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Aging Inmates: Challenges for Healthcare and Custody

*A Report for the
California Department of Corrections and Rehabilitation*

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Introduction

In 1999 the California Department of Corrections, concerned about the escalating needs and costs of its aging prison population, produced an internal report, *Older Inmates: The Impact of an Aging Inmate Population on the Correctional System*.¹ The report explored utilization and costs; training needs for custody, parole, and healthcare staff; recruitment of professionals skilled in geriatrics; needs of female inmates; pre-release planning and community collaborations; and “visionary alternatives” to customary—and exorbitantly expensive—practices. The report called for changes (see box page 2) that are consistent with recommendations made repeatedly since the 1980s. They remain worthy of implementation.

Throughout the 1990s, other states, e.g., Ohio,² Pennsylvania,³ and Florida,⁴ were testing innovations in healthcare, programming, housing, and release planning. There, as in California, the aging crisis in corrections has been primarily a consequence of changes in sentencing and parole policies. More people are going into prison for longer terms, and fewer people are getting out. Changes in drug laws and “deinstitutionalization” of the mentally ill have also contributed to the explosive growth of the older inmate population.⁵

In 2003 the California legislature began to give serious attention to California’s aging inmate crisis,⁶ as did the federal court in 2004. In late 2004 Dr. Renee Kanan, Acting Director of the Division of Correctional Health Care Services, asked one of us for help in planning and implementing programs to meet the needs of aging inmates. In May 2005 our team from Lumetra began a project to describe California’s aging inmates, their needs, current gaps in meeting those needs, and recommendations for the future. Meanwhile, the California Medical Facility (CMF) Warden and Health Care Manager, Teresa Schwartz and Dr. Nadim Khoury, had begun a pilot project to develop a comprehensive elder care program at CMF, to be assisted as well by the Lumetra team.

This report will describe the Lumetra experience with the CMF pilot project and our survey findings on inmate needs, met and unmet. We will point out how other states are exploring alternatives to costly incarceration of aging inmates. We will recommend aggressive exploration of new housing models and programs for aging and disabled inmates. We will give extended attention to the financial and clinical lessons learned from the free world with regard to managed care, case management, and long-term care integration. Redesign of services to meet chronic care needs, rather than relying on a “sick call” model, is now a fiscal and quality imperative for the Division of Correctional Health Care Services. We will offer suggestions for achieving organizational change through custody and healthcare collaboration.

From changes recommended in:

Older Inmates: The Impact of an Aging Inmate Population on the Correctional System

California Department of Corrections, 1999

Physical plant: Grab bars in cells, showers and toilet areas; elevated toilet seats; stools or benches in showers and bathtubs; hand rails on walkways; bottom steps painted a darker and/or reflective color for better contrast; elevators or other lifts for second story access; compensation for decreased ability to control body temperature and increased risk for hypothermia, especially for mentally ill older offenders; greater access to toilet facilities; large lettered signage; accommodations in the general population for inmates who are oxygen dependent but who do not need medical housing; environmental modifications and/or totally separate housing for inmates with [Alzheimer's] and other dementias.

Programming: Activities to keep the inmate mentally and physically active as a means to delay onset of costly medical care; programming which takes into account the limited capabilities (lifting, standing for long periods, diminished eye sight and coordination, etc.) of some older inmates; programming geared specifically for the elderly.

Custody Staff: Training for correctional officers in dealing with an aging population, especially in dealing with inmates with [Alzheimer's] and other dementias; awareness of the impact of hearing loss, brittle bones, poor eyesight, slower response time and reflexes, instability in walking and standing, need for more frequent access to toilets; need for more Correctional Counselors with lighter caseloads, and/or Discharge Planners to assist in meeting the needs of the older offenders.

Operations: Development of policies which take into account the difficulty in controlling body temperature and need for more blankets or heavier clothing in winter months as well as lighter or heavier clothing in warmer months; the need for toothbrushes with larger, easier to grip handles, for shoes with non-slip soles, shirts with Velcro instead of buttons, and shoes with Velcro instead of laces. Awareness of, and compensation for, difficulty in maintaining personal hygiene and need for assistance with Activities of Daily Living (ADL). The need for assistance in making funeral arrangements, writing "Living Wills" and "Do Not Resuscitate" (DNR) orders. Development of alternative housing arrangements (clustered, disbursed, or a combination; hospice, skilled nursing, convalescent, sheltered living) and transportation policies, especially the need for frequent "rest" stops; standardized procedures for transporting older parolees with medical problems; accommodation in the general population for oxygen dependent inmates who do not require medical housing.

Food Services: ...Awareness of the different nutritional, vitamin and minerals needs of the elderly; awareness that the elderly may be unstable in gait, weak, and lack the coordination to stand in food lines with able bodied inmates, may be unable to carry full food trays to tables and may require a longer time to eat and/or feeding assistance....

Parole: Potential need to parole into a nursing home or board and care facility; need to enroll in Medi-Cal program for access to health care; linkages to Adult Day Care and Adult Day Health Care Centers; unlikelihood of employability and the resultant need for living expenses; awareness of existing or planned funeral arrangements and living wills; the need to train Parole Agents on the Older Americans Act and the availability of community-based services for older parolees.

Demographic and Economic Imperatives for Change

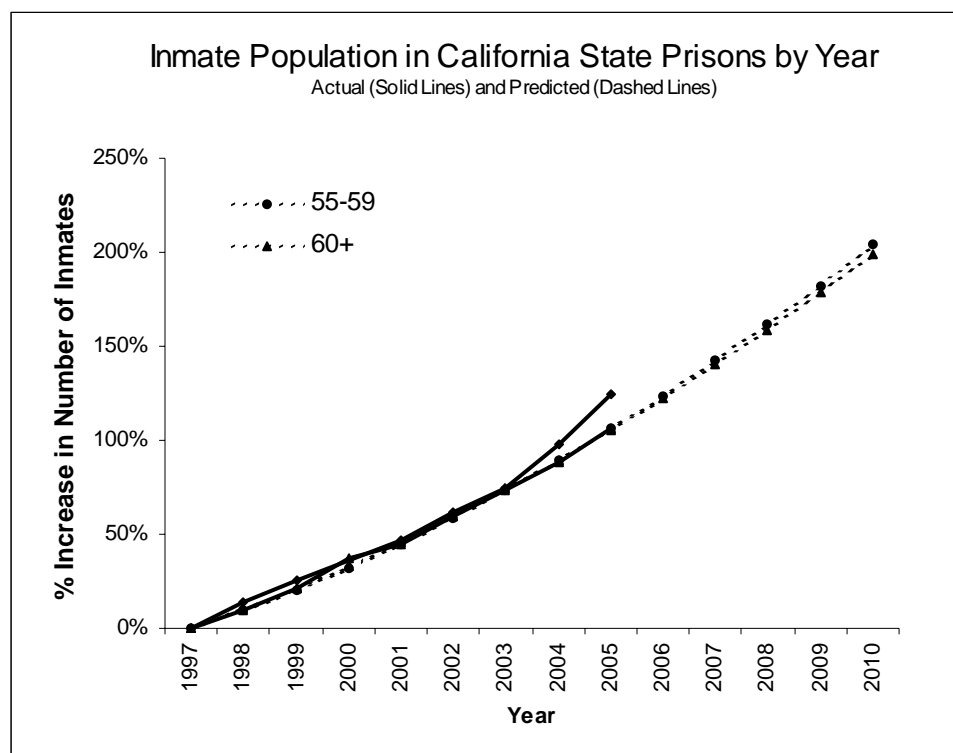
The numbers of California prison inmates age 55-59 and age 60 and over more than doubled in eight-year period from 1997 to 2005 (see Table 1).⁷

Table 1. Numbers of Older Inmates

	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total	155,276	159,563	160,687	160,655	157,096	159,654	155,722	163,364	168,055
55 - 59	2,143	2,428	2,692	2,909	3,140	3,462	3,735	4,232	4,811
60 and over	1,781	1,951	2,177	2,445	2,581	2,855	3,097	3,373	3,699
60 - 64		1,073	1,220	1,393	1,447	1,603			
65 -69		514	573	613	647	697			
70 and over		364	384	441	487	555			

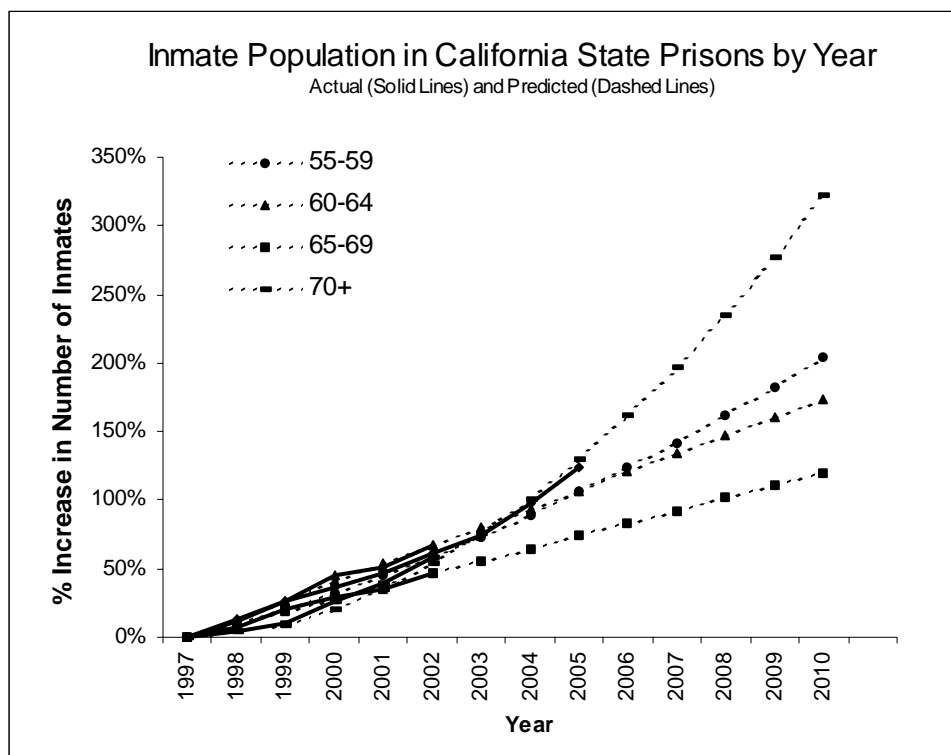
Based on 1997-2005 data, these numbers will double again by 2010 (see Figure 1).

Figure 1. Projected Growth of Inmate Population Ages 55-59 and 60+



The CDCR was unable to generate the sizes of the 60-64, 65-69, and 70+ cohorts for 2003-2005, but based on the 1998-2002 data, the number of inmates age 70+ will more than triple by 2010 (see Figure 2).

Figure 2. Projected Growth of Aging Inmate Population by 5-Year Cohorts



Prior research efforts to make precise predictions about the aging inmate population growth and associated cost increases have had very limited success,^{8,9} in part because state prison systems do not track utilization and cost data as enthusiastically as Medicare or private insurance companies. California is no exception.

Overall, we know that California prison healthcare costs have been rising more than 10% per year,¹⁰ compared with 7% annual increases for California's Medi-Cal program¹¹ and 6-8% annual increases for Medicare.¹² State correctional systems can easily track pharmacy costs and "outside," off-site healthcare costs, e.g., admissions to community hospitals, but find it much harder to track their internal clinic care and hospital costs. One study found that costs were lower in states that used infirmaries as a substitute for prison system hospitals.¹³ There are reports that utilization and costs increase with age, but these reports primarily use off-site cost data.¹⁴ Most states estimate that healthcare for an older inmate costs three times that of a younger inmate.^{15,16} There are no good data on the cost of the custody component of healthcare, e.g., correctional officers guarding inmates in prison clinics, during transport, or in outside hospitals. There are no published analyses on the costs of prison healthcare litigation, in spite of its enormous financial impact.

The only cost information we could obtain comparing younger and older California inmates was for off-site hospital costs (inmates sent to non-CDCR community hospitals).¹⁷ The group age 55 and older is about 5% of the population but accounts for 22.4% of the off-site hospital admission costs (see Table 2). California off-site hospital cost per admission are 35% higher for inmates 55+ than for younger inmates. The cost per admission for the subset of inmates age 70+ is 61% higher than for inmates age <55. We were not able to obtain data by age for any other inmate healthcare costs or healthcare-associated custody costs. In the Medicare population age 65+, hospital costs account for 31% of healthcare expenditures.¹⁸

Table 2. Off-site Hospital Costs July 2003 to December 2005

Age	% of Population	Total Hospital Costs ^a	% of Total Costs	Cost/Admission
<55	95%	\$266,425,758	77.6%	19,834
55+	5%	\$ 76,851,731	22.4%	26,747

The Free World Context of System Redesign

In 2004 the Corrections Independent Review Panel, led by former Governor Deukmejian, described “a correctional system in need of fundamental change.”¹⁹ California has not challenged a federal court receivership imposed because of healthcare quality shortcomings.²⁰ In this report we will describe serious healthcare inadequacies. It is important to place our cost and quality concerns in the context of the critique and redesign of American healthcare in general. For both corrections and the free world, what we need is honest clarity—not finger pointing—in order to find our way forward.

In 2001 the Institute of Medicine (IOM) began its seminal report, *Crossing the Quality Chasm*, “The American health care delivery system is in need of fundamental change.”²¹ Healthcare even for people of means is fragmentary, inconsistent, and unsafe. Americans get care consistent with guideline standards about half the time.²² For poor and/or minority populations, access is limited, quality uneven, and outcomes inferior. *Crossing the Quality Chasm* and prior IOM reports²³ marked a turn to system transparency and honest critique.

Crossing the Quality Chasm also outlined a conceptual framework for system redesign. The Centers for Medicare and Medicaid Services (CMS), the Agency for Healthcare Research and Quality (AHRQ), the National Quality Forum (NQF), and the leading private healthcare organizations and professional associations have since adopted this framework. The IOM described six aims: healthcare should be safe, effective, patient-centered, timely, efficient, and equitable. The IOM also endorsed six strategies for change:

- Redesign of care processes based on best practices
- Use of information technologies to improve access to clinical information and support clinical decision making
- Knowledge and skills management
- Development of effective teams
- Coordination of care across patient conditions, services, and settings over time
- Incorporation of performance and outcome measurements for improvement and accountability

The IOM found evidence that these strategies could transform delivery systems. In the 1990s, for example, the Veterans Health Administration used integrated, system-level strategies to move from a culture of low expectations to performance far exceeding the national average.^{24,25} Isolated interventions, such as educating or replacing groups of physicians or nurses, or even implementing a chronic care program, would not have yielded the same progress.

Studies of the Medicare population are driving the need for change. A 2005 Commonwealth Fund quality report²⁶ introduces its negative findings as follows:

^a Community hospital cases (discharges) were only counted if a cost for the stay was reported. Costs were reported for over 99% of FY 2003-2004 and FY2004-2005 and 84% of FY 2005-2006 cases.

In one pilot study, the quality of care delivered to vulnerable elderly—those at high risk of declines in health—met expert standards only a little more than half the time. The greatest gaps occurred in the care of geriatric conditions, such as screening and management of falls and urinary incontinence. Among elderly adults in 2000, one-half had not received a colorectal cancer screening test as recommended. Similarly in 2000, only one-half of elderly women had ever talked to their doctor about osteoporosis.... Only one-quarter of elderly adults whom researchers determined had high blood pressure had it under control during 1999–2000. Likewise, only 18 percent of those that researchers determined had high cholesterol had it controlled. Less than one-third of depressed elderly patients in one study received potentially effective treatment during 1999–2001. Only 60 percent of Medicare managed care plan members hospitalized for mental illness in 2003 received recommended follow-up care within one month of leaving the hospital.... Among those who died of a chronic condition in 2000 and received care at the end of life, 15 percent to 50 percent of their family members expressed concerns about some aspects of the care delivered at the end of life.

Happily, the Commonwealth Fund report goes on to highlight exemplary interventions to improve care. Quality improvement initiatives based on system redesign are beginning to bear fruit.²⁷

Rising costs join quality concerns in driving system improvements. Spending by the federal, state, and private sectors continues to outpace inflation. The healthcare share of the gross domestic product will grow from 16% in 2004 to an estimated 20% in 2015.²⁸ Population management strategies remain our best bet to improve quality and control costs.²⁹ Identification of “high utilizers,” people who consume or may soon consume more resources, is critical to both improving quality and reducing costs. In the Medicare population, for instance, 25% of patients generate 85% of expenditures.³⁰

Population management includes two approaches to cost and quality, sometimes referred to a medical vs. social models. Developed along separate tracks throughout the 1990s, the two approaches have begun to overlap, particularly in comprehensive systems that are fiscally responsible for both healthcare delivery and community-based services.

- Chronic disease management has often used a single-disease focus, e.g., diabetes, cardiac conditions, or asthma, in ambulatory care settings. The CDCR Plata chronic care program illustrates this option and represents a vast improvement over sick call for chronic conditions. Free world population management has begun to recognize that chronically ill patients tend to have multiple illnesses, however, and that single-disease, formulaic approaches may have limited impact.
- Community-based long-term care integration targets a more complex population with an array of services ranging from case management and personal care services to domiciliary care or nursing home care. Long-term care integration prioritizes keeping people at the lowest level of care that can meet their needs. Potential benefits include increased patient satisfaction, quality, and cost savings.

Both approaches depend on some combination of patient self-management and informal support. In correctional settings, the range of options for self-management is limited, and there is no family to offer informal support. Other inmates, correctional officers, and/or healthcare staff must fill in to meet the needs of impaired inmates (see further discussion in Appendix C). Correctional officers have a unique perspective that served as the basis for much of the information we collected in this survey.

Underlying both approaches is case management or care coordination. This report will argue strongly for a comprehensive and cost-effective care coordination system. We will also discuss the other IOM strategies for change, including redesign of care processes based on best practices, knowledge and skills management, and development of effective teams. Essential, but not a focus here, will be use of information technologies and development of performance measurements. Finally, we will discuss the importance of collaborative leadership of custody and healthcare in developing a common vocabulary and approach to organizational transformation.

Five years after the 2001 IOM report, American healthcare is not yet getting passing grades. But there has been progress, and there is broad consensus on the organizational strategies for change. Correctional healthcare had best heed the lessons learned, rather than repeat the costly mistakes of 20th century American healthcare delivery.

Elder Care Services at California Medical Facility

As the CDCR's only prison with a healthcare-specific mission, California Medical Facility (CMF) has extensive medical and psychiatric services, including acute care, intermediate care, hospice, and a broad range of outpatient clinics. "Our mission is to provide evaluation and treatment of the medically ill or mentally disordered inmate in a safe, secure, well-maintained, therapeutic, and self-enhancing environment, while maintaining security and the control of individuals who have been determined to be a danger to self or the people of California... through an integrated, multidisciplinary approach."³¹ Even so, before 2005 CMF had claimed no geriatric expertise and managed no units focused on aging inmates.

In early 2005 CMF began its Elder Care Program in earnest. Warden Teresa Schwartz made site visits to two of the country's model programs, Hocking Correctional Facility in Ohio and Laurel Highlands in Pennsylvania. She and the Health Care Manager, Dr. Nadim Khoury, commissioned an Elder Care Committee with broad representation from custody and healthcare departments, including plant operations, business services, procurement, education, pastoral care, peer education, fire, and inmate assignment. They envisioned "a continuum of care dependent upon the individual patient physical and mental needs at any given time. This continuum would consist of: assistance and medical management within the general population; special housing in an assisted living environment; inpatient long-term care and hospice care."³²

The committee acknowledged concerns about victimization of elderly inmates. They also acknowledged the need for functional assessment at reception to identify physical, mental, or emotional disabilities and behaviors:

There are a number of conditions that require special accommodation, including mobility impairment, sensori-neural impairment, chronic illness, mental illness, and terminal illness. Many conditions also occur as are part of the normal aging process; this may include sleep disturbances, incontinence, mental confusion, and gastrointestinal disorders. Several of these conditions require cell modifications that may include wider doors for wheelchair access, grab bars around toilets and in the shower, a sink and toilet of the appropriate height, a shower chair, etc. In nearly all instances, special programs are required to meet the needs of this diverse patient population. Of critical importance is the requirement that all of these patients be tracked and their chronic conditions clinically monitored by specially trained healthcare staff.³³

The Elder Care Committee discussed issues such as distance to dining hall and availability of meals on elder housing unit; inmate support groups; exercise, horticulture, and recreation programs; and modified work programs, including availability of work assignments on the unit and a retirement program. They recognized that program development would require designation of new housing and recreational space, architectural modifications, policies and procedures, clinical screening and assessment tools, equipment and supplies, and appropriate staffing and training. They envisioned expansion of the Inmate Helper Program, pioneered by the Hospice Care Service, so that personal care attendants would be available on the congregate elder housing unit.

The CMF peer counselors made a significant contribution by creating an Inmate Preferences Survey, administered to about 100 older inmates, about housing, yard, recreation, programming, and meals. Findings included the following:

Most people wanted the autonomy of a single cell as well as the security of a unit dedicated to those who live there. Dorms were not that popular due to privacy concerns. A few people

expressed interest in double celling for companionship, as well as being able to provide help for each other while dealing with the physical realities of getting older in prison. Being segregated from the mainline was viewed as punitive if mandatory.... Although segregated vs integrated were split evenly, most people wanted the option to choose. The main reason being, that is where they can see old friends and maintain relationships.... Having the option to retire was popular. However, mandatory retirement was viewed as punitive. Some of the main reasons to keep working were to be able to earn money and stay active and productive.... For the most part, being able to work in the unit, at jobs for the unit, e.g., porter, laundry, food service, unit clerk, etc, would be preferred. People expressed a real desire to be useful to those around them.³⁴

In September 2005 CMF opened a new 21-bed long-term care unit, converting unused acute hospital beds to Correctional Treatment Center (CTC) status. The rapid conversion depended on heroically-paced preparation by CMF staff and cooperation from the CA Department of Health Services Licensing and Certification Division. Unit modifications included development of a well-appointed activity room. The first patients were inmates from Pelican Bay State Prison (P BSP). P BSP had been a focus of federal court concerns, yet its isolation made it a poor candidate for long-term care program development.

CMF contracted with a nurse practitioner to lead policy development and serve as the unit's lead primary care provider. CMF's excellent social work and physical therapy staff contributed time to the unit. Nurse staffing, which had been largely registry, began to improve after salary increases in December 2005. Securing geropsychology services has been more difficult. Clinical pharmacy input on individual inmates has been unavailable because of a 75% vacancy rate in pharmacy. No recreation therapist is available. The CDCR as yet has no classification for certified nursing assistants (CNAs), but CMF has contracted for registry CNA services.

The Lumetra team, primarily Gail Cobe, MSN, RN, and Terry Hill, MD, provided periodic education and training on a variety of topics, including regulatory requirements and nursing documentation; dementia and psychosis in elderly; pain assessment and documentation; interdisciplinary team training; falls and restraint reduction; staff safety during transfers; and restorative care. Nursing leadership and staff members were very enthusiastic about the training, which at times also targeted physicians, phlebotomists, and correctional officers.

Support from custody was critical. Custody provided ideas, resources, policy, and support for the new program, and the warden occasionally came to the unit to make widely-noted interventions with individual inmates. Such actions speak volumes.

All individuals and departments have not been equally supportive or able to contribute. As suggested above, pharmacy does not have the resources to provide drug regimen reviews, which are essential in reducing the risk of harm in older patients. Implementation of the Vista computerized order entry module began last fall but stalled due to lack of resources, so physicians and nurses are still handwriting medications and dosages each month, a process guaranteed to create medication errors. In other departments, supervision and accountability difficulties have at times frustrated the new unit's ability to create reliable care processes.

The unit has begun to acquire the equipment necessary for care of this population. It now has its first "low-low" bed, which folds nearly to the floor to reduce the risk of injury in fall-prone patients. Getting Hoyer lifts to work in the tiny cells has been a challenge. Getting even modest equipment and supplies, e.g., raised toilet seats, gait belts, and a camera to photograph pressure sores, can involve either budgetary or security barriers.

Here, as elsewhere,³⁵ new program development encounters barriers. The IOM's 2004 report on nursing and patient safety noted, "New practices often initially undermine existing routines and competencies and require ongoing learning adjustment, redesign of the change, and supportive efforts to capture the intended benefits of the innovation. Ongoing monitoring, feedback, and redesign are needed to create and sustain effective change."³⁶ Two examples will illustrate the typical vicissitudes:

- At CMF the specialists in clinic write orders in outpatient charts for inmates in the long-term care unit, but the outpatient charts are neither integrated with nor sent back with the inpatient charts. The inpatient team thus lacks easy access to clinic notes and orders.
- Long-term care teams need behavioral health competencies, but mental health teams operate separately from medical teams in the CDCR. The new long-term care unit does not have a dedicated psychiatrist or behavioral health professional, e.g., a geriatrics-trained neuropsychologist or advanced practice psychiatric nurse.

Pain management is complicated at CMF and throughout the CDCR by the high prevalence of substance abuse, the lack of specialized expertise, inmate-physician distrust, and the inmate complaint procedure. Physicians who set appropriate limits can trigger complaints and come under scrutiny. The lack of continuity and team-based care allows inmates to "doctor-hop" in search of pain medication. On the other hand, as we will discuss later, physicians often fail to recognize and address chronic pain, which plagues up to half of free-world community-dwelling elders. Chronic pain is even more common in nursing home residents and is under-treated in 45-80%.³⁷

Progress on the long-term care CTC unit has been nothing short of miraculous. Unfortunately there are no metrics in place to demonstrate improvements in quality or relative cost savings. Program implementation for assisted living and for congregate housing is also underway on other units. But new program development is difficult in any setting, particularly in a resource-challenged prison with traditional interdepartmental divisions. Because CMF does not have in-house experience operating nursing facilities and assisted living units, it will continue to need expertise and guidance. Implementing new clinical tools and processes involves a process of analysis and adaptation and a set of technical and political skills that even superb clinicians may lack. CMF still needs appropriate screening and assessment tools and procedures, for instance, which could be piloted there and disseminated statewide. The instrument used in the Lumetra survey could serve as the basis for such screening, but implementation will involve multiple stakeholders. Without good screening and assessment tools, decisions about transfers of impaired inmates between prisons will continue to be haphazard.

Further progress at CMF will depend upon continued support not only from its own custody and healthcare leadership, but also from the leadership of the CDCR and other state agencies.

The Long-Term Care and Elder Survey

To assist with program planning for aging inmates across the entire CDCR, we needed sound information on the inmates' diagnoses, function, and needs. The CDCR healthcare leadership also asked us to assess its current practices and capacities, with particular attention to gaps in quality and to level-of-care issues.

In order to characterize the CDCR aging inmate population, the Lumetra team gathered information on approximately 10% of the 55-and-older inmates at each of 11 prisons,^a regardless of their level of care. (See Appendix A for details of the sampling strategy, age/gender stratification, and weighting.) At each of the 11 prisons, the Lumetra team also collected data on inmates who were in the facility's General Acute Care Hospital (GACH), Correctional Treatment Center (CTC), Outpatient Housing Unit (OHU), or Skilled Nursing Facility (SNF) and who might be considered long-term care (LTC) for medical reasons. We refer to these inmates as being in "medical beds," in distinction to mental health crisis beds (MHCBS).^b We refer to all other inmates in our survey as being in the general population (GP), which includes Enhanced Outpatient Program (EOP) units and special care yards.

Our goals in developing the survey instrument were to get the information needed and to pilot-test questions that might be incorporated into routine CDCR screening procedures. Where possible, we used standardized questions so that our data would be comparable with datasets used in both community-based and institutional long-term care.^c Those datasets vary in scope but include at least five questions about activities of daily living (bathing, eating, dressing, toileting and transferring, e.g., in/out of bed or chair), as well as questions about mobility. The questions vary in wording, in part based on whether information comes from the person/patient or from a proxy (family member or professional caregiver, etc.). We chose to get proxy information from nurses and correctional officers, and we drew questions from the Minimum Data Set (MDS), used universally in nursing homes, whenever possible (see Appendices B and C).

We initially thought we could get information from physicians and nurses familiar with the GP inmates, but we overestimated both the stability of physicians and nurses in the clinics and their familiarity with the older inmates. A lieutenant at CMF pointed out that we could get most of the functional status, needs and safety information needed on GP inmates from correctional officers, who tend to have stable assignments. This strategy worked.

Our visits occurred in August through October 2005. A memo from John Dovey, Director of the Division of Adult Institutions, and Dr. Renee Kanan, Acting Director of the Division of Correctional Health Care Services, facilitated our access. Usually a healthcare staff member and two correctional officers assisted us. Typically three of us would visit: Dr. Terry Hill, Dr. Brie Williams and Ms. Karla Lindquist. Dr. Williams and Ms. Lindquist would visit the yards, each accompanied by a custody chaperone, and gather information from correctional officers about each inmate on the sample list.

^a AVE, CCWF, CIM, CMC, CMF, COR, MCSP, RJD, SATF, SQ, and SVSP. For full names see Appendix A.

^b All 10 men's prisons have a GACH, CTC, or OHU. The women's prison (CCWF) has a SNF. We included the hospice unit at CMF. We did not gather information on inmates who were in these settings for simple short-term medical reasons, e.g., a jaw fracture, nor on the minority of inmates in GACHs who indeed seemed to merit acute-level care, nor on the inmates who were there only for mental health crisis. We did include inmates who were in MHCBS if they had dementia or another medical diagnosis consistent with medical long-term care. Decisions to include or exclude were made rough-cut and quickly by one of the Lumetra physicians and a CDCR nurse.

^c For example, National Health Interview Survey, Medicare Current Beneficiary Survey, National Long Term Care Survey, National Nursing Home Survey, described at www.agingstats.gov/chartbook2000/datasources.html.

Dr. Hill would visit the GACH, CTC, or OHU and gather information from nursing staff and inpatient charts. In all but the largest prisons we completed these tasks within three hours, then reconvened in the afternoons to review the outpatient charts of our sample, focusing primarily on diagnoses. The medical records staffs were quite helpful. When occasionally the charts were not ready beforehand, they were ready by the afternoon. At all 11 prisons, 444 of the outpatient charts (69%, range 35-85%) were available (see Appendix A for details).

The survey instrument performed well overall. Our success in gathering information from correctional officers is particularly promising. We took our sample list from yard to yard and asked correctional officers whether they could answer questions about the sampled inmates on their housing unit. If the correctional officers said they knew an inmate “very well” or “a little,” then we completed a 2-3 minute questionnaire. If the regularly-assigned officer was not available or not familiar with the inmate, we skipped that inmate. The correctional officers gave confident answers regarding inmates’ ADLs and mobility for a majority of the inmates. They were less comfortable commenting on apparent cognitive status. We did not ask them about diagnoses, since they are not part of the healthcare team and are not privy to the medical charts. Officers often referred to *Armstrong* ADA lists to confirm answers to questions about mobility aids or hearing and vision impairment.

When our chaperones were well-known and respected custody staff, as was usually the case, we had satisfying, often enthusiastic, interactions with correctional officers. The officers often volunteered information about inmates they were worried about, e.g., “The guy on your list is doing fine, but you really ought to know about so-and-so.” They told us stories of sending inmates to yard clinics for problems and getting them back with no assurance that the problems had been addressed. We realized that custody-identified inmates comprised an “at-risk” group, so we quickly began collecting information on these inmates as shown in our tables and analyses below.

Inmate Groups

Table 3 gives the functional characteristics of five groups of inmates, including 431 from our random sample, an additional 172 in medical beds, and 57 custody-identified. Table 4 gives the diagnoses of the first four groups.

1. **Sampled 55+ inmates:** sample of inmates age 55 or older. From our random sample of inmates, we got data for analysis on 431 inmates. The percentages, if accurate, reflect the characteristics of the total 55+ population in all 33 CDCR prisons (with the exception of the age and gender figures).
2. **Sampled GP inmates:** portion of sampled inmates age 55 or older in general population. The random sample contains 407 55+ inmates who were residing in the general population at the time of the survey.
3. **Sampled medical bed inmates:** portion of sampled inmates age 55 or older in medical beds. The random sample contains 24 55+ inmates who were residing in medical beds at the time of the survey.
4. **Medical bed inmates:** inmates of all ages in medical beds (GACH, CTC, OHU, SNF, hospice, excluding mental health inmates). We collected data on all 196 inmates who were in medical beds at the 11 prisons at the time of the survey. Percentages give a picture of the medical beds in all 33 CDCR prisons. Of these 196, 24 were in our random sample.
5. **Custody-identified GP inmates:** inmates in GP, not in the sample, about whom correctional officers volunteered concerns. Correctional officers identified 57 inmates, not in our sample, who had medical or safety issues of concern to the officers. We did not have time during our visits to gather and review charts of these inmates and therefore did not get diagnoses for them.

Table 3. Inmate Characteristics

Characteristic		% of Sampled Inmates (N=431)	% of Sampled GP Inmates (N=407)	% of Sampled Medical Bed Inmates (N=24)	% of Medical Bed Inmates (N=196)	% of Custody- Identified GP Inmates (N=57)
Average age		61.5	61.4	64.7	49.8	60.9
Age Group	<55	(Med. Bed Only)	(Med. Bed Only)	(Med. Bed Only)	65	(Med. Bed Only)
	55-59	23	24	13	12	27
	60-64	21	21	21	7	13
	65-69	27	27	29	6	23
	70+	28	27	38	10	37
Gender	Male	91	91	88	90	96
	Female	9	9	13	10	4
Upper Bunk		13	14	(GP Only)	(GP Only)	0
Staff Familiarity	A Little	43	45	5	10	38
	Very Well	57	55	95	90	62
Mobility Aid	Cane	9	9	0	2	32
	Walker	2	2	3	8	0
	Wheelchair	11	9	54	41	23
	Standby Assistance	1	0.3	6	3	2
History of Falls		6	5	16	15	22
Bed/Chair Transfer	Supervision/Limited Assistance	3	2	30	13	13
	Extensive Assistance/Total Dependence	2	1	22	19	9
Dressing	Supervision/Limited Assistance	1	1	9	14	7
	Extensive Assistance/Total Dependence	4	2	44	20	6
Eating	Supervision/Limited Assistance	2	0.3	34	10	6
	Extensive Assistance/Total Dependence	1	1	11	10	4
Using Toilet	Supervision/Limited Assistance	1	1	10	10	4
	Extensive Assistance/Total Dependence	3	2	44	20	8
Bathing	Supervision/Limited Assistance	3	2	19	17	9
	Extensive Assistance/Total Dependence	4	2	44	24	9
Number of ADL Requiring	0	92	95	33	57	68
At Least Supervision (of 5 listed above)	1-2	4	3	14	12	21
	3-5	4	2	53	30	11
Incontinent		6	3	52	20	23
	Bladder	4	3	32	18	19
	Bowel	4	2	52	19	19
Cognitive Impairment**		21	19	55	24	50
Vision Impairment		8	8	9	4	18
Hearing Impairment		8	9	5	6	17
	Has Hearing Aid	4	4	0	2	13
Higher Care Location in 1 Year		(GP Only)	16	(GP Only)	(GP Only)	82
Unsafe in Location		(GP Only)	3	(GP Only)	(GP Only)	45
Death not surprising in 1 Year		(Med. Bed Only)	(Med. Bed Only)	58	42	(Med. Bed Only)

* Bolded percentages should reflect the statewide 55+ population (see text)

** Dementia diagnosis, any memory/decision-making problem, or developmental disability

Table 4. Inmate Diagnoses

Diagnosis	% of Sampled Inmates (N=472)	% of Sampled GP Inmates (N=448)	% of Sampled Medical Bed Inmates (N=24)	% of Medical Bed Inmates (N=196)
Diabetes Mellitus	16	16	12	15
Thyroid Disorder	4	4	6	2
Coronary Artery Disease	18	18	7	9
Congestive Heart Failure	3	3	9	3
Hypertension	48	49	22	22
Peripheral Vascular Disease	2	2	3	2
HIV	1	1	5	8
Tuberculosis	0.3	0.3	0	0
Viral Hepatitis	17	18	3	7
Arthritis	26	27	5	5
Cerebrovascular Accident	4	3	21	11
Hemiplegia	1	0.2	14	6
Paraplegia	0.5	0	13	10
Quadriplegia	0	0	0	5
Dementia (including Alzheimers)	4	3	29	8
Parkinson's Disease	3	2	15	4
Seizure Disorder	5	5	2	7
Head Trauma	2	1	15	3
Depression	6	5	13	5
Schizophrenia	3	3	11	4
Substance Abuse	4	4	5	5
COPD/Asthma	14	14	21	10
Anemia	3	2	21	10
Renal Failure	2	2	0	10
Dialysis	1	1	0	7
End Stage Liver Disease	0.3	0	8	8
Benign Prostatic Hyperplasia	8	8	0	1
Cancer	7	7	22	12
Hyperlipidemia	24	25	1	1
Gastroesophageal Reflux	13	13	0	3
Allergic Rhinitis	8	9	0	0
Chronic Pain (Including Low Back)	22	23	1	2
Glaucoma	3	3	5	1
Vision Loss	1	1	0	1
Hearing Loss	4	4	0	0

Introduction to Inmate Characteristics and Diagnoses

For almost all inmates in medical beds, we were able to gather and combine information from both nursing staff and inpatient charts. Where possible we did likewise for GP inmates, getting

information from both correctional officers and outpatient charts. At times we could not locate an officer familiar with the inmate, and at times we could not locate charts. Our chart reviews yielded diagnoses on 448 GP inmates from our sample (see Appendix A). Our data on characteristics such as falls, continence, cognitive impairment, hearing/vision impairment derived from a combination of staff and chart information. At times we relied on *Armstrong* ADA information available on the yards or chart forms. We derived upper bunk information from the CDCR list of cell numbers, which code bunks as U or L.

The sampled inmates, groups 1-3, were all age 55+ by definition, whereas the medical bed inmates were a younger group, 65% of whom were under 55 years old and only 10% 70+. Within the 55+ sample, the medical beds portion was older (average 64.7) than the GP portion (average 61.4). Correctional officers knew over half of the GP groups very well. (If they didn't know an inmate at all, then we did not include that inmate in the survey.) Nurses knew the medical beds inmates very well at least 90% of the time.

As expected, the sampled medical bed inmates were dramatically more impaired than the sampled GP inmates. The number of GP vs. medical bed inmates that needed help with bathing was 4% vs. 63%; that were incontinent, 3% vs. 52%; and that had cognitive impairment, 19% vs. 55%. Even so, the number of impaired GP inmates is significant. We can expect approximately 10,000 inmates age 55+ statewide by year's end, 95% of whom will be in GP. Our results suggest that 400 will need help bathing, 300 will be incontinent, and 1900 will have cognitive impairment. As we will discuss below, some of these numbers are underestimates.

The correctional officers felt that 3% of the sampled GP inmates were physically or medically unsafe in their current location and that 16% would need to be at higher level of care within a year. In contrast, they felt that 45% of the custody-identified GP inmates were physically or medically unsafe in their current location and that 82% would need to be at higher level of care within a year.

The nurses said they would not be surprised if 58% of the sampled medical bed inmates (age 55+) and 42% of the medical bed inmates (all ages) were to die within a year.

Certain diagnoses, e.g., diabetes, were similar in prevalence across groups. Others were higher in the medical bed groups, e.g., cerebrovascular accident (stroke), hemiplegia, paraplegia, and Parkinson's. It is important to remember that we did not speak with inmates or do independent medical evaluations; we were therefore dependent upon diagnoses noted in the charts. A small minority of prisons maintain problem lists in the charts, so we combed through progress notes and forms for diagnoses.

We have reason to believe that chart documentation of diagnoses was often incomplete. Physicians pay attention to some diagnoses more in outpatient than in inpatient settings. Also, the CDCR *Plata* chronic care program emphasizes certain diagnoses in the outpatient setting. CDCR clinic physicians now routinely screen for hyperlipidemia (high cholesterol), for instance, so that 25% of the sampled GP inmates carry that diagnosis vs. 1% of the sampled medical bed inmates. A more even distribution would be closer to the underlying reality. Other diagnoses, e.g., depression and dementia, are under-diagnosed by physicians in the free world, in CDCR clinics, and in CDCR inpatient settings, as we will discuss further. Finally, we found multiple charts of older inmates, some 70+, who had not come to clinic to see a physician in several years, so the physicians had no opportunity to document their diagnoses.

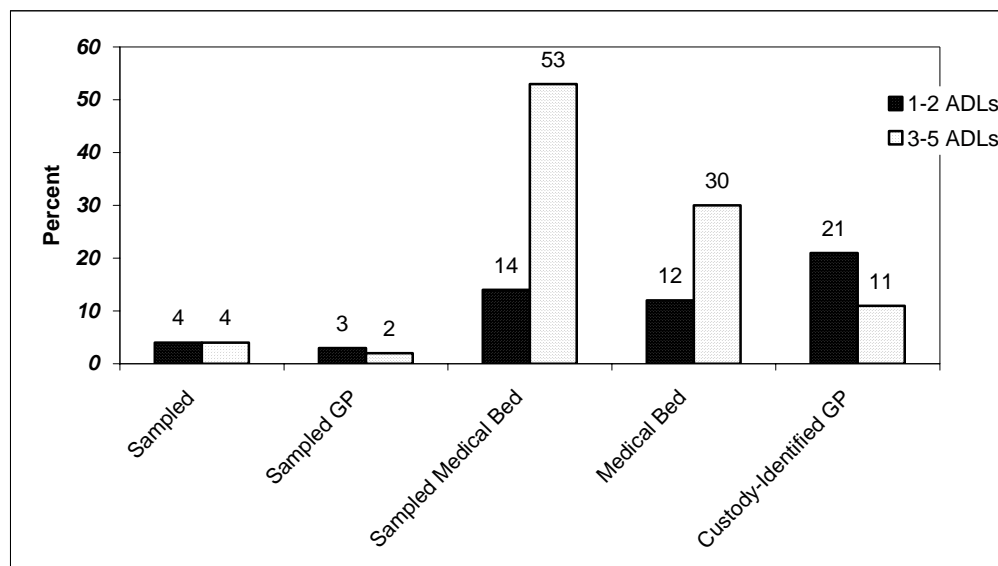
Activities of Daily Living and Mobility Impairments

Correctional officers said 5% of sampled GP inmates had impairments in at least one of five ADLs (bathing, eating, dressing, toileting and transferring), ranging from needing supervision to being totally dependent. ADL impairments increased with age, from 3% for 55-64 to 15% for 70+. Some 3% of sampled GP inmates overall required extensive assistance with, or were totally dependent in, an ADL. This percentage increased to 10% among 70+ inmates.

Overall, 4% of 55+ inmates in GP and medical beds had 1-2 ADL impairments and 4% had 3-5. These numbers are similar to the free world 65+ population, in which 3.9% of men have 1-2 ADL impairments and 2.4% have 3-4. Free world women have higher numbers, with 7.1% having 1-2 ADL impairments and 4.1% having 3-4.³⁸

ADL impairments were highest in our sampled 55+ medical bed inmates. Of the custody-identified GP risk group, 32% had at least one ADL impairment (see Figure 3).

Figure 3. Impairment in Activities of Daily Living



We defined mobility impairment as using aids such as canes, walkers, or wheelchairs or needing standby assistance during ambulation. Some 19% of Californians 65+ have mobility limitations.³⁹ Correctional officers said 19% of sampled 55+ GP inmates overall and 37% of 70+ inmates used a mobility aid (see Figure 4). Canes were used by 7% of inmates 55-69 and by 20% of those 70+. Similarly, wheelchairs were used by 8% of inmates 55-69 and by 12% of those 70+. Of those using a wheelchair, 38% needed someone else to push it.

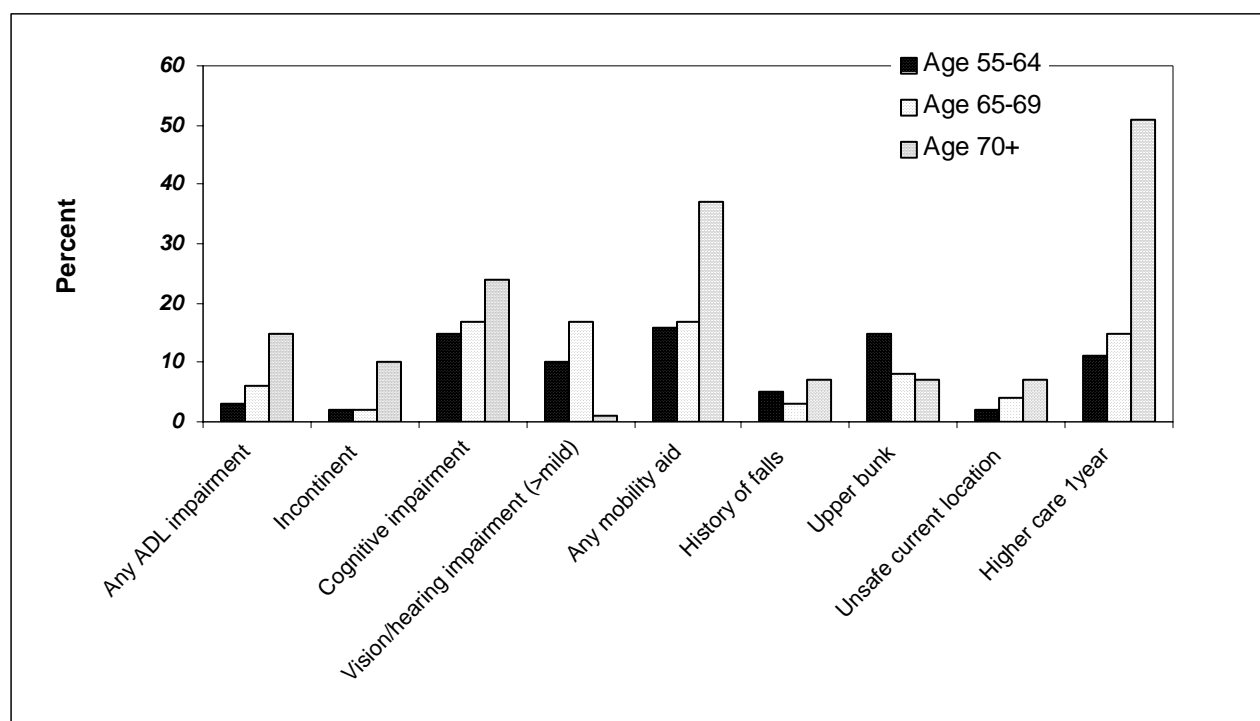
Some inmates who would be independent in the free world may face special problems with ambulation while in prison. At Salinas Valley, a 74-year-old man who works in the kitchen is independent in his activities of daily living. However, he needs supervision or limited assistance from his escort when walking while handcuffed. Walking without free hands is more difficult for older adults, putting them at increased risk for falls.

Older inmates sometimes request mobility aids for reasons other than mobility assistance. One inmate, nick-named "Frank Sinatra" by yard medical staff, demanded a cane despite staff's assessment that he did not require one. When he lost his cane and the staff did not replace it, he

became belligerent and borrowed one from another inmate. The staff then videotaped him dancing with his cane. Other inmates are said to “fake” needing a wheelchair so they can stay in their current housing assignment.

However, many inmates do require mobility assistance. Only 2% of GP inmates use walkers, whereas 9% use canes and 9% wheelchairs. We identified some inmates using canes who needed walkers for additional balance support. Of inmates with a wheelchair, 35% also have an ADL impairment. For example, one wheelchair-bound 78-year-old man in GP with renal failure and arthritis requires extensive help with dressing and supervision with all transfers.

Figure 4. Characteristics of Sampled GP Inmates by Age Groups



Hearing/Vision Impairment

Of the sampled GP inmates, correctional officers and chart review showed 9% with hearing impairment overall, increasing to 28% in the 70+ inmates. In addition, 8% had vision impairment overall, increasing to 13% in the 70+ inmates. These numbers may be low from lack of recognition. In the free world, 37.2% of people age 65+ report hearing problems and 17.5% report vision problems.⁴⁰

Hearing loss in prison is a set-up for inappropriate rule violation charges⁴¹ as well as a safety risk. One correctional officer told us that a 63-year-old man was socially disruptive and that he “pretends not to hear orders because he is elderly.” However, there was no indication in his medical chart that his hearing has ever been tested or that his hearing problem (real or imaginary) had ever been brought to the attention of a health care provider. Another correctional officer said of a 70-year-old man with hearing aids, “He can barely hear at all and it makes him unsafe.” The correctional officer felt he was unsafe in his current housing location because of his hearing loss.

Indeed, any sensory impairment puts older persons at greater risk for falls. For example, a 79-year-old man in GP at CMC has moderate vision impairment, severe hearing impairment, and frequent falls. He is usually in a wheelchair and requires extensive assistance with bathing and transferring.

Falls

Falls increase in frequency with advanced age and are associated with serious injury, loss of function, increased health care usage, nursing home placement, and mortality.⁴² The cost of a free-world hip fracture repair in 2001 was \$8,900 for the initial hospitalization but totaled \$81,300 when follow-up care was considered.⁴³

Correctional officers identified 5% of the GP sample as having had a fall in the past, and they often gave falls as a reason for saying that older inmates were not safe in their current living situation. One 67-year-old man uses a walker and has frequent falls, usually when he is transferring from his walker to his bed. In addition, he rarely bathes because he is unsteady on his feet and there is usually no one available to help him. He needs more attention, according to the officer, than he can get in GP.

In the free world, 44% of falls occur in the presence of environmental factors such as poor lighting, loose rugs, and lack of handrails.⁴⁴ In the prison setting, environmental risk factors also include strenuous work assignments, younger inmates moving quickly past, and top bunk assignments.⁴⁵ At times falls are the primary cause of “yard failures,” inmates who go into a higher level of care with minimal medical or nursing needs. A 70-year-old man with Parkinson’s disease uses a walker and is independent in all ADLs but takes anti-clotting medication. After a fall, medical staff felt he was unsafe in GP and placed him in the CTC. There his physician told us that the inmate doesn’t really need a CTC bed, but rather something in between GP and CTC: “He can’t move fast enough. He is not safe on the yard. He needs an assisted living facility.”

Urinary Incontinence

Correctional officers said that 3% of the 55+ GP sample overall had bladder or bowel incontinence, 2% of those 55-69 and 10% of those 70+ (see Figure 4). As we will show below, 9% of female GP inmates had incontinence. The numbers are probably much higher. In the free-world, non-institutionalized, 65+ population, 16% of men and 33% of women have incontinence.⁴⁶ A 1992 study found 13.9% of inmates 50-59 with incontinence and 37.8% of inmates 60+ for an overall rate of 21.6%.⁴⁷

Correctional officers noted use of incontinence pads in only two inmates, one of whom was in the custody-identified group. Many officers did not even know that incontinence pads existed, but indicated that inmates would be more comfortable if they had access to them. A yard clinic nurse said incontinence supplies are hard to get. She described a 78-year-old man with long-standing incontinence, hearing loss, and multiple medical problems and said, “His care could be much improved by getting more medical supplies for a wider range of conditions. For example, diapers. Why can’t we hand them out instead of ordering them? Patients are charged for them. This man had to do without them for two weeks recently.”

In our chart reviews we did not find evidence of nursing or medical investigation for the cause of incontinence. In our discussions with healthcare staff members, they routinely spoke of incontinence as a problem to be managed, not one which has reversible causes.

Cognitive Impairment

Cognitive impairment, also known as memory impairment, is characteristic of dementia, developmental disability, and traumatic brain injury. The most common cause of dementia is Alzheimer's disease, which gradually destroys memory, reason, judgment, language, and eventually the ability to carry out even simple tasks. Other causes of dementia include strokes, Parkinson's disease, and HIV. About 15% of men and 11% of women in the free-world, non-institutionalized, 65+ population have moderate-to-severe memory impairment.⁴⁸

In our GP survey, identification of cognitive impairment was difficult. Correctional officers said 19% of the GP sample overall had cognitive impairment (any memory or decision-making problems, dementia, or a developmental disability), ranging from 15% of those 55-69 and 24% of those 70+ (see Figure 4). However, when we reviewed the small group of GP-sampled inmates who had evidence of dementia in their charts, we found that officers identified only three of the seven as having memory problems, suggesting that correctional officers may often be unaware of these problems.

Officers often said that they were uncomfortable making an assessment of memory problems. One of the reasons often noted was that they couldn't tell if inmates were using their age to "fake" memory impairment. A correctional officer described a 66-year-old man with short-term memory problems who often says, "I forget all the time, I am an old man." But the officer said, "I can't tell how much of the condition is trying to play games and how much of the condition is his actual age or that he has real functional problems." The officer also said the inmate often appears anxious or nervous. In any case, the officer felt certain that he will need a higher level of care within the next year.

We found inmates with good functional ability and minimal co-morbid conditions failing in GP because of their cognitive impairment. One wheelchair-bound, 82-year-old man with hearing loss requires a correctional officer to hold his identification card because otherwise he would lose it. He has become verbally abusive and aggressive towards other inmates. He has stopped wearing his hearing aid recently, probably because he forgets to put it in, according to the officer. An 81-year-old inmate is completely independent in his ADLs but he packs his bags to go home every morning, thinking he has been paroled. His correctional officer helps him unpack every afternoon. While his correctional officer feels that he is safe now, with different inmates around him he would be an easy target for physical intimidation or abuse.

Other inmates in GP have with cognitive impairment and severe functional impairments. An 82-year-old man with heart disease and vision and hearing impairment is wheel-chair bound following a stroke, needs supervision with transferring from his wheelchair, and requires extensive help with all other ADLs, including toileting. He does not recall the names and faces of his officers or cellmates. His correctional officer describes him as fragile, frail and unsafe.

In our chart reviews we did not find evidence of dementia screening with the brief screening tests commonly used in the free world.

Female 55+ Inmates

We over-sampled from CCWF, one of California's two women's prisons, in order to facilitate male/female comparisons (see Table 5). There were only several small but statistically significant differences in functional status. Women were more likely to need standby assistance when walking and supervision or limited assistance in using the toilet and bathing. They were also more likely to be well-known to the correctional officers, however, who thus may have been more aware of these

Table 5. Characteristics of Male 55+ Inmates Compared With Female 55+ Inmates

Characteristic		% of Sampled Male Inmates (N=393)	% of Sampled Female Inmates (N=38)		% of Sampled Male GP Inmates (N=372)	% of Sampled Female GP Inmates (N=35)	
Age Group	55-59	24	21		24	23	
	60-64	21	26		21	26	
	65-69	27	29		27	26	
	70+	28	24		27	26	
Upper Bunk		14	6	†	14	6	†
Staff Familiarity	A Little	44	25		45	27	
	Very Well	56	75	†	55	73	†
Mobility Aid	Cane	8	11		9	12	
	Walker	2	0		2	0	
	Wheelchair	10	24	†	8	20	†
	Standby Assistance	0.3	7	†	0	7	†
History of Falls		6	6		5	6	
Bed/Chair Transfer	Supervision/Limited Assistance	3	3		2	3	
	Extensive Assistance/Total Dependence	2	0		1	0	
Dressing	Supervision/Limited Assistance	1	0		1	0	
	Extensive Assistance/Total Dependence	4	0		2	0	
Eating	Supervision/Limited Assistance	2	0		0.3	0	
	Extensive Assistance/Total Dependence	1	0		1	0	
Using Toilet	Supervision/Limited Assistance	1	3	†	1	0	
	Extensive Assistance/Total Dependence	4	0		2	0	
Bathing	Supervision/Limited Assistance	2	8	†	2	4	
	Extensive Assistance/Total Dependence	5	0		2	0	
Number of ADL Requiring At Least Supervision (of 5 listed above)	0	92	89		95	93	
	1-2	3	11		3	7	
	3-5	4	0		2	0	
Incontinent		5	11	†	3	9	†
	Bladder	3	8	†	3	9	†
	Bowel	4	3		2	0	
Memory Impairment*		21	16		19	18	
Vision Impairment		8	8		8	8	
Hearing Impairment		9	6		9	6	
	Has Hearing Aid	4	5		4	6	
Higher Care Location in 1 Year		(GP Only)	(GP Only)		16	19	†
Unsafe in Location		(GP Only)	(GP Only)		3	1	

*Dementia diagnosis, any memory/decision-making problems, or a developmental disability

†Statistically significant difference between male and female inmates (p<0.05)

Table 6. Diagnoses of Male 55+ Inmates Compared With Female 55+ Inmates

Diagnosis	% of Sampled Male Inmates (N=439)	% of Sampled Female Inmates (N=33)		% of Sampled Male GP Inmates (N=418)	% of Sampled Female GP Inmates (N=30)	
Diabetes Mellitus	16	26	†	16	26	†
Thyroid Disorder	4	10	†	4	10	†
Coronary Artery Disease	18	19		18	17	
Congestive Heart Failure	3	6	†	3	3	
Hypertension	48	67	†	49	70	†
Peripheral Vascular Disease	2	3		2	0	
HIV	2	0		1	0	
Tuberculosis	0.3	0		0.3	0	
Viral Hepatitis	17	16		18	17	
Arthritis	26	40	†	26	43	†
Cerebrovascular Accident	3	11	†	3	12	†
Hemiplegia	1	0		0.3	0	
Paraplegia	0.5	0		0	0	
Quadriplegia	0	0		0	0	
Dementia (Including Alzheimers)	4	0		3	0	
Parkinson's Disease	3	0		2	0	
Seizure Disorder	5	3		5	3	
Head Trauma	2	0		1	0	
Depression	5	13	†	5	10	†
Schizophrenia	3	0		3	0	
Subsance Abuse	4	0		4	0	
COPD/Asthma	13	37	†	13	34	†
Anemia	3	11	†	2	5	†
Renal Failure	2	0		2	0	
Dialysis	1	0		1	0	
End Stage Liver Disease	0.3	0		0	0	
Benign Prostatic Hyperplasia	8	0	–	9	0	–
Cancer	7	3	†	7	3	†
Hyperlipidemia	23	48	†	24	50	†
Gastroesophageal Reflux	13	13		13	14	
Allergic Rhinitis	9	0		9	0	
Chronic Pain (Including Low Back)	22	21		23	21	
Glaucoma	3	3		3	3	
Vision Loss	1	0		1	0	
Hearing Loss	4	2	†	4	2	†

†Statistically significant difference between male and female inmates (p<0.05)

relatively modest needs. The female inmates were far more likely to be incontinent, far more likely to use a wheelchair, and far less likely to be in an upper bunk than the male inmates.

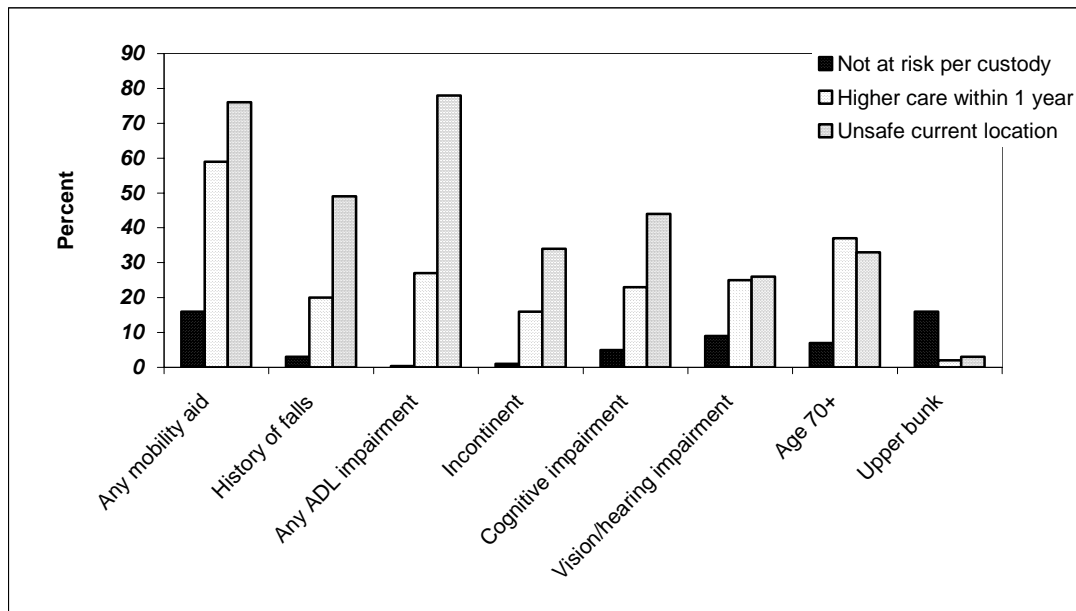
Chart reviews showed that the 55+ women were more likely to have chronic illnesses than men, including diabetes, thyroid disorder, congestive heart failure, hypertension, arthritis, cerebrovascular accident, depression, COPD/asthma, anemia, and hyperlipidemia (see Table 6). They were less likely to have cancer or hearing loss. There are well-established gender differences in the free world chronic illness, including a greater prevalence of thyroid disorder, depression, anemia, and incontinence among women. Some of the differences we found, e.g., a higher rate of hyperlipidemia, may be due to better screening and documentation at CCWF than at the whole of the 10 men's prisons we visited. Higher medical care utilization among female inmates could contribute. Some of the differences may be due to CCWF's greater share of chronic illness than the other women's prisons.

The basic challenges of function and safety are similar for older male and female inmates. They are similar in some behavioral ways as well. Both older men and women commit fewer rule violations than younger inmates.⁴⁹ They have been described as different, however, "in pre-prison socialization and life experiences and in-prison values and behavior."⁵⁰ Older married male inmates, for example, make better adjustments to prison life than unmarried males. Female married inmates do not appear to have the same ability to transform their marriages into social capital. On the other hand, older female inmates have higher levels of social support from other sources.⁵¹ They may be more inclined to give each other peer support, which can have a positive impact on both function and appropriate healthcare utilization.⁵² Women also differ from men in their criminal patterns, history of drug use, and history of abuse.⁵³

Risk Identification

Most correctional officers seemed comfortable answering the questions, Do you feel the inmate is physically or medically unsafe in his/her current location? and Do you feel the inmate will need to move to a higher-care location within the next year? The questions yielded two "at-risk" groups. When we compared these groups to the rest of the inmates not at risk, according to the officers, we found striking differences. The group needing a higher level of care within a year was dramatically more impaired than the group not at risk, and the currently unsafe group was yet more impaired. The officers' global judgments reflected measurable differences in mobility, falls, ADL impairment, continence, cognitive impairment, sensory impairment, and age (see Figure 5).

Figure 5. Correctional Officer Assessment of Risk Reflects Impairments



Any mobility aid: Reported by correctional officer, on chart, or assigned *Armstrong* code.

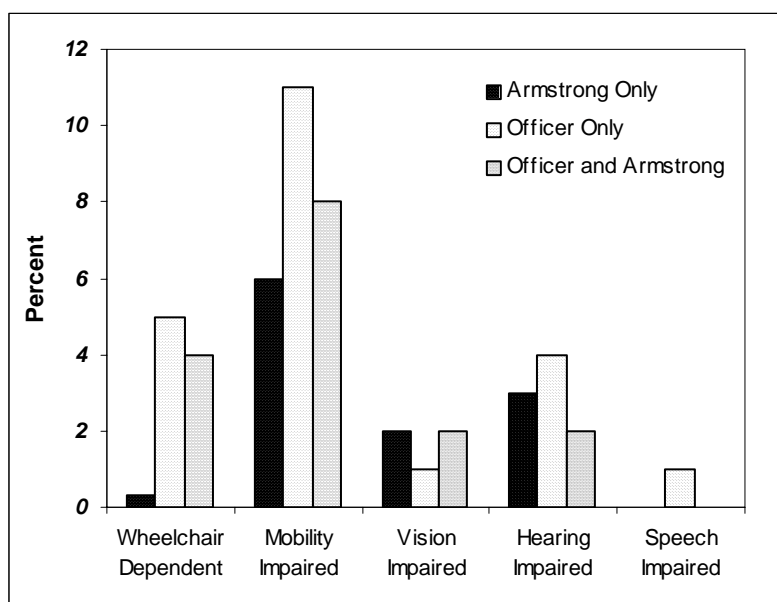
Vision/hearing impairment: Reported by correctional officer, on chart, or assigned *Armstrong* code.

Cognitive impairment: Dementia diagnosis, any memory/decision-making problems, or a developmental disability.

Although correctional officers were comfortable answering questions regarding inmates they knew, they did not know and could not give information on many others. We found that the officers on duty at the time of our visit were not familiar with 38% of sample GP inmates overall, nor with 33% of the inmates aged 70+. Even when officers are familiar with inmates, they are not part of the healthcare team and do not have chart access, so there will always be gaps in their knowledge. Officers sometimes said that inmates did not have a history of falls even when recent falls were documented in the charts.

Correctional officers often said it was useful to have a list of inmates with *Armstrong* ADA designations available on the cellblock. When we matched inmates for whom we had data with a list of inmates on the *Armstrong* ADA list, however, we found the *Armstrong* list incomplete. The officers identified significant numbers of inmates with wheelchair dependence and with mobility, vision, hearing, and speech impairment who were not on the *Armstrong* list (see Figure 6).

Figure 6. Armstrong ADA Lists Are Incomplete Per Officer Data



Top Bunk Assignments

Top bunk assignment is an example of the special problems posed by the physical environment of geriatric prisoners. Overall, 14% of the sampled GP inmates had top bunk assignments, ranging from 15% of those 55-69 and 7% of those 70+. Men were more likely to be in an upper bunk than women (see Table 5). One 57-year-old inmate with Parkinson's disease had a history of frequent falls, one of which resulted in multiple rib fractures and subsequent pleural effusion (fluid around the lung). Despite documented requests, he had not yet gotten a lower bunk. Another inmate wrote on a request, "I dreamt I was jumping and woke up on the floor. My Bunkie says I hit my hip and rib on the bench on the way down." An x-ray revealed three rib fractures. He was still assigned to an upper bunk at the time of our visit.

One 74-year-old man was mostly independent except in needing supervision while walking. The correctional officer felt the inmate was unsafe in his current location, mostly due to his age and unsteadiness, but he was still assigned to a top bunk. Moves to higher levels of care could sometimes be delayed by modest environmental modifications, such as lower bunk assignment.

Medical Beds: OHU, CTC, GACH, SNF

As noted above, we collected data on men who were in an Outpatient Housing Unit (OHU), Correctional Treatment Center (CTC), or General Acute Care Hospital (GACH), and women who were in the CCWF Skilled Nursing Facility (SNF) and who might be considered long-term care (LTC) for medical reasons. The Lumetra "medical beds" process yielded data on 196 inmates, including 8 inmates in the CMF Hospice. Of these 196, 24 were also in our random sample of 55+ inmates (see Table 3).

The CDCR Healthcare Placement Unit maintains a list of "LTC cases," which we obtained in August 2005. The criteria for that list are more stringent than typically used in the free world: an inmate "whose medical and/or mental health condition severely affects activities of daily living and the inmate's condition is not expected to improve in the next six months."⁵⁴ The Placement Unit gets information about the inmate only when the nursing staff complete and submit the CDCR "Level of

Care Assessment Tool.” Nursing staff complete the form inconsistently, however, even on inmates who are unquestionably long-term care, so the Placement Unit data remain incomplete. Of the 196 inmates we surveyed in medical beds, only 93 were included on the Placement Unit’s August 2005 LTC Report (see Table 7).

Table 7. Numbers of Medical Beds, LTC Inmates per CDCR, and Inmates Surveyed

	Medical Beds	LTC Inmates	Inmates Surveyed		Medical Beds	LTC Inmates	Inmates Surveyed
GACH				OHU			
CIM	62	12	25	ASP	28	4	15
CMC	37	6	16	CAL	18	7	
CMF	7	16	17	CCC	19		
COR	52	9	38	CCI	15	2	
				CIW	17		
CTC				CMC	34		
CEN	15	5		COR	20		
CMF	50			CRC-M	10		
HDSP	25	15		CRC-W	2		
ISP	15			CTF	18	3	
LAC	5	3		SVSP	11		
MCSP	2	2	5	DVI	25	2	
NKSP	8	3		MCSP	6		
PBSP	15	4		SAC	18		
PVSP	12	3		SCC	13		
RJD	16	1	9	SQ	30	2	11
SAC	2	10		VSPW	20		
SATF	24	14	18				
SOL	4	2		SNF			
SVSP	17	11	14	CCWF	12	NA	20
WSP	12	5					
				HOSPICE (CMF)			8

The “**Medical beds**” column refers to GACH, CTC, OHU, and SNF beds that are not dedicated as mental health crisis beds (MHCBS). The numbers shown were derived from the Health Care Placement Unit information obtained in February 2006 (total allotted beds minus MHCBS). Until September 2005, CMF was using 32 GACH beds, after which it converted most of its used and unused GACH beds to CTC. “**Long-term care (LTC) inmates**” were those formally classified as LTC by the CDCR Healthcare Placement Unit in August 2005 (see text). “**Inmates surveyed**” refers to inmates included in the Lumetra survey July-October 2005. We did not gather information on inmates who were in medical beds for simple short-term medical reasons, e.g., a jaw fracture, nor on the minority of inmates in GACHs who indeed seemed to merit acute-level care, nor on the inmates who were there only for mental health crisis. We did include inmates who were in MHCBS if they had dementia or another medical diagnosis consistent with medical long-term care. Decisions to include or exclude were made rough-cut and quickly by one of the Lumetra physicians and a CDCR nurse. The Lumetra physician completed the survey based on a brief interview usually with a nurse familiar with the inmate and a chart review, without direct examination of the inmate.

Inmates in the CDCR medical beds often have serious illnesses common in other long-term care facilities (see Table 8). Hospice appears to serve a unique population with HIV and cancer, without end-stage liver disease or cognitive impairment, but we have data on only 8 hospice inmates. Overall we found end-stage liver disease in 8% of inmates in medical beds. While higher than in most free world long-term care settings, these numbers are consistent with the high burden of viral hepatitis and alcoholic liver disease among inmates.

Table 8. Diagnoses in Medical Beds

	HIV	Dialysis	Cancer	End-Stage Liver Disease	Stroke	Cognitive Impairment
OHU	9%	0%	0%	13%	22%	19%
CTC	0%	11%	5%	2%	7%	14%
GACH	10%	12%	13%	10%	13%	26%
Hospice	25%	0%	63%	13%	0%	0%
SNF (women)	5%	20%	20%	0%	0%	5%

Under-Recognition of Diagnoses in Medical Beds

As mentioned earlier, chart documentation of diagnoses for inmates in medical beds was incomplete. In some cases this deficit mirrors practice in the free world. We found the following rates among the 196 inmates in medical beds (average age 49.8):

- Dementia, 8%.
 - We searched the charts for all dementia-like diagnoses, including organic brain syndrome and Alzheimer's, and found an 8% prevalence. When we asked nurses to tell us about problems with memory and decision-making, however, they identified 24% with impairment. At least some of the difference is likely to be from under-diagnosis. The same under-diagnosis phenomenon is likely in the group of sampled 55+ inmates as well. In our group of 24 sampled 55+ medical bed inmates (average age 64.7), 29% had dementia diagnoses but nurses identified 55% with cognitive impairment.
- Depression, 5%.
 - When we asked nurses if the medical bed inmates appeared sad or blue (a reliable screening question for depression), we got positive responses for 22%. In free world nursing homes, minor depression affects 30-50% of patients and major depression affects 6-24%.⁵⁵
- Anxiety, 0%.
 - When we asked nurses if the medical bed inmates appeared anxious, we got 7% positive responses. The prevalence of anxiety in the free world 55+ population is 11.4%.⁵⁶
- Substance abuse, 5%.
 - Other prison studies have shown up to a half of inmates have a history of heavy drinking,⁵⁷ but healthcare staff may legitimately consider this problem less relevant in the medical bed inmates.
- Chronic pain, 2%.
 - Nurses told us that 46% required pain medications. As mentioned earlier, physicians commonly under-diagnose and under-treat chronic pain.⁵⁸
- Contractures, 1%.
 - We asked nurses about contractures rather than depending on physician diagnoses. The contracture rate in free-world nursing homes is over 25%. The prison medical bed inmates have less ADL impairment than free world nursing home patients, and therefore may have fewer contractures, but our own experience in other prison projects suggests that the 1% rate is a consequence of under-recognition.

Use of Datasets for Problem Identification: The Example of Pressure Sores

Identifying clinical problem areas in a delivery system is easier with systematically collected data, which are not currently available to CDCR healthcare professionals. For instance, according to CDCR written testimony at a 2004 Senate hearing, there were 18 paraplegics and 7 quadriplegics in California prisons.⁵⁹ Yet in visiting only 11 of California's 33 prisons, we found 18 paraplegics and 9

quadriplegics in medical beds. The number of paraplegics and quadriplegics throughout the state could be two or three times higher. As mentioned above, the Healthcare Placement Unit list of long-term care inmates is incomplete, and our review of completed Level of Care Assessment Tools showed that even when inmates are assessed, the data submitted are incomplete. The CDCR tool does not prompt nurses to give information on pressure sores, incontinence, or falls.

Of the 18 paraplegics we surveyed, 13 had pressure sores. Of the 9 quadriplegics, 3 had pressure sores. At a single prison, we found 6 inmates in medical beds who were either paraplegic or quadriplegic; 5 of those had pressure sores. When asked a general question about what they needed to improve care, the nursing staff there repeatedly said they needed someone with wound care expertise. Their last inservice on wound care was approximately three years ago, given by a nurse from a mattress company. They also said they are working without a functional Hoyer lift and without certified nursing assistants. This prison, like all others we visited, lacked adequate physical and occupational therapy staff, whose expertise in fitting and adjusting wheelchairs is critical to pressure sore prevention. Wheelchairs were often ill-fitting and lacking appropriate cushions.

The cost of healing a pressure sore can easily reach \$40,000.^{60,61} Paraplegics are at obvious risk and need prompt attention from rehabilitation specialists when they enter prison reception centers.

Lack of Geriatric Expertise

To our knowledge, the CDCR currently has no geriatricians and no physiatrists (rehabilitation physicians) on staff. Both geriatrics and rehabilitation use a team model of care, so the lack of physicians in these areas suggests a broader lack of geriatric and rehabilitation teams, which should include appropriately trained nurses, rehabilitation professionals (physical, occupational, and speech therapy), mental health professionals, and social workers. These team members, not necessarily physicians, carry out many of the screening and assessment procedures in geriatrics and rehabilitation.

We reviewed 452 charts of inmates in the general population but found none with detailed evaluations of cognitive impairment. Even when physicians had made a dementia diagnosis, the subsequent care often breached good geriatric practice. We found many cognitively impaired inmates on medications known to worsen cognitive function, even though the list of inappropriate drugs for the elderly has been well publicized for over a decade. Hydroxyzine is one of the drugs with powerful anticholinergic side effects that are harmful in elders, especially those with dementia. We found a 66-year-old man with heart disease, emphysema, and Alzheimer's who was getting 50 milligrams of hydroxyzine (Atarax) every morning and 150 milligrams every evening. Even in young, healthy adults, the recommended dose does not exceed 100 milligrams a day. We found many 55+ inmates on diphenhydramine (Benadryl), which can be similarly harmful in older people.

In community nursing homes, regulations require monthly drug regimen reviews by pharmacists. The CDCR has no pharmacists available to do drug regimen reviews in any of its 33 prisons.

Having good primary care physicians available is no guarantee of good geriatric care. At one prison, a new agreement with the University of California has made academically-affiliated physicians available for consultation. Asked to consult on an inmate who had fallen, the university physician documented a detailed history and physical examination that would have been excellent had it included any of the required elements of a post-fall assessment, including assessment for balance and gait, vision, footwear, orthostatic hypotension, and medications that increase fall risk. Fall assessments are the province of geriatric and rehabilitation specialists and teams, routinely carried out in nursing homes and routinely fumbled in primary care physician offices. New standards for fall

screening, now being coupled with pay-for-performance financial rewards for physicians, may soon lead to improved practice in the free world.⁶²

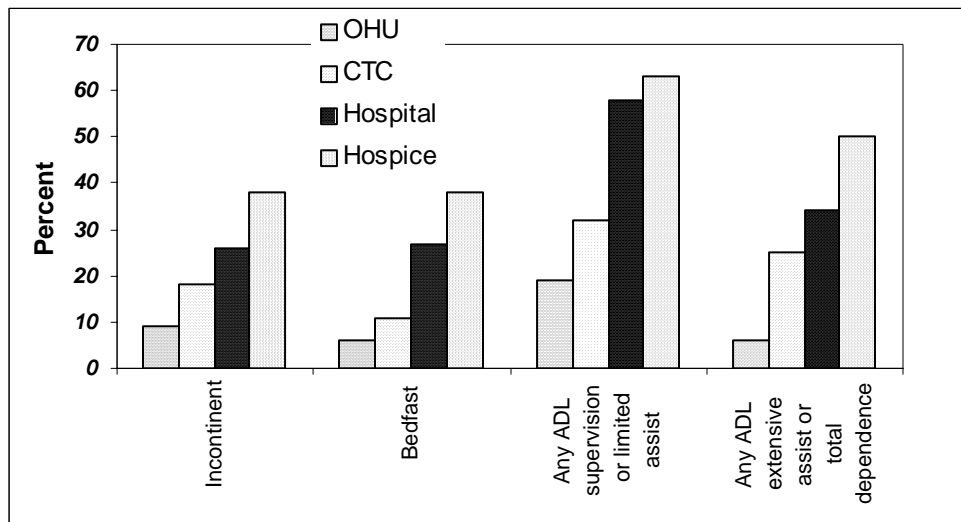
Nutritional and weight loss issues among CDCR medical beds also lack appropriate processes and expertise. In free-world nursing homes, regulations require monthly weights and dietitian input. Each nursing home's quality measures on weight loss—and on pressure sores, pain, depression, continence, and functional loss—are available on a federal government website for public use. Weight loss is erratically monitored within CDCR medical units, dietitian time is limited, and some prisons lack dietitians altogether. Availability of special diets varies from prison to prison.

Levels of Care

The CDCR's four General Acute Care Hospitals (GACHs), licensed as hospitals by the CA Department of Health Services (DHS), are small, minimally equipped and staffed facilities that can manage straightforward medical illnesses and some basic surgeries. CA Title 22 licensing regulations for Correctional Treatment Centers (CTCs), while adapted from nursing home regulations, allow much more flexibility, so that the CTCs can function as infirmaries for a variety of medical and mental health problems. Outpatient Housing Units are unlicensed infirmaries. CDCR policies require a physician history and physical within 24 hours of OHU admission as well as care plans for each inmate patient. Admission history and physical documentation was variable in quality and sometimes absent, particularly in specific CTC and OHU settings. Care plans were rudimentary in most of the prisons we visited.

As expected, the acuity of inmates in medical beds increases from OHUs to CTCs to GACHs to Hospice. Figure 7 shows such increases in percentages of inmates who are incontinent, who are confined to bed, who need either supervision or limited assistance with at least one ADL, and who need extensive assistance with or who are totally dependent in at least one ADL.

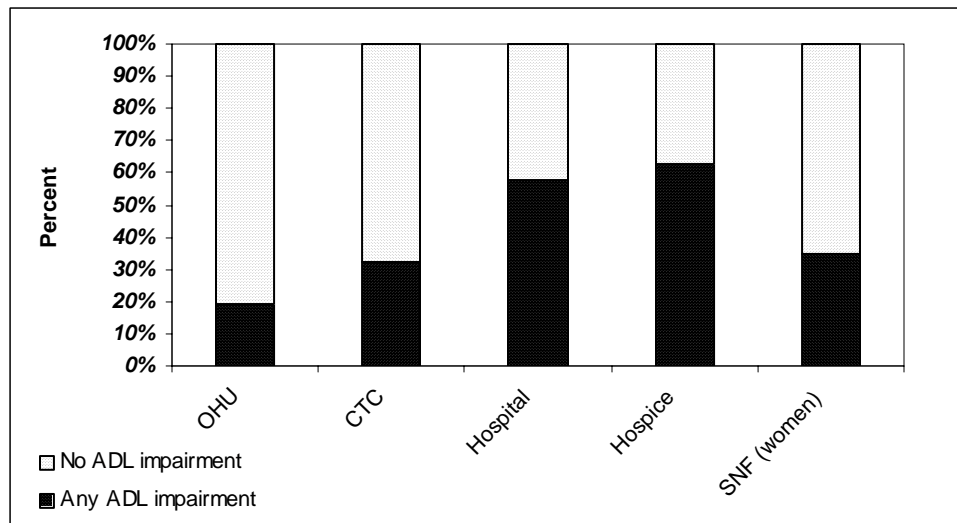
Figure 7. Increasing Impairments in OHU, CTC, Hospital, and Hospice



On the other hand, we have already noted that some inmates with minimal medical or nursing needs fail to stay in the general population and therefore transfer to higher levels of care. The percentage of inmates with no ADL impairments is 81% in OHUs, 68% in CTCs, 42% in hospitals, and 37% in hospice (see Figure 8). There are fewer placement options for female inmates, so it is not surprising

that the CCWF skilled nursing facility has an intermediate acuity. At the CCWF SNF, 65% of inmates have no ADL impairments.

Figure 8. Percentages With and Without ADL Impairment in Medical Beds



A 1996 study suggested that at least 15% of free world nursing home residents could be appropriately placed at lower levels of care (board-and-care homes or assisted living). “Mistakes are made in two ways: some persons are receiving care at too high a level and paying too high a price for it, while others are taking too many risks in lower levels of care.”⁶³ We have already described inmates felt to be unsafe in general population for medical reasons. One correctional officer described a 64-year-old inmate with Parkinson’s disease, hemiplegia (weakness on one side from a stroke), and incontinence who requires extensive assistance in ADLs and someone to push his wheelchair. The officer said, “He needs to be in a nursing home, not in a prison.”

We also found numerous examples of inmates in medical beds who could be at lower levels of care. Among our 196 inmates were those in OHU, CTC, GACH, and SNF settings for the following reasons, according to staff:

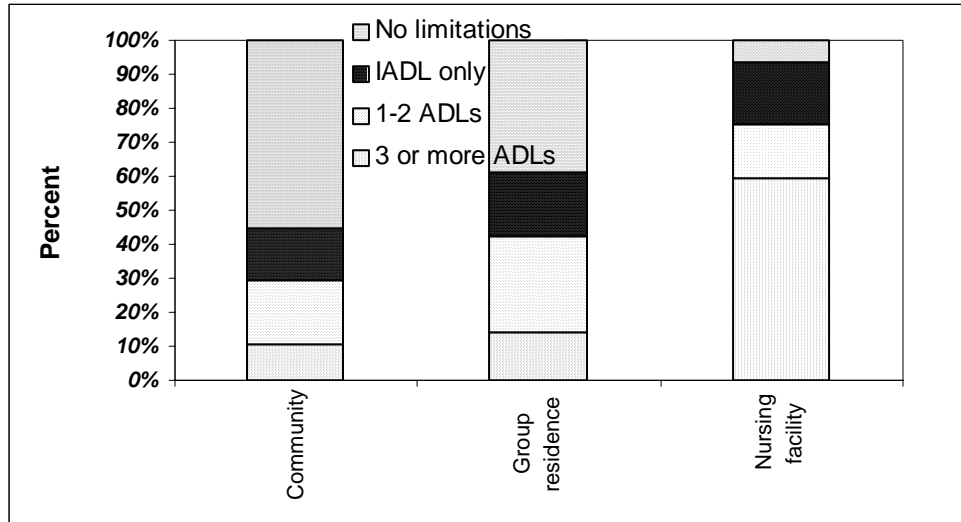
- Inability to store clean nephrostomy supplies on the yard.
- Prohibition against having portable oxygen on the yard.
- Prohibition against have a nasal CPAP machine on the yard.
- Prohibition against having indwelling dialysis (Quinton) catheters on the yard.
- Too much walking distance from yard to dining hall.
- Danger of demented inmates wandering on the yard.
- Need for assistance putting on socks and getting set up for bathing.
- Need for assistance cleaning after a bowel movement.

Ten of the 13 dialysis patients we found in medical beds had no ADL deficiencies and no cognitive impairment.

In the free world there has been a significant shift, largely consumer-driven, away from nursing homes to lower levels of care. The 2001 Medicare Current Beneficiary Survey recorded a drop in nursing home use and an increase in various group living arrangements, including assisted living and other congregate housing.⁶⁴ Figure 9 shows the portions of Medicare beneficiaries at three levels of care with no limitations, with limitations in instrumental ADLs only (shopping, cleaning, etc), with 1-2

ADL limitations, and with 3 or more ADL limitations. In the group living settings, 42% of residents had one or more ADL impairments, a percentage that falls between the 32% in CTCs and the 58% in GACH medical beds as seen in Figure 8.

Figure 9. ADL Impairments in Free World Levels of Care



It would be a mistake to think that CDCR healthcare professionals and custody staff are keeping inmates at higher levels of care without any rationale. Rather, they get no systematic support to keep inmates out of medical beds, and they have no assisted living options. We found multiple examples of healthcare staff trying to get necessary supplies for GP inmates and of custody staff trying to match impaired inmates with cellmates who would offer informal help.

Part of the problem is the misconception, evident in the CDCR's Level of Care Assessment Tool and in several other state systems, that scoring an inmate's clinical characteristics can point to an "appropriate" level of care. In the free world, every trial of quantitative algorithms predicting levels of care has failed to be of practical use.⁶⁵ Thanks largely to consumer-driven movements, the long-term care community has recognized that determining an appropriate level of care requires more than tabulating a patient's clinical conditions and functioning. The level of care should depend upon the interaction of the person's (1) clinical status, (2) the resources available, and (3) preferences. "The idea that a single 'appropriate' setting exists for each consumer based on disability level must give way to an understanding that more than one choice can work for many consumers."⁶⁶

The resource dimension is easy to understand. Ex-presidents with Alzheimer's disease need not go into nursing facilities. With enough professional and family support, patients requiring nighttime respiratory ventilators can live at home. While flexibility is more limited in correctional settings, an inmate caregiver program, for example, can permit many impaired inmates to remain in the general population.

Preferences play a smaller role in correctional settings than in the free world, but they are not insignificant. CDCR staff described inmates who struggled against all odds to stay in the general population. Honoring an inmate's preference for the general population helps motivate his/her self-care and functional maintenance. Lack of motivation has fiscal implications; paraplegics who are not motivated to do self-care, for example, commonly get pressure sores.

Maintaining functional independence, to the greatest extent possible, is particularly important for inmates who will be paroled. Placement is more difficult for inmates who need more help. At any given time, 6-10 inmates are on the CDCR parole holdover list, being cared for at CDCR expense because of difficulty placing them in the community.

In correctional settings, determining an appropriate level of care requires simultaneous consideration of:

- The inmate's functional status and medical/nursing needs.
- The available resources (staffing, programming, equipment, environment) at each level of care.
- The inmate's preferences and risk tolerance.
- The facility's risk tolerance.
- Security/custody considerations.

With sustained attention, creativity, and modest resources, the CDCR could move many inmates out of medical beds to lower levels of care, albeit not all. A 1998 Vermont program to move nursing home residents back to the community was successful and saved money, but found that the successful resident group was less impaired overall than the unsuccessful group: the average nursing home resident who returned to the community was somewhat more capable of communication and decision-making, somewhat more continent, and needed extensive assistance with 2.5 ADLs rather than 3.⁶⁷ Inmates in CDCR medical beds are much less impaired than the Vermont group that was able to leave nursing homes.

Operationalizing this effort could build on local initiatives already in place, including formal inmate caregiver programs and special needs yards. One correctional officer suggested that aging inmates be assigned to special cellblocks but be allowed to choose younger cellmates who would be informally helpful. We spoke with healthcare staff in one CTC who said they sent an inmate, confused by hepatic encephalopathy, back to the yard in the care of a nurse who saw him every day to ensure that he took his medications, either in the yard clinic or at cell-front if he did not show. Improvised, heroic creativity on the part of healthcare professionals, however, is no substitute for a system of care.

Keeping inmates at lower levels of care saves money directly for that inmate, but the indirect savings may be even more important. Multiple CDCR Health Care Managers have described transferring stable inmates from medical beds into community hospitals, accompanied as usual by correctional officers, to create an open bed in the OHU, CTC, or GACH for another inmate in mental health crisis. The State Auditor documented similar comments.⁶⁸ Estimating the reduction in off-site hospital admissions and the cost savings is difficult, but one informed source estimated that 20% of off-site admissions could be averted.

Overlap of Geriatric and Mental Health Conditions

Because we were dependent on chart diagnoses, which for mental health data were particularly incomplete, we cannot reliably estimate how many 55+ inmates have both chronic medical conditions and chronic mental health conditions.

The prevalence of serious mental illness, including thought disorders such as schizophrenia, is 15% in state prisons among inmates of all ages.^{69,70} The prevalence of personality disorders is much higher. Antisocial personality disorder is present in 47% of male and 21% of female inmates; a personality disorder of some type is present in 65% of male and 42% of female inmates.⁷¹ Many of these inmates are now growing old and often have age-related dementia. One report of a maximum security hospital in another state found that 75% of elderly offenders were admitted in their 20s and

30s and detained into old age because of a single act of violence. The majority of this group was schizophrenic.⁷² Some observers describe approximately 10% of older inmates as “old and ornery,” or “toxic agers.”⁷³ About half of Alzheimer’s patients have mental health symptoms, which manifest as unacceptable behavior in prison settings. Disputes about whether an inmate should be in the care of medical vs. mental health teams occur daily in California prisons.

The CDCR Mental Health Services Delivery System (MHSDS) has in place many of the elements required for a chronic care population management system: screening of new arrivals, intake assessments, psych tech rounds, case management and a case management database (Correctional Clinical Case Management System or 3CMS), and an interdisciplinary team model. Although the MHSDS does not have the capacity to incorporate chronic care for inmates with medical conditions, it can offer invaluable lessons for a chronic care system. The CDCR must grapple with integrating the medical and mental health programs, especially for the large group of inmates with both medical and mental health conditions.

The MHSDS also has a procedure for mental health assessments in the disciplinary process, something sorely lacking for cognitively impaired inmates. We heard multiple reports of demented, bed-bound inmates being disciplined for infractions such as inappropriately grabbing a nurse. While such behavior should not be tolerated, its occurrence in community nursing homes triggers a behavioral care plan, not extended placement in isolation. Parole for cognitively-impaired inmates is often delayed because of rules infractions, resulting in extra costs to the CDCR. There is evidence that cognitive impairment is common at the time of criminal offense among older people. One study found that among child sex offenders over 60 referred to forensic services, 12.5-14.4% had organic brain disorders.⁷⁴ Court liaison referrals in inmates over the age of 60 have found rates of dementia ranging from 19-30%.⁷⁵

The Pennsylvania report on aging inmates acknowledges the need for cognitive assessments in the disciplinary process:

*Laurel Highlands quite often uses an informal grievance process. Many of the inmates do not even know where they are, let alone that they have done something wrong. An inmate will often lose television privileges for a while rather than being locked up for a misconduct. Laurel Highlands has had only a few very rare instances of serious misconducts and has never had an employee hurt by an inmate or physical force used against an inmate.*⁷⁶

A comprehensive case management database could be useful for tracking not only inmates with medical and mental health conditions, but also those with disabilities (*Armstrong* ADA program) and traumatic brain injuries.

Overlap of Chronic Care and Palliative Care

California has been a national leader in prison palliative care, beginning with the founding of the CMF Hospice in the early 1990s.⁷⁷ CCWF has a hospice program for women. CMC has developed an innovative palliative care program in alliance with a local hospice, which facilitates a vigorous hospice volunteer training program. At the time of our visit to CMC, four terminal inmates were in the program. As one palliative care authority has noted, “The prospect of medically excellent and compassionate—even loving—care for dying inmates seems implausible, at best. Yet, these are precisely the goals of prison hospice programs and in demonstration projects around the country, this is exactly what is occurring.”⁷⁸

Dr. Joe Bick, Director of the CMF Hospice, has noted that end-of-life programs require close collaboration between custody and healthcare staff. They also require significant organizational

commitment and resources. Fortunately, “In many cases, the costs associated with a quality end-of-life program can be offset by avoiding unnecessary community hospitalizations.”⁷⁹

In spite of California’s innovative tradition, the CDCR has undertaken no systemic initiatives toward the quality of care at the end of life. We found no attempts to review the quality of symptom management at end of life, for instance. We also found that clinical staff generally believed that inmates had to choose between hospice and life-sustaining treatment, although the free world programs now include more blended approaches.⁸⁰ End-of-life standards for correctional settings issued in 2000 state, “Palliative care is not denied to patients who elect to continue curative treatment.”⁸¹

We found no prisons with advance care planning programs, which should routinely offer inmates the opportunity for end-of-life education about choices, well in advance of terminal illness. We found remarkable variation in the use of DNR orders, with some physicians discussing options and writing orders much as in the free world while others believed that DNR orders require court approval.

We found no ethics resources available for healthcare and custody staff or inmates and families. Advance care planning and end-of-life decision-making is more complex in correctional settings than in the free world because of inmates’ distrust of staff, staff bias against inmates, barriers to involving proxy agents (with power of attorney for healthcare), and limited health literacy.^{82,83}

A viable prison chronic care program should include advance care planning, if only because it would decrease the enormous strain on staff, inmates, families, and resources. There is preliminary evidence that combining palliative care with case management may optimize decision-making, quality, and efficiency.^{84,85}

Integrated Care Management

Faced with the same financial pressures as California, other state correctional agencies have successfully implemented cost containment measures. Texas implemented prison managed care in 1994 and reported that in the first three years, healthcare costs per inmate-day fell from \$5.98 to \$5.11.⁸⁶ Utah reported \$1,474,000 in savings in 2002 compared with 2001 after implementing a series of cost-containment techniques and organizational restructuring, all done while maintaining quality of care and *esprit de corps*.⁸⁷

Free-world examples of successful managed care systems are close at hand. California Medi-Cal managed care has decreased preventable hospitalizations, improved access, and improved quality.⁸⁸ Similarly, California's organized physician groups have improved quality and decreased inpatient utilization, especially in the integrated group model.⁸⁹

Most of the early savings from managed care came from more efficient use of hospital days, the "low-hanging fruit" of 1990s healthcare. Leading healthcare organizations, such as the Veterans Health Administration and Kaiser, have gone far beyond those early gains with organizational strategies to improve quality and reduce healthcare inflation. Kaiser has implemented a chronic care model that includes both care managers, who provide intensive direct patient care and education, and case managers, who provide care coordination for complex patients.⁹⁰

As the medical system began to approach cost and quality from one side, the elder social services sector began to approach from the other. Community-based case management offers various levels of intensity, usually through social workers or nurses, focused on keeping patients functional and at home (or at the lowest possible level of care) while reducing unnecessary costs. Arizona's Medicaid case management system has proved to be cost-effective, although numerous others have had difficulty demonstrating cost savings.⁹¹

Programs that integrate community-based approaches with the medical delivery system have the best record of improving both quality and costs. The primary goal of PACE, the Program of All-Inclusive Care for the Elderly, is to keep frail, nursing home-eligible, Medicaid patients in the community and out of nursing homes with intensive, interdisciplinary team care. PACE has proven to be cost-effective.⁹² One of the ways PACE saves money is through early intervention, which requires early recognition of problems. In a regular adult day health program, a participant may choose not to come in because of not feeling well. When a PACE participant complains of not feeling well and not wanting to come into the PACE adult day health program, the team responds by doing a prompt assessment, often preventing serious illness and costly hospitalization. A similar practice in the CDCR would have a nurse go to cell-front if a frail inmate failed to show in clinic, as in the example we gave above.

Through studies of PACE and other programs, we know that patients with unmet ADL needs generate higher healthcare utilization and costs, and morbidity, including falls and injuries, pressure sores, and contractures.⁹³ We also know that declines in functional status are associated with increased costs. Maintaining someone's independence in mobility and ADL function in highest category may save as much as \$2000 per patient over 4 years.⁹⁴

For care coordination to be cost-effective, whether in the medical, social, or integrated model, it must be targeted to those most likely to have preventable utilization. During a given year in the Medicare program, three overlapping groups each account for 28-29% of expenditures: those with a prior hospitalization, those with multiple chronic conditions, and those who were high-cost in previous

years.⁹⁵ The strongest associations with costs are having multiple ADL limitations and residing in a nursing home.

All care management programs must decide which patients to target. Integrated, interdisciplinary teams such as used in the PACE program are appropriate for frailer populations. Other programs generally use care managers and target a less frail population. Questions to answer in this model include the following:⁹⁶

- What are the goals of care coordination?
- How does the program identify participants?
- How does the program involve physicians?
- How do care coordinators and physicians communicate?
- What is the role of specialists?
- What information is gathered with assessment tools?
- Are care coordinators nurses or social workers?
- What training do care coordinators get?
- What is the caseload size?
- What data and analyses are needed to monitor and evaluate care coordination over time?

Nearly all states, as part of their community-based and institutional Medicaid programs, consider ADL limitations among their eligibility criteria. Arizona's Medicaid case management program uses no single hard-and-fast eligibility but allows for flexibility and clinical judgment.⁹⁷

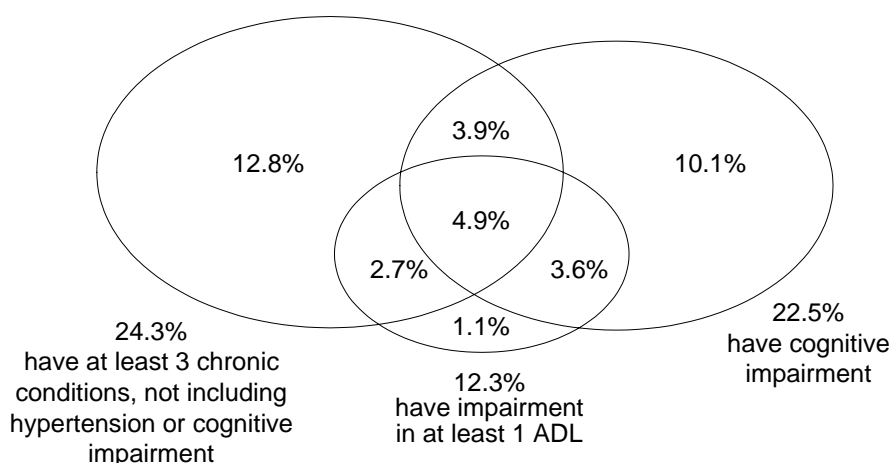
The 2003 Medicare Modernization Act, which brought us the Part D pharmacy benefit, included a care coordination benefit that was dropped from the final version. Criteria for participation included some combination of complex medical conditions, cognitive impairment, and ADL/IADL limitations. A recent analysis examined the ways in which criteria could be varied for optimal effectiveness.⁹⁸ Mirroring that analysis, we examined how the following categories overlapped for our sampled 55+ inmate population:

1. Those with at least 3 chronic conditions.^a
2. Those with cognitive impairment.
3. Those with at least 1 ADL impairment. The study cited used >1 ADL or IADL impairment, but we did not get IADL impairment data from our survey.

For a 55+ population of 10,000, targeting the group meeting all three criteria would place 4.9% or 490 inmates in care management (see Figure 10). Targeting the group meeting any two criteria would place 15.1% or 1510 55+ inmates in care management. A portion of younger inmates need care management as well, but we have no population-based data that would allow us to estimate the size of that group.

^a We used the following diagnoses from our survey tool plus several common write-in diagnoses: diabetes; any of the 7 heart/circulation diagnoses, excluding hypertension; any of the 3 musculoskeletal diagnoses; any of the 10 neurological diagnoses excluding dementia; any of the 4 psychiatric/mood diagnoses; COPD/asthma; any of the 6 "other" diagnoses excluding BPH; viral hepatitis, ESLD, and HIV. We excluded hypertension, as did Cigolle et al. Unlike Cigolle et al., we chose to include incontinence and falls, which modestly enlarged the group; these conditions point to frailty not otherwise captured in our dataset.

Figure 10. Overlap of Chronic Conditions, Cognitive Impairment, and At Least 1 ADL



This type of analysis encourages flexibility in targeting criteria, which can be adjusted as system capacity ramps up. Also, given that correctional officers in our survey made global judgments about inmates' safety that reflected issues such as mobility, ADL impairment, and cognitive impairment (see Figure 5), the CDCR targeting criteria could give significant weight to correctional officer recommendations. Encouraging officer referrals and officer-case manager communication would address a frustration we often heard: when officers get concerned and send inmates to medical clinic, the inmates often return with no evidence of having been helped.

Additional flexibility lies in options for the care management system to have two or three levels of intensity, which can be accessed short-term, long-term, or intermittently. A mildly demented inmate without ADL limitations may need only low-level, long-term monitoring for several years. An inmate who has a new event and new ADL limitations two months prior to parole will need intensive short-term care coordination. Currently in the CDCR, a social worker may be providing such intensive coordination for the latter inmate, albeit without formal support from a care coordination system. The former inmate, who may be seen as merely "old and quiet,"⁹⁹ is likely to be overlooked despite being high-risk.

Efficient use of differing levels of care management increases system capacity. Some inmates, e.g., a healthy 60-year-old man, may need no direct work from a care manager but would benefit from being in the care management tracking system to ensure that he gets annual screening, checkups, and preventive care from the healthcare team. Using the figures derived above, 1020 55+ inmates may need moderate hands-on care management and 490, more intensive care management. Referrals from correctional officers would swell these numbers slightly, offset by the fact that some of these inmates are already in mental health case management. Inclusion of younger impaired inmates would swell the numbers more, but we lack the data to know how much.

To summarize, care management programs that have been successful in addressing cost and quality with the chronic care model have tended to target high-risk patients, use interdisciplinary teams, coordinate complex care plans, shift to lower cost levels of care, and redesign the delivery of care.¹⁰⁰ Superficially grafting a case management system onto a sick call model, or even the *Plata* chronic care model, is not likely to improve care or save costs. Care managers must be able to work effectively, efficiently, and collaboratively with the other healthcare and custody staff. Developing such a system will require new relationships and decision-making among social workers, physicians,

and correctional counselors. The CDCR can apply many of the models and lessons learned from its mental health work in developing a fully integrated care system.

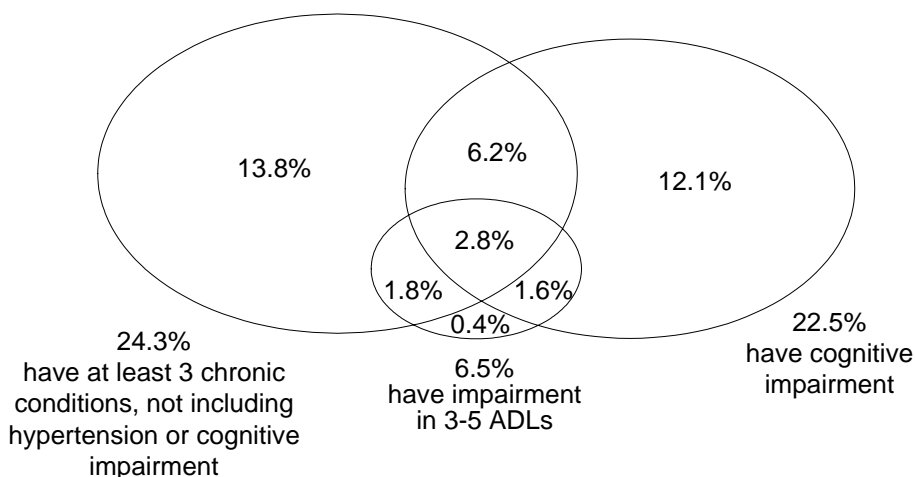
This conceptual framework of care coordination accommodates our earlier discussion about levels of care. Cost-effectiveness for care coordination lies largely in keeping inmates out of hospitals and at the lowest level of care. Keeping significantly more inmates in GP or special care yards and out of medical beds depends on getting past the present stage of isolated, improvised, heroic creativity to everyday collaboration among healthcare and custody staff with support from local and state leadership.

The analysis just used can also help clarify how many medical beds might be necessary for a given inmate population. Although earlier we stated that anyone could be kept out of a nursing home, given enough resources, in reality there is a financial/resource break-even point for the effort expended. The Vermont study found that significantly impaired individuals were less likely to benefit from attempts at discharge.

Given that current CDCR levels of care are set to lower acuities than free-world levels of care, we could start by saying that moderately impaired inmates are likely to require medical beds. The following diagram uses the same chronic conditions and cognitive criteria used above. The ADL circle shows inmates with any impairment, including need for supervision or limited assistance, in 3-5 ADLs. The size of this group is one-third that of the group with impairment in at least 1 ADL, shown earlier. It is much larger than the Vermont nursing home group, which required extensive assistance in at least 3 ADLs.

We know that a small number (2% or ~200) of the 55+ inmates are now managing to stay in GP despite impairments in 3-5 ADLs. For planning purposes, however, let's assume that a CTC bed would be necessary for an inmate with any impairment in 3-5 ADLs plus 3 chronic conditions and cognitive impairment. Some 2.8% meet that description, or 280 of 10,000 55+ inmates (see Figure 11). It would be safe to assume that given current practice in the CDCR, 280 55+ inmates will need a long-term care bed in a CDCR CTC or a community nursing home. This calculation is for the 55+ population only; 65% of medical beds are now filled with younger inmates, so the all-ages total may be 840. By the year 2010, this number may double.

Figure 11. Overlap of Chronic Conditions, Cognitive Impairment, and 3-5 ADLs



As the CDCR develops more assisted living-type options, these assumptions could change. One Ohio report recommended having 100 assisted living beds for every 1500-2000 inmates between 50-59

and 100 for every 890 inmates who are 60+. In California those guidelines would generate about 800 assisted living beds. A portion of these could be special needs units rather than full-fledged assisted living.

Recommendations for CDCR Elder Care

Environmental Modifications

Although our survey and consulting focused primarily on healthcare provision, we had ample opportunity to confirm the importance of safety and environmental factors and programming. As already noted, we found inmates who had fallen from top bunks or who were in medical beds because being in GP would require walking too far to the dining hall.

Recommendations from the 1999 California report and elsewhere have repeatedly focused on safety issues such as grab bars and handrails, walking surfaces, lighting, and signage; bottom tier and bottom bunk assignments; and temperature.^{101,102,103} A study of older female inmates in Tennessee found that 88% needed a lower bunk, 71% were capable of going up/down stairs, 67% had difficulty standing in line up to 15 minutes, 61% required ground-level housing, 58% had difficulty walking long distances, 46% required a flat, even walking terrain.¹⁰⁴ A recent study of California female inmates confirmed the difficulty of “prison activities of daily living,” including dropping to the floor for alarms, standing for head count, climbing on and off the top bunk, getting to the dining hall for meals, and hearing orders from staff.¹⁰⁵

Even prisons with caring custody and healthcare staff may manifest “institutional thoughtlessness: not being allowed sufficient time to complete activities or get to and from specific locations... having to queue for long periods (sometimes for up to an hour) to obtain medications... having to climb stairs while carrying food trays... having to shower in slippery, tiled cubicles.... An infirm prisoner may refrain from exercise if he has no access to a toilet during the exercise, if he is not allowed to wear a warm coat, or if he is not given additional time to get to the exercise yard and back.”¹⁰⁶ Exercise is thus not deliberately denied, but physical layout and inflexibility of routines make it difficult.

To address these issues, we recommend immediate development of an initiative at 6-8 male and female prisons of modifications to ensure access to meals, exercise, and recreation for geriatric or disabled inmates.

This effort should be championed by plant operations and custody officers and informed by healthcare staff, rather than led by healthcare staff. We recommend piloting the work at one or two prisons with relatively good practice, taking ample digital pictures of best practices, and getting input from geriatric and disabled inmates.

Care Coordination

Our earlier discussion focused on recent lessons learned about care coordination, but the idea of identifying older inmates at risk of mishap, ill health, and preventable costs is not new. Recommendations made by the National Institute of Corrections in 1992 include the following:

The initial assessment should include evaluation of the inmate’s physical and mental health, and level of functioning in other areas such as lifestyle, work, family, community relationships, and criminal history. From this initial program and custody needs assessment, a plan can be developed to provide the security supervision needed and the programmatic emphasis, including work, needed to help ensure that an optimal level of functioning is maintained.... Since conditions and status can change so rapidly with older inmates, it is recommended that levels of functioning be assessed on an ongoing basis. This ongoing assessment can be accomplished through a relatively simple list of questions modified from geriatric assessment

*questionnaires and administered by a caseworker or classification specialist as a part of the classification review process. If problems are identified, the caseworker can then refer the older inmate to other staff as appropriate. Early detection and treatment are critical to help minimize costs and other problems.*¹⁰⁷

It is reasonable to use age 55 as a trigger to begin admission and annual screening, although we agree with those who say that functional status is more important than age for determining program eligibility.¹⁰⁸ Intake and annual assessments will require new staff, tools, and processes, primarily in the form of nurses and social workers trained to use standardized instruments. Although the Lumetra survey questions performed well enough to serve a starting place for new instrument development, they are incomplete. Also, the Lumetra project did not engage directly with inmates. Recent recommendations suggest that correctional settings pilot use of the Short Form 36, since it has proven helpful in predicting free-world healthcare utilization.¹⁰⁹ The Short Form 36 is a comprehensive evaluation tool that assesses several domains including physical health, psychological well-being, and functional status.

Custody staff need to incorporate the screening and assessment findings into placement and work assignments. As described in the 1999 Florida report on aging inmates, “The inmate’s functional capacity serves as the basis for institutional and work assignment.”¹¹⁰ These assessments could also be used to guide yard and cellmate assignments.

As pointed out earlier, the CDCR’s current datasets provide inadequate support to both healthcare and custody staff. The Healthcare Placement Unit had not received assessments on 53% of the inmates we included in our medical beds. The *Armstrong* ADA dataset is incomplete. Inmates who are old and quiet often do not visit clinic for years, and correctional staff may not notice their vulnerability to mishap. With a care coordination system, population management can replace this haphazard approach to care. It can also overcome the artificial and often dysfunctional barriers between court-mandated programs, e.g., *Plata*, *Coleman*, and *Armstrong*.

The care managers can offload work that now inappropriately goes to physicians. Clinic visits for simple equipment, supplies, and low bed assignments (“chronos”) waste valuable time and undermine physician-patient trust. In free-world systems, nurses and other staff perform such tasks. We agree that the recommendation to assign lower bunks to all 55+ inmates is both the safest and most efficient approach.¹¹¹

The care managers can facilitate community organization assistance, not only for pre-release planning but also for long-stay inmates. They can provide healthcare education to inmates, facilitate peer-led education and groups, and promote self-management.

We recommend that the CDCR develop a care coordination system that supports both medical and mental health case management for inmates with age- or function-related needs, that monitors interventions and outcomes, that facilitates cognitive assessments, particularly in the disciplinary process, and that keeps inmates at the highest possible functional levels and lowest levels of care.

What has been said about screening for infectious disease could also be said about the need to identify and intervene for risk in older inmates: “To implement appropriate screening, treatment, and prevention programs... is expensive, but not nearly as expensive as a failure to do so.”¹¹²

Specialized Units and General Population Support

We applaud the aggressive development of geriatric options at CMF. We believe those preliminary efforts need additional support, that support for program development should go to other prisons as

well, and that successful models should be disseminated to all prisons with significant numbers of aging inmates. The CDCR should also develop:

- An adult day health center model
- Neurobehavioral units
- Assisted living and congregate care models
- Interdisciplinary teams with geriatric expertise

The adult day health center model, which figured so prominently in the 1999 California recommendations, is as yet unexplored in the CDCR. At least one prison this year should pilot-test an adult day health center with an in-center interdisciplinary clinic and shared healthcare-custody leadership. The CDCR should also lend systematic support for “home care” models that utilize inmate caregivers and/or the daily nurse visitation model in the example we discussed earlier.

Although we do not have population-based data on younger impaired inmates, our survey of medical beds suggests that the CDCR needs at least three neurobehavioral units for male inmates with the most difficult behaviors. One should focus on inmates with longstanding serious mental illness who now have cognitive impairment and ADL limitations complicated by hard-to-manage behaviors. Another should focus on inmates with traumatic brain injury and functional limitations. The third should focus on older inmates with dementia and hard-to-manage behaviors. Neurobehavioral programs include a strong neuropsychology presence within high-functioning interdisciplinary teams, care plans that truly guide the care of all disciplines, and preparation for parole or lower level of care within the CDCR.

In developing assisted living and congregate care models, the CDCR needs to attend to physical plant requirements and requirements for staff and staff training. Inmates with oxygen, catheters, ostomies, contractures, diabetes, enemas, suppositories/disimpaction routines, incontinence, injections, stage 1-2 pressure ulcers can all live in such units. Staff must be trained in safe medication administration, falls prevention, incontinence care, dementia care, communication techniques, skin care, and recognition of changes signaling acute illness, delirium, depression. Without guidance and training, there will be unnecessary and troubling confusion among correctional officers when their role seems to blur from custody to caretaker¹¹³ (see Appendix C).

Inmates in these units must have access to an effective interdisciplinary team—including nursing, medicine, social work, behavioral health, and custody—to avoid unnecessary and costly healthcare utilization. The “team” may be located in the medical clinic, but it must be interdisciplinary, and it should meet together regularly to discuss inmates from this unit, with input from staff on the unit. In a paper chart system, the charts would ideally be kept on the unit. The most effective and efficient assisted living and dementia units in the free world have clinics on site. Construction of congregate elder housing now often occurs with housing on upper floors and an adult day health center on ground level. Sending inmates from an assisted living unit to medical clinic haphazardly, to be seen by any sick call provider, would squander the cost and quality advantages of the unit.

A 1996 performance review by the California Department of Finance noted that in community hospitals with locked custody units, male and female inmates are routinely housed in adjacent hospital rooms.¹¹⁴ The review recommended that women have access to specialty and acute care programs in male prisons. Specialty programs, including neurobehavioral units and units for inmates with severe physical impairments, could safely serve male and female inmates.

We recommend vigorous development of specialized units and support programs that can keep inmates at lower levels of care.

Programming for Aging Inmates

The CMF peer counselor survey cited earlier focused on key issues of importance to inmates, including segregation vs. GP residence, relationships, work, exercise, hobbies, and activities.

For two decades, reports on aging inmates have discussed the pros and cons of segregated vs. GP housing.^{115,116} We suggest that the pertinent question is how to implement individualized decision-making that engages the inmate as a responsible participant as much as possible. In addition to severing relationships, segregated housing has often meant loss of opportunities to work and engage in favored activities. There is some evidence that segregated housing inappropriately increases clinic utilization because inmates have nothing better to do.¹¹⁷

The policy at Ohio's Hocking Correctional Facility is that all inmates have jobs; inmates have the option of requesting job changes.¹¹⁸ Mandatory, inappropriate job assignments for elders, on the other hand, can be painful, dangerous, and costly.¹¹⁹ Some programs allow retirement, which the survey by CMF inmates found to be a popular option.

We have discussed the inmate caregiver role in the context of having younger inmates serve older inmates. Functionally able older inmates, however, may also be good candidates for inmate caregiver positions. Most but not all of the CDCR's local prison caregiver initiatives have focused on hospice and mental health. These programs, with their screening and training systems, can serve as models for expansion to elder care. Elders themselves should be allowed to fill those jobs. Given that many California prisons have a shortage of job opportunities, expansion of caregiver jobs is an obvious win-win.

We recommend that the CDCR offer multiple programming options to aging inmates and include them as candidates for an expanded inmate caregiver program.

Recommendations for Organizational Change

Changing a healthcare system enough to address quality and cost concerns for older patients, whose complex problems consume disproportionate resources, requires essentially whole-system transformation. The principles of geriatrics are consistent with the chronic care model and can serve to guide system redesign.¹²⁰ Significant change requires resources, leadership, and strategies that reach deeply into every domain within the organization. It also requires time. The Veterans Health Administration began devoting massive resources to reengineering care in 1995.¹²¹ Kaiser established its Care Management Institute in 1997 and began its multi-pronged safety initiative in 1999.¹²²

These efforts have clearly paid off in terms of quality and cost, but they did not do so overnight. The 2001 IOM report, as we noted in our introduction, summarizes the core change strategies as follows:

- Redesign of care processes based on best practices
- Use of information technologies to improve access to clinical information and support clinical decision making
- Knowledge and skills management
- Development of effective teams
- Coordination of care across patient conditions, services, and settings over time
- Incorporation of performance and outcome measurements for improvement and accountability

We have already discussed care coordination in some detail. We will not discuss health information technology (HIT). The CDCR healthcare leadership is well aware that rapid progress with HIT is critical for achieving its aims. Progress to date has been plagued by under-funding, leadership turnover, and bad decisions. Chronic care in organizations that employ HIT is easier and more efficient. A review of physician organizations that made progress in chronic care, however, showed that those with strong leadership and a quality-oriented physician culture could overcome the barriers posed by lack of HIT and financial capital.¹²³ In this section we will make several recommendations about care process change, knowledge management, teams, and quality improvement. We will point out opportunities for custody and healthcare to develop a common language for change based on evidence from highly-reliable organizations.

Perhaps we should start with what not to do. Updated recommendations that sit on a shelf like the 1999 recommendations will not help. Merely disseminating new standards of care, or sending people for training with no support back home, would be a waste of time and money. Sending in new staff with no support for program development would be a waste.

New geriatric expertise, staff education and training, policies and procedures, efficient and effective forms for documentation, and quality improvement will best occur in the context of on-the-ground program development, as is being done at CMF. The CDCR should continue to invest resources in new program development at the prisons with innovative custody and healthcare leadership. From these multiple efforts will emerge ever more refined “change packages,” tried and proven processes, forms, and curricula, which other prisons can use. Initiatives are more likely to yield best practices at the highest-functioning prisons. In one California healthcare system, hospitals compete for the chance to participate in new programs. If resources and support accompany new program development, then innovative wardens and healthcare managers will be interested in submitting applications to participate.

The CDCR leadership can help these local efforts by providing:

- Appropriate healthcare and custody staff
- Education and training
- Support for interdisciplinary team development
- Appropriate equipment
- Environmental redesign
- Outside consultation as needed
- A communication infrastructure
- A quality improvement infrastructure

Most of these elements are self-explanatory, and we have discussed several, e.g., the need for appropriate equipment and environmental modifications and the difficulty of securing adequate input from pharmacy, rehabilitation, and geropsychology.

A communication infrastructure is essential if the CDCR is to make progress as a learning organization. We saw staff at each prison struggling with problems and trying to develop procedures and forms without knowing of similar efforts in other prisons. Staff members need ways to share their experiences, resources, problems, and solutions. Champions for a given clinical topic need ways to connect with each other. Easy-to-use, inexpensive intranet sites are now available that could facilitate communication within professional disciplines and across disciplines, focused on a given topic such as, in this case, geriatrics and long-term care. Adequate access to computer terminals is a challenge, but progress will continue in this regard.

A clinical intranet communication system would facilitate dissemination of state-of-the-art educational materials. Considerable expertise will be required to choose from the volumes of mixed-quality materials now available and to develop new materials appropriate for correctional settings. We found examples in every prison of clinicians continuing long-invalidated practices, which will be eliminated only by credible alternatives championed by credible clinical leaders with the CDCR. Even at CMF, as exciting as their programs are, there is still far too much misinformation regarding falls, pressure sores, incontinence, pain, and geriatric mental health.

A full-time CDCR nurse educator with rich connections to free-world, interdisciplinary clinical leaders in long-term care and academic centers should have responsibility for managing communication and materials on the long-term care intranet. That person could be located in one of the prisons developing geriatric programs.

With this modest communication infrastructure, California's correctional healthcare professionals could also engage with national leaders and initiatives. Now would be a good time, in fact, for California to stimulate national initiatives for quality in correctional healthcare. The excitement of participating in national efforts—and leading them—will help sustain program development in local prisons and improve recruitment and retention of staff. Engaging California colleges and universities in research and training inside prisons will also help program development and recruitment.

The CDCR should also make ethics education and consultation available to healthcare and custody staff. In its 2002 report to Congress, the National Commission on Correctional Health Care recommended that Congress establish a national advisory panel on ethical decision-making among correctional and health authorities,¹²⁴ a recommendation not yet realized. The Texas Department of Criminal Justice makes ethics rounds and consultations available through the Institute for Medical Humanities.¹²⁵

Telemedicine has been an under-utilized resource in geriatrics, rehabilitation, and palliative care. Academic centers now have geriatrics departments with telemedicine capacity. Beyond providing direct care, telemedicine consultations are themselves a training tool for the remote professionals who are with the inmate during the consultation.¹²⁶ Telemedicine can also be used for staff education on clinical topics and non-clinical topics such as interdisciplinary communication.¹²⁷

Earlier we cited the \$1,474,000 in savings reported by the Utah Department of Corrections for 2002. As part of this effort, Utah leaders fundamentally altered lines of authority and speeded decision-making within the department. They also created an organizational structure “that placed nursing at the cornerstone of all functions.”¹²⁸ The lack of stable and strong executive nursing leadership is a glaring weakness in the CDCR. Little progress in geriatrics and long-term care will occur, and less will be sustained, if the CDCR does not develop and support courageous and credible nursing leadership.

The IOM found that “strong nursing leadership is needed in all healthcare organizations in order to (1) represent nursing staff and management to each other and foster their mutual trust, (2) facilitate the input of direct-care nursing staff into decision making on the design of work processes and work flow, and (3) provide clinical leadership in support of knowledge acquisition and uptake by nursing staff.”¹²⁹

Lessons from nurses and organizational change apply to other professionals as well: “Researchers found that nurses tended to practice “first-order” problem solving, that is, fixing the immediate problem without communicating that it occurred, investigating why it occurred, or seeking to change its cause.... Second-order problem solving, in contrast, occurs when a worker, in addition to fixing the problem so the task at hand can be completed, takes action to address the underlying cause.... At hospitals characterized by second-order problem solving, either nurse managers were a strong presence on the floor, or there was a designated person available to provide guidance and support to nurses.”¹³⁰

We referred above to the critical role of a quality-oriented physician culture. Development of that culture begins with the recognition that physicians as a whole have been poorly trained to work in interdisciplinary teams and to assist in improving systems of care. The Accreditation Council for Graduate Medical Education (ACGME) has now established six core competencies:¹³¹

1. Patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health
2. Medical knowledge about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care
3. Practice-based learning and improvement as manifested by the ability to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices
4. Interpersonal and communication skills that result in effective information exchange and teaming with patients, their patients families, and professional associates
5. Professionalism as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population
6. Systems-based practice as manifested by responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value

The CDCR should recognize physicians who excel in these domains and use these physicians to assist others in developing these competencies. Measures of the competencies should be part of routine physician performance evaluations. Strong medical leadership will be needed to forge teams capable of delivering effective and efficient chronic and long-term care. The CDCR can again draw lessons from its interdisciplinary mental health teams in developing mature teams on the medical side.

Reports from several successful geriatric initiatives emphasize the importance of recruiting and selecting appropriate individuals among healthcare and custody staff rather than relying on seniority and bidding for positions.^{132,133,134} Not everyone has the aptitude to serve impaired older people. The CDCR and its unions should revisit current “post and bid” agreements.

It would be naïve to think that all individual clinicians now working in the CDCR (physician, nurse, mental health, social work, rehabilitation, and ancillary staff) can demonstrate or develop the professionalism and skill sets requisite for community-standards healthcare. We have seen remarkable examples of unprofessional behavior and attitudes of disregard toward inmates and other staff members. The nursing literature has documented the deleterious effect that unprofessional clinicians can have on the morale of other clinicians.¹³⁵ Successful recruitment and retention of competent staff will require developing a culture of professional responsibility.

Perceived Conflicts Between Custody and Healthcare

We heard many comments from both correctional officers and healthcare staff about conflicts between custody and healthcare. The medical literature is replete with perceived conflict, e.g., “Security requirements almost always trump clinical needs.”¹³⁶ In the context of aging inmates, especially those impaired or dying, the conflict seems heightened. “It is precisely at the end of life that the goals of medicine—diagnose, comfort, cure—and the mandate of corrections—to confine and punish—clash most directly.”¹³⁷ Many would dispute the mandate of corrections, however. The American Psychiatric Association position statement affirms, “There is no inherent conflict between security and treatment.”¹³⁸

We commend the CDCR for investigating these perceived conflicts in its 2005 organizational culture assessment at Corcoran State Prison, carried out by the Criminal Justice Institute:¹³⁹

“A significant divide remains between many of the security staff and health care staff because of the belief held by most security staff that inmates are not entitled to the level of health care (and other programs and services as well) that the courts and others say they should receive. This fundamental disconnect between “treatment” and “custody” plays out in all functional areas of the prison, and represents a conflicting value of the highest order.”

“Moreover, many custody and non-custody staff are resentful of what appears to them to be unlimited inmate access to health care, believing that inmates do not deserve it. Comments such as, ‘if my family doesn’t have this good of care, why should an inmate?’ and ‘if an inmate didn’t have healthcare as a free person, he shouldn’t get it here on the inside’ were often heard from staff.”

Only by confronting such conflicts can we hope to work past them. The Criminal Justice Institute assessment concludes on some very positive notes: “Corcoran’s staff definitely desire a more rewarding and supportive culture that emphasizes consensus building and structure along with flexibility and discretion, but with fewer prescribed dictates.” And finally, “The time is clearly right for culture change at Corcoran.”

Quality Improvement and High Reliability

The CDCR currently lacks the tradition, staff and information infrastructure, and knowledge base to do vigorous quality improvement at either local prisons or the state level. Peer review is tattered or non-existent. Overcoming these deficits is critical to the overall effort to address quality and cost concerns. Doing so will require an explicit commitment of resources and infusion of expertise. Local initiatives in geriatrics and long-term care offer a wonderful opportunity to teach basic quality processes such as sentinel event investigation and root cause analysis, as well as rapid-cycle, data-driven improvement cycles, iteratively improving procedures, forms, and working relationships.^{140,141,142} These quality initiatives can help generate the performance and outcome measurements necessary to stimulate and sustain change.

The CDCR also needs staff with expertise in packaging programs for dissemination. Local clinicians and custody staff may enthusiastically develop great new practices, but they rarely have adequate time, desire, and skills to develop tools and policies that would enable easy adoption by other prisons.

Local and statewide healthcare quality improvement initiatives will succeed only in collaboration with custody leadership. Systems thinking is characterized by critique of boundaries and the effects of “outside” forces.¹⁴³ In corrections, healthcare is embedded in custody. Both are embedded in state government and in civic and professional communities. The Corcoran organizational culture assessment illustrated both the boundaries and interdependence of healthcare and custody. Healthcare and custody need common language to bridge the boundaries between them. Evidence-based practice, “the conscientious, explicit, and judicious integration of current best evidence,”¹⁴⁴ offers some of the requisite common language. Although healthcare claims credit for developing the concept of evidence-based practice, the IOM acknowledges that “the use of systematic research findings for evidence-based practice is also supported and applied in the fields of education, criminal justice, and social welfare.”¹⁴⁵

Even more promising as a source for common language is recent work using “high-reliability” principles in health system redesign. High-reliability organizations succeed at reducing risks associated with hazardous operations. The IOM has described high-reliability organizations in several of its reports^{146,147} and leading quality organizations have been disseminating high-reliability principles and tools.^{148,149} Most of these principles were derived from decades of work in the military, law enforcement, and emergency services. High-reliability organizations develop a strong safety culture, utilize personnel and equipment redundancy (back-up systems), promote inter- and intragroup communication, cross-train personnel, and focus attention on errors and near-misses without wrongfully blaming individuals for vulnerabilities in work process and design.¹⁵⁰

To implement these principles, executive leadership must create the conditions for responsible decision-making and innovation among mid-managers and line staff. “Studies of high-reliability organizations show that effective decision-making is flexible decision-making, pushed to the lowest level commensurate with available knowledge. For example, any level of military personnel on an aircraft carrier can call a halt to a flight operation if he or she sees what looks like a dangerous situation.”¹⁵¹ Naval aircraft carriers reduced their number of aircraft catastrophes from 776 in 1954 to 26 in 2003 by developing these principles.¹⁵²

The 2001 IOM report asserts, “It’s more helpful to think like a farmer than an engineer or architect in designing a health care system.”¹⁵³ What California’s prison healthcare most needs is not a blueprint drawn in a central office. Rather, the leadership needs to develop a communications and management infrastructure that can facilitate innovation, evaluate variation, and select best

practices to disseminate. The IOM suggests crafting “simple rules,” sometimes called minimum specifications, which staff can then use to redesign processes at the ground level.

Creative progress towards a difficult goal can emerge from a few, flexible, simple rules, or so called minimum specifications. However, current organisational thinking is built largely on the assumptions that plans for progress must provide the “best” way, completely specified in great detail, and consistently implemented in that same level of detail across the board. This thinking... fails to take advantage of the natural creativity embedded in the organisation, and fails to provide for the inevitable unpredictability of events.¹⁵⁴

The rules may be imperfect and provisional, so long as they “provide wide space for innovation and encourage shared action.”¹⁵⁵ A simple rule for managing aging inmates, for example, could be to keep them at the lowest practicable level of care.

New simple rules may need to compete with the simple rules already entrenched in an organization’s culture. In healthcare, the IOM formulated 10 traditional rules and recommended 10 new rules that organizations are using to transform healthcare delivery. For example, the old rule, “‘Do no harm’ is an individual responsibility,” should be replaced with a new rule, “Safety is a system property.”¹⁵⁶

The Corcoran organizational culture assessment found a punitive, “extremely unforgiving” culture within custody, so one of the simple rules already in place there is to follow only written instructions.¹⁵⁷ If interdependent employee groups, such as healthcare and custody, use different sets of simple rules, as evident in the Corcoran report, the result is conflict, dysfunction, and frustration.

As outside healthcare consultants, we do not know the extent to which CDCR custody leaders are using and teaching organizational change strategies. We do know that high-reliability principles in particular offer custody and healthcare staff a shared safety-and-quality language and set of principles that have earned credibility in both law enforcement and healthcare.^a We recommend that CDCR custody and healthcare leaders jointly begin a high-reliability initiative informed by outside experts and piloted first at a single prison with the goal of developing common language and teachable simple rules to promote custody-healthcare collaboration.

^a For additional ideas about common language, see Appendix D.

Placement Alternatives

The 1999 California report¹⁵⁸ discussed various options for aging inmates both inside and outside the prison system:

- It strongly recommended development of assisted living units within prisons, as reiterated here.
- It suggested that the CDCR could operate off-site, “out-based” correctional nursing homes with minimal custody staff for inmates not posing serious risk to the community. The facilities would have fenced and landscaped buffer zones. Because of the inmates’ minimal risk to the community, they would not require full formula custody coverage.
- It raised the options of sending inmates to contracted community nursing homes with supplemental custody staff, as was being done in New Jersey. The CDCR now uses this model for some of its community hospital care.
- It discussed the Project for Older Prisoners (POPS), which assesses nonviolent elderly inmates for early release. Started by Jonathan Turley in 1989, POPS has been a very successful partnership between law schools and departments of corrections. It has not yet been tried in California.
- It discussed increasing compassionate release referrals and contesting return of senile and psychiatric cases.

As we noted earlier, predicting cost savings from such options is difficult given the lack of good data on older inmates’ healthcare and custody costs. Operating correctional nursing homes or contracting for nursing home care with reduced custody coverage would reduce custody costs. California legislation approved in 2003 (SB 549) authorized the CDCR to contract for skilled nursing facility services for inmates. But the surest way to reduce healthcare costs for an inmate population is to reduce the size of the population. For our current older inmates, the most cost-effective strategies are early release or compassionate release.

A paroled inmate can qualify for Medicaid benefits, paid out of shared federal and state funds, and for federal Medicare benefits, which cover the costs of nursing home, physician, and hospital care, should they be necessary. The CDCR must bear all those costs alone. Not all impaired inmates will need institutional long-term care. The 2005 Pennsylvania report noted, “Paroling an inmate with a serious illness or injury, geriatric condition or terminal illness to the care of family members or friends appears to be the only way to accomplish real cost savings. Unfortunately, not all inmates have family members or friends, and not all family members or friends are willing or able to assume this responsibility.”¹⁵⁹

The Virginia report recognized that only a minority of potentially appropriate inmates could be released. Even so, if 15% of those meeting “geriatric release” criteria could be released (60+ with 10 years served or 65+ with 5 years served unless convicted of homicide), the savings would come to \$2,173,810 annually.¹⁶⁰

While further analysis is beyond the scope of this report, we encourage the CDCR to engage other California stakeholders in a discussion of alternatives to the most costly forms of care for aging and impaired inmates.

Summary of Findings and Recommendations

Summary of Findings

The aging inmate crisis has been an unexpected and expensive consequence of our crime-control policies, one that California has noticed but not begun to resolve. The population of aging male and female inmates is large, growing, and costly, with significant burdens of chronic disease and impairments in cognition, mobility, and function.

Inadequate care for older inmates is consistent with other shortcomings within CDCR healthcare. For free-world hospitals and nursing homes, survey processes provide a floor beneath which quality must not fall, and incentives are emerging that reward superior care. There are no such floors or incentives for the quality of healthcare in California prisons, much to the consternation of its many competent and committed professionals. The results have entailed unnecessary suffering and expenditures.

Pilot work on elder care programs at CMF in 2005 was swift and visionary. Elsewhere we found examples of excellent care and excellent programs. Overall, however, the CDCR has not yet made significant progress in grappling with its burgeoning older inmate population. There has been no serious attempt to carry out the physical plant and program modifications recommended in the department's 1999 internal report on aging inmates.

Healthcare staff members work in a data-poor environment. The CDCR central office lacks the capacity to produce the most basic demographic and cost data essential for good management. The Placement Unit's long-term care dataset and *Armstrong* ADA dataset are both missing large portions of inmates. There is no way to proactively identify the inmates who are high-cost and high-risk. Chart documentation of diagnoses is very often incomplete, and there is no centralized database of older inmates' functional status or diagnoses.

We found inmates at OHU, CTC, GACH, and SNF levels of care who should be at lower levels of care. We found inmates in the general population with serious unmet needs. There are no assisted living or adult day health programs that could manage impaired inmates at lower costs. Inmate caregiver programs are small, variable, and inadequate. Innovation and program development in one prison is isolated from similar work in other prisons. Court-mandated programs, *e.g.*, *Plata*, *Coleman*, and *Armstrong*, operate separately within rigid, dysfunctional barriers. Knowledge and practice of quality improvement is inadequate in local prisons and statewide.

We found unacceptable vacancy rates in nursing and pharmacy, inadequate access to dietitians and rehabilitation therapists, and no job categories for recreation therapists or certified nursing assistants. To our knowledge, there are no geriatricians or psychiatrists in the CDCR.

The CDCR lacks adequate expertise in common geriatric conditions such as dementia, geriatric mental health, pain, contractures, pressure sores, weight loss, incontinence, and falls. Equipment for managing these conditions is inadequate or absent. Advance care planning programs and ethics resources are absent. Prior to the Lumetra work, there was no training for correctional officers or healthcare staff regarding the needs of older adults. There is no systematic attempt to preserve function in frail inmates. Impaired inmates are difficult to place when paroled, resulting in a parole holdover list at significant cost to the CDCR.

Because cognitive and functional status is not routinely collected, there is no way for custody to incorporate this information into placement and work assignments for aging inmates. Cognitive assessments are not routinely done as part of the disciplinary process of aging inmates.

We found that correctional officers are an invaluable source of information about aging inmates and are eager to share what they know.

We have argued that implementation of the chronic care model with care coordination, interdisciplinary teams, and geriatric expertise is the best way—perhaps the only effective way—to address the CDCR quality and cost concerns. We have recommended developing a continuum of specialized units and support programs that can keep inmates at lower levels of care, including adult day health centers, neurobehavioral units, assisted living, and caregiver programs for the general population. Although these strategies will require up-front investments, there is evidence from both the free world and corrections that failure to pursue these strategies will be even more expensive.

We have recommended that the CDCR follow through on its 1999 recommendations to ensure environmental safety and access to meals, exercise, and recreation for geriatric or disabled inmates.

We have argued that the CDCR should pursue all six IOM strategies for change: care process redesign, information technology, knowledge and skills management, effective teams, coordination of care, and performance and outcome measurement. The CDCR must get these levers of change firmly in place. Failing that, a few years of reasonably good management will not produce fundamental change.

We applaud the CDCR for beginning to look at its own organizational culture. The IOM strategies and the principles used by high-reliability organizations offer a common language and direction for engaging the cultures of both custody and healthcare.

Recommendations

The CDCR asked us to assess current gaps in services for aging inmates and make recommendations for closing those gaps. The following recommendations, all discussed in the body of this report, emerged from our survey data, direct observations, and/or the literature cited.

Where possible, we have tried to go beyond abstract standards to formulate the recommendations that California can reasonably implement in 2006-2007. The recommendations would be easier with good information systems in place, but they can succeed without complex new technologies. Severe overcrowding in California prisons is a barrier, but these initiatives do not require significant new space.

We have clustered these recommendations by topic area, but as outside consultants we do not have access to the information needed to sort them by cost or sequence. A single initiative, e.g., telemedicine consultation, could address multiple recommendations.

Our experience suggests that, given appropriate resources and support, healthcare and custody staff will welcome new programs that meet the needs of aging inmates. We look forward to their creativity. The current crisis of quality and cost is an opportunity for transformation.

Integrated Care Management Using a Continuum of Settings and Services

1. The CDCR should:
 - a. Develop a continuum of settings and services for aging and disabled inmates.
 - b. Develop an integrated care management system coordinated with the current chronic care, disability, and mental health programs.
 - c. Assign inmates to settings and services based on their individual needs for physical and mental health and rehabilitation.
 - d. Keep inmates at the lowest practicable level of care.
2. All inmates at reception centers should get a brief functional screen for functional impairment. Inmates age 55+ should get annual screens as well as medical checkups and preventive care. Inmates with positive screens should get nursing assessments using standardized instruments for physical and cognitive function.
 - a. The assessments should guide a clinical assignment to continued annual screening, to moderate-level care management, or to intensive care management.
 - b. The assessments should also guide a joint custody-healthcare decision regarding prison, unit, and work assignments.
 - c. Correctional officers should be encouraged to make care management referrals, and care managers should communicate with correctional officers.
3. The CDCR should expand its capacity of special needs yards and develop new assisted living units to complement its OHU, CTC, GACH, and SNF beds.
 - a. The CDCR should modify rules prohibiting oxygen, medical supplies, and catheters on GP and special needs units.
 - b. The CDCR should develop procedures for selection and training of custody staff assigned to special needs and assisted living units.
4. The CDCR should expand its inmate caregiver programs. Capable older inmates themselves should be encouraged to work as inmate caregivers with modified assignments if needed.
5. The CDCR should develop an adult day health services model of care for GP inmates.
6. The CDCR should develop at least three neurobehavioral units with neuropsychology and behavioral health competencies.
7. Older inmates should get routine referrals for cognitive assessments in the disciplinary process for rules infractions, and there should be an informal grievance process for cognitively impaired inmates.

Interdisciplinary Teams and Expertise

8. The CDCR should develop interdisciplinary expertise and capacity in geriatrics.
 - a. The CDCR should develop geriatrics education and training resources for healthcare and custody staff.

- b. Physicians and nurses on teams managing aging inmates should have access to geriatric expertise, and their practice should be guided by up-to-date policies and procedures.
 - c. The CDCR should use telemedicine to bring geriatric expertise to remote prisons.
- 9. The CDCR should develop interdisciplinary expertise and capacity in physiatry and rehabilitation, e.g., to meet the needs of inmates with traumatic brain injury and to prevent pressure sores in wheelchair-bound inmates.
- 10. Impaired inmates should have access to effective interdisciplinary teams using individualized care plans, either unit-based, e.g., in CTCs, or clinic-based, e.g., for inmates in special needs yards.
 - a. The CDCR should continue to expand the use of nurse practitioners and physician assistants.
 - b. Pharmacists should be available to do drug usage evaluations and drug regimen reviews with particular attention to medications that are potentially inappropriate for the elderly or that interact adversely with other drugs or clinical conditions.
 - c. Dietitians should be available to assist with assessments for unintended weight loss and special diets.
 - d. The CDCR should create and fill job categories for recreation therapists and certified nursing assistants (CNAs) on units serving aging and disabled inmates.
- 11. Teams serving aging and disabled inmates should have adequate equipment such as “low-low” beds, fitted wheelchairs, and working Hoyer lifts.
- 12. The CDCR should develop:
 - a. Model advance care planning programs that offer end-of-life education and choices and that account for limited health literacy.
 - b. Ethics education and consultation for healthcare and custody staff
- 13. Care managers should:
 - a. Provide healthcare education to inmates.
 - b. Facilitate peer-led education and groups.
 - c. Promote self-management of chronic illness.
 - d. Offload routine paperwork from primary care providers.
 - e. Facilitate connections to veterans organizations, aging network agencies (mandated by the Older Americans Act), and other community organizations, throughout incarceration and pre-release.

Environmental and Program Modifications

- 14. The CDCR should assure that aging and disabled inmates are in settings with appropriate:
 - a. Cell, shower, and toilet modifications
 - b. Lighting and signage
 - c. Environmental temperature control

- d. Flat and even walking terrain
 - e. Ground-level housing
15. The CDCR should assure that aging and disabled inmates have:
- a. Lower bunk assignments
 - b. Limited walking distance to dining hall, recreational space, and clinics
 - c. Sufficient time to complete activities
 - d. Access to toilets during exercise and activities
 - e. Work programs modified as needed
 - f. A retirement program
16. The CDCR should modify requirements to stand for head counts, to stand in line, e.g., for meals and medications, and to drop to ground for alarms.

Organizational Change

17. The CDCR should develop and support local and statewide nursing leadership.
18. The CDCR should recognize physicians who excel in the six core competencies established by the Accreditation Council for Graduate Medical Education.
19. Evaluation of communication skills, teamwork, and professionalism should be part of the performance evaluations of clinicians.
20. The CDCR should develop a communication infrastructure that facilitates intra- and interdisciplinary problem-solving and best practice dissemination.
21. The CDCR should develop a quality improvement infrastructure at local prisons and statewide with:
- a. Vigorous peer review
 - b. Expertise in sentinel event investigation and root cause analysis
 - c. Support for clinical teams to do data-driven, rapid-cycle improvement projects
 - d. Clinical performance and outcome measurements
22. The CDCR should:
- a. Engage with or initiate national initiatives in correctional health.
 - b. Engage California colleges and universities in research and training inside prisons.
23. The CDCR should relentlessly develop and support collaborative leadership of custody and healthcare at local prisons and statewide.
- a. The CDCR should launch a high-reliability initiative to develop a common language and implement a common practice of safety in custody and healthcare.
24. The CDCR and other California stakeholders should engage in a thoughtful pursuit of alternatives to the most costly forms of care for aging and impaired inmates.

Appendix A: Sampling and Analytic Strategy

General Analytic Strategy

We used a multi-stage stratified cluster sampling method for the survey. This type of sampling method (cluster sampling and stratification) was used for two reasons, which are explained in detail below. Use of this design requires that weights be applied to the sample to derive descriptive statistics of the California prison population. Our results are adjusted (or weighted) to describe a statistical estimation of characteristics for the entire California inmate population. Data from inmates selected by correctional officers because of a special concern for them were analyzed separately as they were not part of the random sample.

Clustering of Prisons

We first identified 12 of the 33 existing California adult prisons most likely to have the largest number of geriatric inmates. The CDCR medical leadership suggested several changes to the 12. The CDCR data management office sent us a list of all geriatric inmates aged 55 and over residing in these facilities on July 10, 2005. This list contained each inmate's CDCR number, full name, age, birth date, gender, and specific location (facility, yard, cell, and bunk number) as of this date. A discussion with the Health Care Manager of Ironwood State Prison revealed that this site had no medical long-term care inmates and only several 55+ GP inmates, so we did not visit this site. In the 11 remaining prisons (10 men's facilities, 1 women's facility), there were 3,554 inmates (3,411 men, 143 women) aged 55 and older. These 11 prison facilities are treated as clusters in the analysis of the data using special software (Stata) that takes this into account simultaneously with the sampling weights (described below). The clustering is an analytic approach that recognizes that inmates sampled from within each prison may have more in common with each other than inmates at other prisons.

Gender and Facility Stratification

We wanted the proportion of male inmates in our sample from each facility to reflect the proportion of male inmates in the total population from that facility. For example, since there were 168 men at the Corcoran facility, or about 5% in total, about 5% of our sample would be from Corcoran (see Table 9). The first sampling weight applied to each person was calculated as the inverse of the exact probability of being sampled given their gender and facility. We wanted the proportion of female inmates in our sample to be double the proportion of women on the list of 3,554 inmates at the 11 facilities. Since there were 143 women out of 3,554 inmates on the CDCR list, or about 4% women in total, our sample would contain about 8% women (all from California Correctional Women's Facility at Chowchilla).

Table 9. CDCR Population vs. Sample Population by Gender and Facility

Facility*	Population Known by CDCR†, N (%)	Lumetra Sample, N (%)
ASP (Avenal State Prison)	523 (15)	88 (14)
CCWF (Central California Women's Facility)	143 (4)	52 (8)
CIM (California Institute for Men)	178 (5)	32 (5)
CMC/CMCW (California Men's Colony)	539 (15)	96 (15)
CMF (Men)	172 (5)	50 (8)
COR (California State Prison, Corcoran)	168 (5)	32 (5)
MCSP (Mule Creek State Prison)	323 (9)	52 (8)
RJD/RJDC (RJ Donovan Correctional Facility)	248 (7)	55 (9)
SATF (Substance Abuse Treatment Facility)	565 (16)	89 (14)
SQ/SQRC (San Quentin)	323 (9)	64 (10)
SVSP (Salinas Valley State Prison)	157 (4)	32 (5)

†CDCR list of inmates 55 and older in 11 prisons as of 7/10/05

Age Stratification

Next, we identified 4 age groups of interest to us: 55-59, 60-64, 65-69, and 70+. Our goal was to randomly select inmates so that there would be an approximately equal number of inmates within each age group, so we under-sampled the youngest age group and over-sampled the two oldest age groups. For example, there were 1,852 inmates in the 55-59 age group out of the 3,554 inmates on the CDCR list, or about 52% in total, but our final sample only contained about 25% in the 55-59 age group. There were 383 inmates in the 70+ group in the total population, or about 11% in total, but our sample still contained about 25% in the 70+ group (see Table 10). Therefore, the second sampling weight applied to each person was calculated as the inverse of the probability of being sampled given their age group.

Table 10. CDCR Population vs. Sample Population by Age Group

Age Group	Population Known by CDCR†, N (%)	Lumetra Sample, N (%)
55-59	1852 (52)	161 (25)
60-64	883 (25)	157 (25)
65-69	436 (12)	162 (25)
70+	383 (11)	162 (25)

†CDCR list of inmates 55 and older in 11 prisons as of 7/10/05

We also allowed custody staff to identify additional geriatric inmates about whom they had concern. Overall, correctional officers identified an additional 55 general population geriatric inmates about whom they had concerns. Since these inmates were not part of our random sample, we conducted our main analyses excluding them.

We anticipated that we would not be able to get data from staff or charts on a portion of the inmates, so our random sample included an alternates list. As described in the text, we asked medical records staff to pull charts for our visit so that we could obtain diagnostic data. Table 11 shows the percentages of charts available.

Table 11. Percent of Medical Charts Available for Review

Facility	Chart Access, N (%)
ASP	75 (85)
CCWF	32 (62)
CIM	20 (63)
CMC/CMCW	78 (81)
CMF	37 (74)
COR	15 (47)
MCSP	40 (77)
RJD/RJDC	37 (67)
SATF	75 (84)
SQ/SQRC	14 (35)
SVSP	21 (66)

Appendix B: Survey Instrument

The following pages show the survey instrument used to gather information from nurses on inmates in medical beds.

An abbreviated instrument was used to gather information from correctional officers on inmates in the general population. The custody version did not include diagnostic questions, for example, or the question, “Would you be surprised if this inmate died within the next 12 months?” The instrument did include the questions:

- Do you feel the inmate is physically or medically unsafe in his/her current location?
- Do you feel the inmate will need to move to a higher-care location within the next year?

1 Lumetra

1.1. Date of interview	1.2 Lumetra <input type="radio"/> BW <input type="radio"/> KL <input type="radio"/> TH <input type="radio"/> GC Other:	1.3 Chart available <input type="radio"/> yes <input type="radio"/> no
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2 Patient/inmate

2.1 CDC #	2.2 Name	2.3 Selected from <input type="radio"/> LTC <input type="radio"/> Sample <input type="radio"/> Other
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2.4 Current housing assignment	<input type="radio"/> Hospital <input type="radio"/> CTC <input type="radio"/> OHU <input type="radio"/> General population <input type="radio"/> Other:
--------------------------------	--

2.5 Facility

- ☐ AVE ☐ CCW ☐ CCWRC ☐ CIM ☐ CIM-E ☐ RCC ☐ RCW ☐ CMC ☐ CMC-W ☐ CMF
☐ CSP-S ☐ COR ☐ ISP ☐ MCSP ☐ RJD ☐ RJDC ☐ SATF ☐ SQ ☐ SQ-RC ☐ SVSP

3 CDCR staff interviewed

3.1 Staff Name(s)	<input type="radio"/> RN	<input type="radio"/> LVN	<input type="radio"/> MD	<input type="radio"/> Other:
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3.2 How well do you know the inmate? ☐ Very well ☐ A little ☐ Not at all

3.3 Last time you assessed the inmate? ☐ Within a week ☐ Within a month ☐ Within 6 months ☐ Over 6 months ☐ Never

4.1 Current diagnoses

Endocrine/metabolic/nutritional <input type="radio"/> Diabetes mellitus <input type="radio"/> Nutritional disorder <input type="radio"/> Thyroid disorder Heart/circulation <input type="radio"/> Arteriosclerotic heart disease <input type="radio"/> Cardiac dysrhythmias <input type="radio"/> Congestive heart failure <input type="radio"/> Hypertension <input type="radio"/> Hypotension <input type="radio"/> Peripheral vascular disease <input type="radio"/> Other cardiovascular disease Infection <input type="radio"/> Pneumonia <input type="radio"/> Sexually transmitted diseases <input type="radio"/> Tuberculosis <input type="radio"/> Urinary tract infection <input type="radio"/> Viral hepatitis <input type="radio"/> Wound infection	Musculoskeletal <input type="radio"/> Arthritis <input type="radio"/> Severe hip arthritis <input type="radio"/> Osteoporosis Neurological <input type="radio"/> Cerebral palsy <input type="radio"/> Cerebrovascular accident (stroke) <input type="radio"/> Dementia including Alzheimer's <input type="radio"/> Hemiplegia/hemiparesis <input type="radio"/> Multiple sclerosis <input type="radio"/> Paraplegia <input type="radio"/> Parkinson's disease <input type="radio"/> Quadriplegia <input type="radio"/> Seizure disorder <input type="radio"/> Traumatic brain injury/head trauma	Psychiatric/mood <input type="radio"/> Anxiety disorder <input type="radio"/> Depression <input type="radio"/> Manic depression (bipolar dis) <input type="radio"/> Schizophrenia Pulmonary <input type="radio"/> COPD/asthma Other <input type="radio"/> Anemia <input type="radio"/> Cancer <input type="radio"/> Renal failure <input type="radio"/> Dysphagia (difficulty swallowing) <input type="radio"/> Substance abuse <input type="radio"/> Benign prostatic hypertension (BPH)
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4.2 Other diagnoses not listed above:

5.1 Modes of locomotion (check all that apply during last 7 days)

- | | | |
|---|--|---|
| <input type="radio"/> Cane/crutch | <input type="radio"/> WC is primary mode of locomotion | <input type="radio"/> Bedfast all or most of time |
| <input type="radio"/> Walker | <input type="radio"/> Wheeled self in WC | <input type="radio"/> Lifted manually |
| <input type="radio"/> Standby assistance | <input type="radio"/> Other person wheeled WC | <input type="radio"/> Lifted mechanically |
| <input type="radio"/> Transfer aid, e.g., slide board, trapeze, cane, walker, brace | | |

	None	Recent (in past 90 days)	Remote	Don't know	Frequent
5.2 H/o falls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6 ADL support provided (indicate the most support provided over all shifts during the last 7 days)

	Independent	Supervision or limited assistance	Extensive assistance or total dependence	Activity did not occur (because)	Don't know
6.1 Bed mobility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2 Transfer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.3 Walk in room	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.4 Walk in corridor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.5 Dressing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.6 Eating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.7 Toilet use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.8 Personal hygiene	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.9 Bathing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7 Continence in last 14 days

	No incontinence	Occasional incontinence (less than daily)	Daily incontinence	Don't know
7.1 Bowel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.2 Bladder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8.1 Appliances and programs

- ☐ External (condom) catheter ☐ Pads/briefs used ☐ CPAP
☐ Indwelling catheter ☐ Enemas/irrigation ☐ Orthotic device (brace, splint, prosthesis, etc.)
☐ Intermittent catheter; by whom: _____ ☐ Ostomy present: _____

9.1 Other medical requirements

- ☐ Fingersticks at least daily ☐ Oxygen therapy ☐ Hearing aid
☐ Insulin injections ☐ Chronic pain ☐ Pressure sore/wound
☐ Dialysis ☐ Contractures ☐ Other:
☐ Suctioning ☐ Physical restraint(s)—not including siderails

10 Cognitive patterns

10.1 Short-term memory— seems/appears to recall after 5 minutes	<input type="radio"/> Memory OK	<input type="radio"/> Memory problem
10.2 Long-term memory— seems/appears to recall long past	<input type="radio"/> Memory OK	<input type="radio"/> Memory problem

10.3 Memory/recall ability (check all that inmate was normally able to recall during last 7 days)

- ☐ Current season ☐ Staff names/faces ☐ None of the above was recalled
☐ Location of cell ☐ That she/he is in prison ☐ Staff does not know

	None	Mild	Moderate	Severe
10.4 Dementia or cognitive impairment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.5 Developmental disability, retardation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10.6 Cognitive skills for daily decision-making (made decisions regarding tasks of daily life)

- ☐ Independent—
decisions consistent/reasonable ☐ Modified independence—
some difficulty in new situations in new situations only ☐ Severely impaired—
never/rarely made decisions
☐ Staff does not know

Examples: Choosing items of clothing; knowing when to go to scheduled meals; using environmental cues to organize and plan (e.g., clocks, calendars, posted listings of upcoming events); in the absence of environmental cues, seeking information appropriately (i.e., not repetitively) from others in order to plan the day; using awareness of one's own strengths and limitations in regulating the day's events (e.g., asks for help when necessary); making the correct decision concerning how to get to the lunchroom; acknowledging need to use a walker, and using it faithfully.

11 Behavioral symptoms in last 7 days

	Behavior did not occur	Occurred less than daily	Occurred daily
11.1 Verbally abusive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.2 Physically abusive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.3 Socially inappropriate/disruptive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.4 Resists care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

H/o Aggression

	None	Recent (in past 90 days)	Remote	Don't know
11.5 H/o aggression to staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.6 H/o aggression to other inmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.7 H/o aggression from other inmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12 Other impairments

	None	Mild	Moderate	Severe
12.1 Vision impairment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.2 Hearing impairment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.3 Speech impairment or aphasia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13 Affect

13.1 Would you say inmate appears sad, blue, or depressed?	<input type="radio"/> No	<input type="radio"/> Yes
13.2 Would you say inmate appears anxious or nervous?	<input type="radio"/> No	<input type="radio"/> Yes

14 Language

- 14.1 Can communicate in English ☐ Yes ☐ No ☐ Non-communicative
- 14.2 Primary language ☐ English ☐ Spanish ☐ Chinese ☐ Other:

15 Severity of disease

- 15.1 Would you be surprised if this inmate died within the next 12 months? ☐ Yes ☐ No

17.1 What would help you improve his/her care?

DEFINITIONS

Bed Mobility — How the inmate moves to and from a lying position, turns side to side, and positions body while in bed.

Transfer — How the inmate moves between surfaces — i.e., to/from bed, chair, wheelchair, standing position. Exclude from this definition movement to/from bath or toilet, which is covered under Toilet Use and Bathing.

Toilet Use — How the inmate uses the toilet room, commode, bedpan, or urinal, transfers on/off toilet, cleanses, changes pad, manages ostomy or catheter, and adjusts clothes.

Personal Hygiene — How the inmate maintains personal hygiene, including combing hair, brushing teeth, showering, applying makeup, and washing/drying face, hands, and perineum. Exclude from this definition personal hygiene in baths and showers, which is covered under Bathing.

Bedfast all or most of the time — Inmate is in bed or in a recliner in own room for 22 hours or more per day. This definition also includes inmates who are primarily bedfast but have bathroom privileges. Code this item when it was true on at least 4 of the last 7 days.

Appendix C: Functional Impairments and Support

Basic and Instrumental Activities of Daily Living

Activities of daily living (ADLs) are the basic activities necessary for self-care or care by others. Most federal survey instruments^a include six ADLs: bathing, eating, dressing, toileting, transferring in/out of bed or chairs, and walking. The Minimum Data Set (MDS) includes nine items: bathing, eating, dressing, toileting, transferring, bed mobility, walk in room, walk in corridor, and personal hygiene. Researchers sometimes report on five ADLs as a group (bathing, eating, dressing, toileting, transferring) and report on walking/mobility separately. We chose this approach in our report.

Researchers variably score ADLs as dependent (vs. independent) if the person has difficulty with the activity, requires supervision, or requires assistance from another. Some score three levels: independent, difficult, and dependent. The MDS scores five levels: independent, supervision, limited assistance, extensive assistance, and total dependence. We used the MDS terms but combined them into three levels: independent, supervision/limited assistance, extensive assistance/total dependence. We described inmates as impaired in an ADL if they required supervision; in correctional settings, supervision usually requires presence of paid staff.

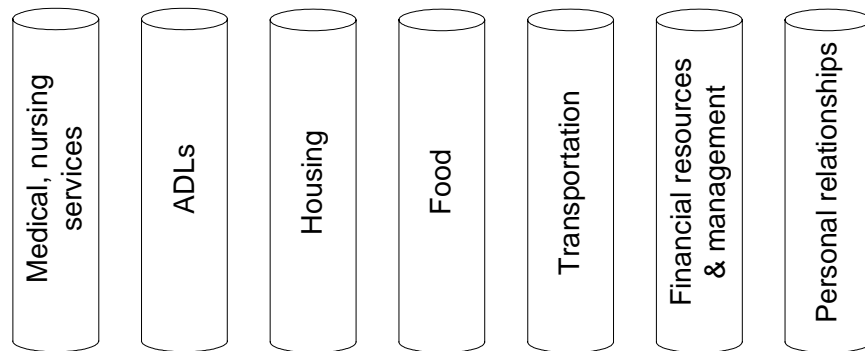
Instrumental activities of daily living (IADLs) are more challenging, higher-level activities necessary for living in the community, such as shopping, housework, accounting/finances, food preparation, and transportation.

Prison-specific functional activities, or “prison activities of daily living” (PADLs) include dropping to the floor for alarms, standing for head count, climbing on and off the top bunk, getting to the dining hall for meals and hearing orders from staff. Impairment in these activities is much more common than impairment in basic ADLs.¹⁶¹

Full-fledged functional assessment considers needs and resources in multiple domains that often overlap and interact (see Figure 12). These domains include medical and nursing services, ADLs, IADLs, housing, food, transportation, finances, emotions, behavior, personal relationships, and work. For individuals with functional impairment, personal safety issues often arise in many of these domains. In the prison setting, staff manage most instrumental ADLs for inmates, including housing, shopping, and transportation. Inmates have limited ability to do self-care for minor injuries or for chronic illness.

^a National Health Interview Survey, Medicare Current Beneficiary Survey, National Long Term Care Survey, National Nursing Home Survey, described at www.agingstats.gov/chartbook2000/datasources.html.

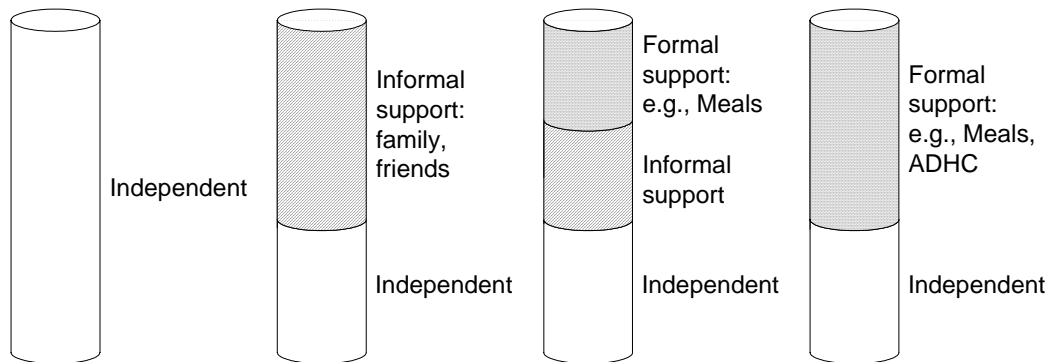
Figure 12. Examples of Functional Assessment Domains



Informal and Formal Support in the Free World and Prison

Informal support refers to unpaid services such as family, friends, and neighbors. Formal support refers to services received through an agency that is reimbursed. Figure 13 shows four free-world examples. The assessment process could reveal that a person is independent in ADLs. Another might be only partially independent but get adequate informal caregiving support from family and friends. Another, also partially independent, could get ADL needs met with a combination of informal support and formal support services such as Meals on Wheels and In-Home Supportive Services (IHSS). Another may have no informal caregivers but could live independently with formal supports such as Meals on Wheels, IHSS, and adult day health care (ADHC).

Figure 13. Combinations of Informal and Formal Support



In prison, the support required to compensate for loss of independence can come from three sources:

- Informal support from other inmates
- Formal support from other inmates, who have caregiving as their work assignment or who operate a meals delivery program
- Formal support from healthcare or custody staff

Correctional officers can find themselves in caregiver-like roles even with inmates who are not impaired simply because the prison has taken charge of many instrumental ADLs for inmates. For inmates who do have physical or cognitive impairments, correctional officers often provide more basic support, such as assisting inmates with wheelchairs or reminding them what to do. Because they are paid staff, this support is considered formal rather than informal. And yet the correctional

officers are not trained as caregivers and generally do not think of themselves as such. The support they offer to impaired inmates in the general population is more similar to informal support than formal support from paid agencies.

In community settings, the majority of support received by impaired individuals is from family and friends. In prison, the majority of support received by impaired individuals in the general population is from other inmates and correctional officers.

Appendix D: Relationship-Centered Care and Restorative Justice

In the course of our work in corrections, we have struggled with limited success to apply the IOM's concept that healthcare should be patient-centered, that the patient should be in control.¹⁶² *Relationship-centered care* has emerged as an alternative model to patient-centered care, one particularly apropos in correctional settings. Here we will introduce several pertinent dimensions of the relationship-centered care framework.

Restorative justice is an emerging model for practice in corrections. We must leave to others with appropriate expertise the evaluation of this and other practice models.¹⁶³ We discuss it here primarily to offer an example of the effort that healthcare and custody can make toward speaking a common language and developing common programs.

Most physicians and nurses in practice today trained with some awareness of the biopsychosocial model, a conceptual framework for organizing assessments and interventions and for documenting one's work. Efforts to redesign healthcare have increasingly focused on patient-centered care, an organizing principle related to the biopsychosocial model. The IOM states that the six aims of healthcare are to be safe, effective, patient-centered, timely, efficient, and equitable.¹⁶⁴

Although correctional chronic care advocates have emphasized the value of teaching self-management to inmates, patient-centered care stresses patient control in ways that strain one's thinking in correctional settings. After all, inmates are in prison often because their practice of self-control—or lack thereof—has violated the community. Patient-centered care emphasizes autonomy, but “the concept of autonomy in prison is, in general, oxymoronic.”¹⁶⁵

In the last decade, a model of relationship-centered care has developed that may prove more useful than the patient-centered model. It is certainly more compatible with correctional settings. Relationship-centered care acknowledges that the actions of the patient occur in the context of relationships with clinicians, family members, and community. It acknowledges reciprocity, responsibility, and power gradients. Its core principles include the following:¹⁶⁶

1. *Relationships in health care ought to include dimensions of personhood as well as roles.*
2. *Affect and emotion are important components of relationships in health care.*
3. *All health care relationships occur in the context of reciprocal influence.*
4. *Relationship-centered care has a moral foundation.*

Relationship-centered care has emerged in part from the rich empirical literature on chronic disease management. The physician-patient relationship has significant impact on diabetes management and outcomes, for instance.

Relationship-centered care focuses our gaze not only on the patient but also on relationships among healthcare staff.¹⁶⁷ The principles used to engage diabetics in self-care are similar to the principles needed to engage clinicians in change initiatives to improve systems of care. Relationship-centered care also acknowledges that we all live and work in relationship to each other. Within organizations, our responsibility to the mission entails responsibilities to each other. We should be able to hold each other accountable for carrying out our duties.

The framework is compatible with the theory and practice of restorative justice, a paradigm holding that “crime is a violation of people and relationships rather than merely a violation of law.”¹⁶⁸ Although most of the evidence for restorative justice and civic service practice comes from work with

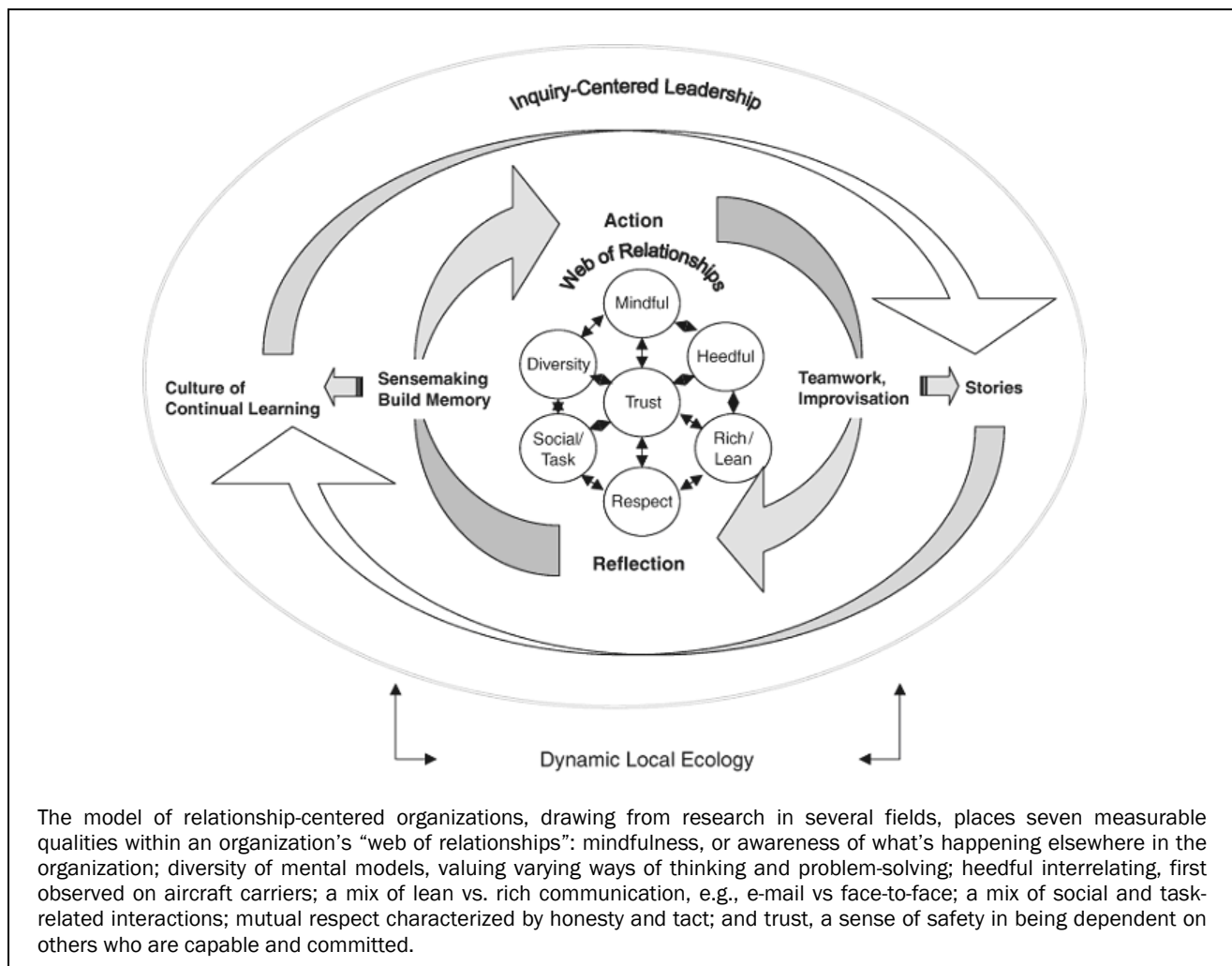
younger inmates, the life course perspective implicit in this work is particularly helpful in working with older inmates¹⁶⁹. Both relationship-centered care and restorative justice facilitate staff members' ability to make sense of their work. Whereas relationship-centered care offers a "values foundation" for the health professions, restorative justice offers a values foundation for corrections and social work. It imagines a just public order.¹⁷⁰

Seasoned professionals often describe their work with inmates in ways that are compatible with relationship-centered care. The CDCR mental health professionals in particular can draw from their greater experience in team care for chronic conditions and their experience in therapeutic communities focused on pro-social programming for patients. The relationship-centered framework formulates what many healthcare and custody staff members—and indeed, many inmates—already understand. The survey of older inmates by CMF peer counselors found that "People expressed a real desire to be useful to those around them."¹⁷¹ Inmate caregiver jobs offer multiple benefits to the caregiver, the care receiver, and the institution.

Relationship-centered care need not imply naiveté about the impact of personality disorder, mental illness, and dementia in this population. But inmates who rehabilitate do so in the context of relationships. "Prisoners are, by and large, damaged people who damage other people in turn. To change them, we must offer caring relationships; only caring relationships can serve as an emotional bridge back to civil society, where relationships are the central feature of life."¹⁷²

The principles of relationship-centered care can encompass the organization as a whole and complement high-reliability as a bridge between custody and healthcare (see Figure 14). Both high-reliability safety principles and relationship-centered care focus on the quality of communication. Communication failures are responsible for 60% of the sentinel events that cause harm in hospitals.¹⁷³ There is evidence that patient outcomes depend on the degree of "relational coordination" among care teams, including shared goals, shared knowledge, mutual respect, problem-solving, and conflict management.¹⁷⁴ The CDCR leadership program, based on the work of Kouzes and Posner¹⁷⁵ and initiated in 2005, is compatible with these models.

Figure 14. Relationship-Centered Organizational Model



Relationship-centered care also calls attention to ties with the outside community. Inmates' isolation from their communities is mirrored in the experience of CDCR clinicians, who suffer isolation from their professional communities and training centers. Connecting inmates with community agencies is primarily the province of social workers and correctional counselors during pre-release planning. But community agencies can also provide concrete assistance to long-stay inmates, including older, impaired inmates, and to the staff providing care.

It is helpful to remember that inmates come disproportionately from the urban poor, who carry a disproportionate burden of illness. The best proxy measures of older inmates' health status are from free-world older urban males with yearly incomes below \$15,000 who have not completed high school¹⁷⁶. One study of older inmates found that most had never been seen by a physician as a child, and a great many had never been seen by a physician as an adult.¹⁷⁷ Prisons function as a kind of public health system for the poor, albeit without adequate resources to carry out this public health mission.¹⁷⁸ Given the weight of this healthcare burden, it is reasonable to ask community public and private organizations to assist. In England the provision of social services for inmates remains an obligation of community social service agencies.¹⁷⁹

Community organizations are in fact often eager to help. Correctional leaders have reported valuable assistance from faith communities. Veterans organizations and advocates have expressed interest in developing relationships with prisons.¹⁸⁰ Although we were not able to determine how many aging CDCR inmates are veterans, 65% of older men in the United States are veterans.¹⁸¹ Many CDCR inmates are veterans who could benefit from relationships with veterans organizations, not only pre-release but throughout their incarceration. Having veterans status readily available in the CDCR care coordination system is a precondition to connecting inmates with veterans organizations.

Throughout this report we have emphasized the need for better working relationships between healthcare and custody and among healthcare staff. We have noted as well the value of restoring—or creating anew—inmates' relationships to their families and communities and to other inmates. We encourage the CDCR custody and healthcare leadership to engage these issues with dialogue and action.

Appendix D: Lumetra Team Members

Terry Hill, M.D., a geriatrician, is Senior Medical Director for Quality Improvement at Lumetra, the Medicare Quality Improvement Organization for California. Before joining Lumetra he was medical director of Laguna Honda Hospital. Dr. Hill is on the core faculty of the Stanford Geriatric Education Center and is an Assistant Clinical Professor in the Department of Medicine, UC San Francisco. He is co-chair of the California Coalition for Compassionate Care. He is past-president of the California Association of Long Term Care Medicine and serves on the ethics committee of the American Medical Directors Association. Dr. Hill was in private practice in Oakland from 1994-1999. He has led program development for hospitals and managed care organizations, and he has been medical director of retirement communities, nursing facilities, adult day health centers, and a hospitalist program.

Brie Williams, MD, MSc, is an internist and a geriatrician. She is currently a fellow in aging research at the University of California, San Francisco, funded by the National Institutes of Health. Before becoming a geriatrician, Dr. Williams was a faculty member in general internal medicine at UCSF and was a primary care provider. Dr. Williams also has extensive research training. In 1999, she completed a Masters of Science in Community Medicine with a focus in end-of-life care and geriatrics at Mount Sinai and the City University of New York. She has won awards for her research in medical school, residency and fellowship. Currently she serves as a faculty preceptor in the San Francisco Veterans Administration (SFVA) geriatrics clinic and as a physician reviewer at Lumetra. In addition, she works part-time as an emergency department physician at the SFVA emergency room.

Gail Cobe, MSN, RN, CNS, earned her BSN and MSN from the University of Pennsylvania, specializing in the care of the chronically mentally disabled. She has held many leadership positions in geriatric settings and in education. She served as project site director for the Community College-Nursing Home Partnership at Ohlone College, 1986-1993. She is now clinical nurse specialist for the dementia program, Laguna Honda Hospital in San Francisco. She also serves as Affiliated Core Faculty for the Stanford Geriatric Education Center.

Karla Lindquist, MS, has been a Senior Statistician at the University of California, San Francisco (UCSF) in the Division of Geriatrics since 2001. She completed her Masters degree in Biostatistics at the University of California, Los Angeles in 2001. In her position at UCSF she has gained extensive experience working with researchers studying the medical and sociological aspects of the aging process. In addition to her experience and training in survey research methods and data analysis techniques, she is proficient in multiple statistical programming languages and database design.

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