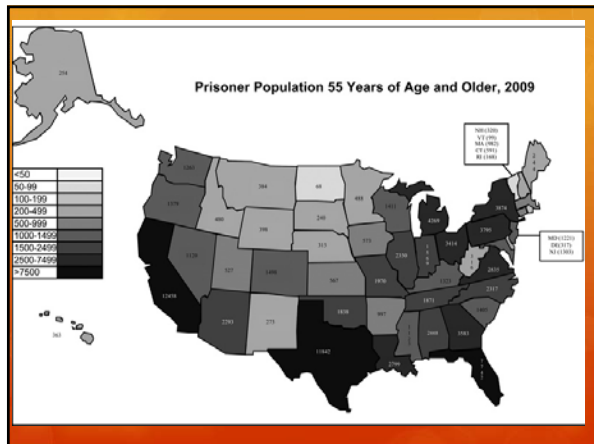
From 1990 to 2009, the older adult population in the United States increased by over one half.

In 1990, 2 states had more than 1000 prisoners classified as older.

In 2009, that number had increased to 28.







In 1990, there were 33,499 inmates 50 years and older in the United States prison system.

In 2001, there were 113,358 inmates 50 years and older in the United States prison system.

In 2010, there were 246,600 inmates 50 years and older in the United States prison system.

This represents an eight fold increase in two decades.

In 2010, 11% of inmates in the United States prison population were 50 years and older.

In a study published in 2001, Fazel, et al noted that the number of prisoners aged 60 and above in England and Wales had more than tripled in the prior decade.

They noted that, due to demographic changes and changes in sentencing practices, the population of elderly prisoners was expected to further increase.

They noted that, at the time of their study, elderly prisoners accounted for less than 2% of the total prison population.

In a 2011 study, Kingston, et al noted that between 2000 and 2009, the number of incarcerated men increased by 25.8% in England and Wales.

During the same time period, the number of incarcerated men aged 60 and above increased by 109%.

During that timeframe, the number of incarcerated women rose by 14.9%.

However, the number of incarcerated women who were at least 50 years old increased by 173%.

Costs of an Aging Population

Compared with younger prisoners, it is estimated that it costs about three times more to incarcerate older prisoners.

Much of this increased cost is the result of the cost of healthcare for older prisoners.

Older prisoners commonly receive treatment for acute events associated with chronic disease in community hospitals.

In 2008, California spent more than \$470 million for contract-based medical care outside of correctional facilities.

Aging and Health

Medications may impact functional status as people age.

Anticholinergic medications and benzodiazepines have consistently been associated with problems in functional status among elderly individuals.

Studies of the relationship between antidepressant medication use and declining functional status in the elderly were mixed.

Studies of the relationship between functional status in elderly individuals and the use of antihypertensives were mixed.

The majority of physiological functions in youth have significant amounts of spare capacity.

We will refer to this spare capacity as physiological reserve.

A progressive decrease in this reserve is typical of even healthy aging.

Examples of such a decline include:

Decreased explosive power of the lower limbs

Decreased hepatic function

Decreased glomerular filtration rate

Decreased bone mass

The decrease in physiologic reserve lessens a person's ability to react to situational and environmental challenges.

Muscle loss (sarcopenia) starts in middle age.

Muscle loss progresses at about 1% annually.

This is the result of muscle fiber loss which in turn may be due to progressive, partially compensated denervation.

Even without gross renal disease, diabetes, or hypertension, increasing age is associated with loss of renal tissue.

From birth until the fourth decade of life, renal mass increases in a progressive manner.

Renal mass subsequently decreases at a rate of 10% per decade.

Renal mass is 20 to 30% (or more) less in the seventh and eighth decades of life than in the fourth.

There is a reduction in functional glomeruli with aging.

The effective surface area for filtration in the remaining glomeruli also decreases with age.

After approximately age 40, renal blood flow decreases.

The changes in glomerular filtration rate may not be immediately apparent due to physiological reserve and the fact that creatinine production also declines.

The normal range of serum creatinine levels for healthy, young individuals is too high for elderly individuals.

A serum creatinine of 1 mg/dL in a 20-year-old may represent an estimated glomerular filtration rate of 120 milliliters per minute but in an 80-year-old individual it may represent a glomerular filtration rate of 60 mL per min.

Increasing age is typically associated with decreases in drug elimination by the kidneys.

This decreased elimination is proportionate to decreases in creatinine clearance.

Liver volume significantly decreases as people age.

Liver blood flow decreases with age.

There is a decrease in the number of hepatocytes with increasing age.

There is a decrease in liver clearance of many drugs with increasing age.

This decrease appears to be more related to decreased blood flow and liver size than to changes in enzyme activity.

There is evidence that increasing age is associated with hypoxia of hepatocytes.

There is also evidence that oxidative stress results in decreased uptake of oxygen and decreased propranolol clearance compared to morphine clearance.

Propranolol clearance involves oxidative metabolism while morphine clearance involves conjugation metabolism.

These results support the idea that aging is associated with a restricted supply of oxygen which limits drug metabolism in the liver, especially oxidative metabolism.

There is a common perception that prisoners demonstrate accelerated aging when compared to community counterparts of the same chronological age.

The health condition of incarcerated individuals has been suggested to approximate that of people 10 to 15 years older who are not incarcerated.

Research has demonstrated that older prisoners (50 years and older) are more likely to have disability when compared with peers in the community.

Research has also demonstrated that older prisoners are more likely than peers in the community to have at least one chronic health problem.

A 2008 study indicated that:
10% of older inmates have HIV/AIDS
16% had tuberculosis
32% had hypertension
33% had arthritis

A 2006 study indicated that:
Mental health problems had been diagnosed in between 16 and 36% of older inmates.

Older prisoners have an average of three chronic medical problems.

Compared with older non-prisoners and younger prisoners, older prisoners have a greater burden of disorders such as pulmonary disease, diabetes, and hypertension.

46.7% of prisoners with at least three chronic disorders in Texas are 55 and older.

Prisoners in Texas who are age 55 and older, on average, are chronically prescribed 7.3 classes of medications.

In 2007, 45.7% of deaths in state prison (1,550) occurred among prisoners who were age 55 and older.

From 2001 to 2007:

The death rate for prisoners age 45 to 54 years was 559/100,000.

The death rate for prisoners age 55 and older was 2,123/100,000.

In a study published in 2001, Fazel, et al studied male prisoners who were at least 60 years old.

Approximately 85% of the prisoners consented to take part in the study.

Health rated as good or very good on self-report:

Prisoners 60 years old and older 36%

Prisoners 18 to 49 years of age 61%

Elderly men in the community 62%

Taking prescribed medication:

Prisoners 60 years old and older	77%
Prisoners 18 to 49 years of age	30%
Elderly men in the community	68%

Longstanding disability or illness:

Prisoners 60 years old and older	83%
Prisoners 18 to 49 years of age	46%
Elderly men in the community	65%

85% of the older prisoners had a major illness listed in their medical records.

Respiratory, musculoskeletal, cardiovascular, and psychiatric illnesses were the most common major conditions listed in the medical records of the older prisoners.

Diagnosis	% of older prisoners
Ischemic heart disease or angina	19.7%
Hypertension	13.3%
Osteoarthritis	13.3%
Diabetes mellitus	8.4%
Chronic obstructive pulmonary disease	6.9%
Asthma	5.4%

In a 2004 study, Fazel, et al reported on medication prescription in elderly prisoners.

System	Rx'd	Accurately Targeted
Cardiovascular	35%	85%
Musculoskeletal	28%	65%
Gastrointestinal	21%	58%
Respiratory	13%	61%
Psychiatric	9%	18%

A mere 18% of prisoners with a recorded psychiatric problem were getting psychotropic medication.

In a 2006 study, Williams, et al noted that there had been a 350% increase in the population of incarcerated geriatric women in the prior decade

Age 55 was used to define geriatric.

They noted that a third of the entire prison population in the United States was projected to be geriatric by 2030.

Female geriatric prisoners have greater rates of comorbid disorders than males.

Older age and female gender most strongly predict elevated use of medical services and morbidity.

33% of the female prisoners reported having at least three comorbid conditions.

78% of the female prisoners took at least five medications.

22% of the female prisoners reported having incontinence.

28% of the female prisoners reported having experienced memory loss.

52% of the female prisoners reported having impaired hearing.

58% of the female prisoners reported having impaired vision.

16% of the female prisoners required assistance with at least one ADL.

This rate is twice that of the general population (age 65 and above) in the United States.

69% of the female prisoners indicated that one or more PADL was quite difficult to perform.

Many of these latter women did not report needing assistance with ADLs.

Mental Health of Older Prisoners

In a 2011 study, Kingston, et al noted that 1.6% of older prisoners were diagnosed with dementia by the GMS.

This was slightly above the rate expected for same aged peers living in the community.

They noted there is evidence that long-term incarceration results in cognitive impairment.

They also note that some prisoners who are sent to a hospital with a presumed dementia diagnosis demonstrate an elevation in their scores on the MMSE in the initial few months after transfer.

One study revealed that prisoners with cognitive impairments were identified by correctional officers at a nearly five fold greater rate than by prison officials.

Risk factors for cognitive impairment include a history of traumatic brain injury, posttraumatic stress disorder, and substance abuse.

These conditions are common among prisoners.

Side effects from medication as well as poor diets resulting in deficiencies of vitamins may also increase the risk for dementia among prisoners.

Prisoners are at a significantly higher risk for dementia due to poor mental health and poor physical health status.

Public spending on the care for individuals with dementia is estimated to have reached up to \$202 billion.

13% of people age 65 and above in the United States are estimated to have some level of dementia.

Estimates of the prevalence of dementia in the prison population in the United States range from 1 to 44%.

It has been estimated that the number of incarcerated individuals with dementia will double by 2030 and will triple by 2050.

One study revealed a 40% rate of cognitive impairment was noted in the medical records of prisoners age 55 years and older.

This prevalence was substantially greater than that of adults of the same age living in the community.

Health care services specific to the geriatric population were only provided in 4% of state institutions according to a 2002 paper by Maschi, et al.

50% of incarcerated individuals 50 to 54 years of age have problems related to mental health.

36% of incarcerated individuals age 55 and above have problems related to mental health.

One third of the individuals in each group will have treatment available to them while in prison.

In another study by Fazel, et al, it was noted that a prior retrospective study had found that 55% of prisoners over age 65 had symptoms of a mental health condition.

They also noted that epidemiological surveys had revealed that 10% of elders in the community had a mental illness while 5 to 10% had dementia.

Fazel, et al's study was based on the same population of male prisoners at least 60 years of age as the study reviewed previously.

The Geriatric Mental State or GMS and the Structured Clinical Interview for DSM-IV Axis II personality disorders were used to assess the prisoners.

Reception health screening data and medical records were reviewed.

31.5% of the prisoners were found to have psychiatric illness based on the GMS.

29.6% of the prisoners were found to have a depressive disorder making it the most common diagnosis.

40% of the prisoners with a depressive disorder based on the GMS had a present or past history of depression listed in the medical record.

76.8% of the prisoners were using some type of prescribed medication.

11.7% of the prisoners diagnosed with depression on the GMS were receiving antidepressant medication.

30% of the prisoners received a diagnosis of a personality disorder based on the SCID-II.

9.4% of the prisoners had comorbid psychiatric illness and personality disorder.

53.2% of the prisoners received a psychiatric diagnosis.

Personality disorder diagnosis	Percent of Prisoners
Antisocial personality disorder	8.3%
Obsessive-compulsive personality disorder	7.9%
Avoidant personality disorder	8.3%
Schizoid personality disorder	6.4%
Mixed personality disorder	6.9%

In another study, 64% of prisoners aged 18 to 65 had been found to have a personality disorder on the SCID-II.

In a 2011 study, Kingston, et al noted that in a prior study a little over half of incarcerated men at least 55 years of age received scores greater than the diagnostic threshold for a mild depression.

Kingston, et al studied prisoners aged 50 and above.

The Geriatric Mental State Examination or GMSE, the Mini-Mental State Examination or MMSE, and the Short-Form 12 or SF-12 were utilized to assess the prisoners.

Medical records and data from reception health screening were also reviewed.

Using the GMS, 49.6% of the prisoners were found to have a diagnosable psychiatric illness.

Depressive disorder was the most common psychiatric diagnosis, accounting for 83% of the diagnoses.

42.1% of the prisoners self-reported having a problem related to mental health.

10% of the prisoners had psychotropic medication recorded in their medical record.

Of note, all of the prisoners receiving psychotropic medication were diagnosed with depression.

75% of them were receiving antidepressant medication.

Prisoners who self-reported a prior mental illness history and those with violent offenses had higher risks of having depression.

Prisoners older than 65 years of age had a higher rate of depression than those under 65 years of age.

Physical health was not associated with depression.

In a 2008 study, Murdoch, et al evaluated incarcerated men at least 55 years of age who were serving either indeterminate or life sentences.

The Geriatric Depression Scale was utilized to assess depressive symptoms.

The Mini Mental State Examination was used to assess cognitive function.

48% of prisoners had scores in the mild range of depression.

3% of prisoners had scores in the severe range of depression.

Of note, 56% of prisoners who scored below the mild range of depression had a score of 10 points on the GDS.

This score is the cut-off or borderline between mild and no depression.

The scores on the GDS were not related to the length of the prison term served.

In a survey of individuals above age 65 in general practice, 35% had depression.

Higher GDS scores were associated with:

Being prescribed >4 medicines (except antidepressants)

Chronic illness (illnesses in the prior 12 months, hypertension, ischemic heart disease, and hypercholesterolemia)

Prisoner ratings of healthcare as being unsatisfactory

Previous history of mental illness (this included substance abuse, anxiety, and depression)

A previous history of depression did not have a greater effect than the presence of other previous psychiatric diagnoses

Lower MMSE score

Williams, et al found that increasing functional impairment was associated with feelings of depression in older female prisoners.

Level of Impairment	% Reporting Depression
No functional impairment	19%
A PADL impairment	40%
ADL impairment	53%

Safety and Security

Prisoners with dementia may have deficits in areas such as executive function, visual processes, language, and reasoning which may impair their ability to respond in a rapid manner to either prisoner leaders or prison authorities.

Auditory difficulties may also impair the ability of older prisoners to respond appropriately.

Individuals with dementia are more vulnerable to victimization by their peers in prison.

Individuals with dementia may exhibit aggression toward other prisoners or staff.

Identifying at Risk Prisoners

Functional assessment has traditionally been measured by evaluating the ability to perform ADL's.

Transferring, dressing, toileting, bathing, and eating are commonly assessed ADLs in community dwelling populations.

Assessment of IADL's may be used in the community to assess for moderate impairment.

Common IADL's are balancing a checkbook, taking transportation, doing laundry, cooking, and shopping.

However assessment of IADL's and ADL'S have limited applicability to the functional assessment of inmates

The care of functionally impaired individuals involves decreasing the discrepancy between functional requirements and functional abilities

Therefore, better assessments of function in correctional settings are necessary

One strategy is to assess PADL'S- Prison ADL's

PADL'S include the ability to hear orders from staff, to drop to the floor for alarms, to stand for headcount, and to climb onto and out of the assigned bunk

Williams, et al described using PADLs to assess functional status.

The PADLs were climbing off and on the top bunk, hearing orders from staff, getting to a dining hall for meals, standing for headcount, and dropping to the floor for alarms.

The Confusion Assessment Method Instrument

- 1. Is there evidence of an acute change in mental status from the patient's baseline?
- 2A. Did the patient have difficulty focusing attention, for example, being easily distractible, or having difficulty keeping track of what was being said?
- 2B. Did this behavior fluctuate during the interview, that is, tend to come and go or increase and decrease in severity?
- 3. Was the patient's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?
- 4. Overall, how would you rate this patient's level of consciousness? (Alert [normal]; Vigilant [hyperalert, overly sensitive to environmental stimuli, startled very easily]; Lethargic [drowsy, easily aroused]; Stupor [difficult to arouse]; Coma; [unarousable]; Uncertain)

The Confusion Assessment Method Instrument

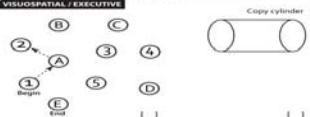
- 5. Was the patient disoriented at any time during the interview, such as thinking that he or she was somewhere other than the hospital, using the wrong bed, or misjudging the time of day?
- 6. Did the patient demonstrate any memory problems during the interview, such as inability to remember events in the hospital or difficulty remembering instructions?
- 7. Did the patient have any evidence of perceptual disturbances, for example, hallucinations, illusions or misinterpretations (such as thinking something was moving when it was not)?
- 8A. At any time during the interview did the patient have an unusually increased level of motor activity such as restlessness, picking at bedclothes, tapping fingers or making frequent sudden changes of position?


The Confusion Assessment Method Instrument

- 8B. At any time during the interview did the patient have an unusually decreased level of motor activity such as sluggishness, staring into space, staying in one position for a long time or moving very slowly?
 - 9. Did the patient have evidence of disturbance of the sleep-wake cycle, such as excessive daytime sleepiness with insomnia at night?
- Sensitivity of 94-100% and specificity of 90-95%.

MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 2.3 Alternative Version

NAME: _____ Date of birth: _____
Education: _____ Sex: _____ DATE: _____

VISUOSPATIAL EXECUTIVE Copy cylinder _____
Draw CLOCK (from past week) _____


NAMING _____


MEMORY Read list of words, subject must repeat them after 2 intervals. This is a short-term memory test. (1st trial) _____ (2nd trial) _____

ATTENTION Read list of digits (1 digit/sec). Subject has to repeat them in the forward order: _____
Subject has to repeat them in the backward order: _____

Read list of letters. The subject must tap with his hand at each letter "A". No words. 4.4 sec. _____
Serial 7 subtraction starting at 80: _____

LANGUAGE Repeat: "The hand that began was the one to use after the accident." _____
Name 3 items (maximum number of words in one sentence that begins with the letter B). _____

ABSTRACTION Identify pattern in sequence: change in that: _____ eye - ear _____ transparent - plastic _____

DELATED RECALL Repeat the words: TRAMP EGG HAY CHAIR BLUE _____
WITH NO CLUE _____

Optional _____

ORIENTATION _____ Date: _____ Months: _____ Year: _____ Day: _____ Place: _____ City: _____

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GERIATRIC DEPRESSION SCALE:

Choose the best answer for how you have felt over the past week:

1. Are you basically satisfied with your life? YES / NO
2. Have you dropped many of your activities and interests? YES / NO
3. Do you feel that your life is empty? YES / NO
4. Do you often get bored? YES / NO
5. Are you in good spirits most of the time? YES / NO

6. Are you afraid that something bad is going to happen to you? YES / NO
7. Do you feel happy most of the time? YES / NO
8. Do you often feel helpless? YES / NO
9. Do you prefer to stay at home, rather than going out and doing new things? YES / NO
10. Do you feel you have more problems with memory than most? YES / NO

11. Do you think it is wonderful to be alive now? **YES** / **NO**

12. Do you feel pretty worthless the way you are now? **YES** / **NO**

13. Do you feel full of energy? **YES** / **NO**

14. Do you feel that your situation is hopeless? **YES** / **NO**

15. Do you think that most people are better off than you are? **YES** / **NO**

Answers in bold indicate depression. A score of > 5 points suggests depression; do a follow-up interview. Scores of > 10 are nearly always due to depression.

Treatment Interventions

A study conducted in 2010 of inmates in the New Jersey Department of Corrections revealed that greater mental well-being was reported by older inmates who reported having greater levels of both external and internal coping resources in social, spiritual, physical, emotional, and cognitive domains.

The authors concluded that it was necessary to assess inmates for present and past stress and trauma as well as re-traumatization and neglect occurring in institutional and healthcare settings.

The authors also concluded that assessment of past and present coping strategies was necessary to improve the mental well-being of inmates.

In 2005, the FDA determined there was a significantly increased risk of mortality (when compared with placebo) among elderly individuals with dementia who were treated with atypical antipsychotics.

The increased risk of mortality was a factor of 1.6 to 1.7.

Most of the deaths were the result of infectious or cardiac causes.

Delusions occur in 9 to 63% of individuals with Alzheimer's disease.

Hallucinations occur in 4 to 41% of individuals with Alzheimer's disease.

Physical aggression occurs in 31 to 42% of individuals with dementia in institutions.

Agitation occurs in 20 to more than 80% of individuals with dementia.

Atypical antipsychotics have demonstrated modest efficacy in the treatment of psychosis associated with Alzheimer's disease.

However, no atypical antipsychotics are indicated for the treatment of psychosis associated with dementia.

Moreover, studies have not uniformly demonstrated that atypical antipsychotics outperform placebo in treating psychotic symptoms in individuals with Alzheimer's disease.

Unfortunately both the safety and efficacy of alternative treatments (including behavioral/ psychosocial and pharmacological interventions) for agitation and/or psychosis complicating dementia is still unclear.

It is worth noting that there is generally a 30 to 40% response rate for placebo in randomized clinical trials of antipsychotics in dementia.

It is felt to be likely that non-specific therapeutic factors account for a significant proportion of this improvement.

It is important to realize that there are no known specific protective factors for deaths or for cerebrovascular adverse events associated with antipsychotics in this population.

It is important to realize that there are no known specific risk factors for deaths or for cerebrovascular adverse events associated with antipsychotics in this population.

The effects of memantine and cholinesterase inhibitors on behavior are not clear but appear to (at best) be modest.

A Cochrane review from 2011 concluded there were few studies regarding the use of antidepressants to treat psychosis and agitation in dementia at present.

It was noted that, in two studies, citalopram and sertraline had been associated with decreased agitation versus placebo.

It was noted that Trazodone and SSRIs seem to be reasonably well tolerated versus atypical antipsychotics, typical antipsychotics, and placebo.

A 2012 study found that, in individuals with Alzheimer's disease that was moderate to severe, significant agitation was not improved by Memantine.

A 2014 study, examined individuals with probable Alzheimer's disease as well as clinically significant levels of agitation.

All of them received a psychosocial intervention.

94 received Citalopram and 92 received placebo for nine weeks.

This was a double-blind, placebo-controlled, randomized trial.

Citalopram dosing began at 10 mg and could be increased to 30 mg daily over a period of three weeks.

Citalopram use resulted in a significant reduction in caregiver distress as well as agitation.

Final Thoughts/Discussion Points

Treatment of depression

Treatment of psychosis

Treatment of anxiety

Treatment of bipolar disorder

Treatment of delirium

Questions?

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