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David B. Reuben

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# Medical Care for the Final Years of Life

## "When You're 83, It's Not Going to Be 20 Years"

David B. Reuben, MD

### The Patient's Story

Mr Z is an 83-year-old man with gout, osteoarthritis, and a deteriorating gait who has fallen several times in the past year. He is the primary caregiver for his wife of 62 years, who was diagnosed with Alzheimer disease 4 years ago. A retired businessman, Mr Z continues to serve on several corporate and charitable boards of directors. Over the past few years he states that he has been "slowing down" and notes that his "gait is off." He has fallen twice outside his home. Ten months ago, he tripped outside and broke 2 ribs. One month ago, he fell again when he "missed a step" in a restaurant and "tore ligaments" in his left knee. After the second injury, Mr Z used a wheelchair for a few weeks but now walks with a quad cane. He works with a physical therapist to improve his gait and endurance.

Current medications are allopurinol, for gout; potassium, for long-standing hypokalemia; and occasional acetaminophen with codeine, for knee pain. He has not accepted recommendations to take calcium or vitamin D supplements because he fears a recurrence of calcium oxalate kidney stones.

Mr Z reports that he drinks 1 glass of wine with dinner but did not drink alcohol immediately before he fell. He lives in a ground-floor condominium with a 15-step interior staircase (with a hand rail) from the garage 1 floor below. He continues to drive an automobile.

Mr Z cares for his wife who has moderate Alzheimer disease but remains independent in her activities of daily living (ADLs) and has no psychological or behavioral complications; Mr Z performs all of her instrumental activities of daily living (IADLs) including cooking, transportation, and finances. He says he is managing fine and declines additional help because his wife does not like other people in their home. Mrs Z fired several of the home health aides whom Mr Z had hired and refuses to move into a setting with more assistance, a wish Mr Z has acceded to.

Mr Z denies symptoms of depression or memory loss and says he has a great deal of support from his friends and 2 children who live nearby. He also attends an Alzheimer disease

The case of an 83-year-old man who has had a fall-related injury and continues to be the sole caregiver for his wife who has dementia exemplifies a common situation that clinicians face—planning for the final years of an elderly individual's life. To appropriately focus on the patient's most pressing issues, the approach should begin with an assessment of life expectancy and incorporation of evidence-based care whenever possible. Short-term issues are focused on efforts to restore the patient to his previous state of health. Mid-range issues address providing preventive care, identifying geriatric syndromes, and helping him cope with the psychosocial needs of being a caregiver. Long-term issues relate to planning for his eventual decline and meeting his goals for the end of life. Unfortunately, the workload and inefficiencies of primary care practice present barriers to providing optimal care for older patients. Systematic approaches, including team care, are needed to adequately manage chronic diseases and coordinate care.

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support group. He knows that his wife's condition will worsen but he has not yet brought himself to formulate specific future plans. He is currently considering respite options.

Mr Z receives care in several medical settings from primary care and specialty physicians. He received a screening colonoscopy 2 years ago and a vaccine for influenza this season, a herpes zoster vaccine 3 months ago, and a pneumococcal vaccine 10 years ago. Mr Z underwent an eye examination 6 months ago; no visual risk factors for falling were identified.

Mr Z's sitting blood pressure reading was 125/60 mm Hg, with a pulse rate of 78/min; and when standing the blood pressure reading was 133/60 mm Hg, with a pulse rate of 80/min. Lung and cardiac examinations showed normal results. There was full range of motion in both hips (flexion,

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See also pp 2701 and 2703 and Patient Page.



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adduction, and abduction). His right knee was swollen but not painful and there was no erythema. He was able to stand from a chair without using his arms. Sensation in both lower extremities was intact to light touch. There was no cogwheel rigidity, tremor, or shuffling gait. Mental status was alert; he was oriented to time, place, and person and was quite articulate.

Urinalysis, complete blood cell count, and serum chemistries (including uric acid, thyrotropin, and lipid panel) were within normal range.

Recent physical therapy evaluation showed a normal standing balance for his age as assessed by computerized posturography. The leg lengths differed—right leg length (32.25 inches) and left leg length (33.25 inches), which was corrected by modifying his right shoe with a heel lift. The physical therapy evaluation also included assessments of falls risk, muscle strength, flexibility, and functional mobility. On the Performance-Oriented Mobility Assessment (Tinetti Scale),<sup>1</sup> he scored 24 out of 25 for balance—the only deficit was an inability to perform 1-legged stance; he scored 7/12 for gait, with deficits on step length (right foot not passing left foot), truncal stability (marked sway noted), and walk stance (widened base of support). His total score was 31 out of 37 with moderate fall risk (range, 26-31). On a 5-point scale for lower extremity muscle testing, his strength for hip abduction was 4 plus on the right and 3 plus on the left; for hip adduction, 4 plus on the right and 3 plus on the left; for both knee flexors, 4 plus; for both knee extensors, 4 plus; and all other muscles were 5 plus. In tests of mobility, Mr Z was fully independent with gait, transfers, and bed mobility.

Mr Z and his geriatrician, Dr B, were interviewed by a Care of the Aging Patient editor in December 2008.

### PUTTING MR Z'S HEALTH ISSUES INTO PERSPECTIVE

Mr Z: *I guess over the last few years, I never gave much thought to what would happen to me. . . . But I see that when you're 83, it's not going to be 20 years. . . . There's going to be a time, sometime down the road, when I can't make the decisions.*

Dr B: *Mr Z is by far one of my healthiest patients in that he doesn't have any cognitive impairment. His biggest issues are his gait and his mobility. Over the year and a half that I've seen him, he's had a couple of big falls. [I]t took him a while to rebound and his gait never fully recovered. There have been incremental steps of decline.*

Although Mr Z's problems seem minor and self-limited, he has embarked on the journey that will represent the final chapter of his life. His physician's role is to ascertain Mr Z's personal trajectory on that pathway, clarify his goals, and together develop a plan to monitor and achieve those goals, periodically reassessing as he ages.

#### Treatment Caveats to Consider

To help Mr Z remain independent for as long as possible, recommended care should be based on evidence whenever

possible. For individuals of Mr Z's age and older, however, a conventional evidence-based approach is modified by 3 important caveats.

**Prognosis.** For some patients, comorbidities can worsen prognosis such that screening tests and treatments of demonstrated effectiveness for healthier older persons of the same age would not be beneficial within the expected survival period.

**Insufficient Evidence.** The evidence base guiding the management of many conditions affecting older persons is insufficient, especially for those aged 80 years or older. Older individuals and those with comorbidities are often excluded from clinical trials, and some conditions are difficult to study or have not received priority for research. Consequently, treatment recommendations often must extrapolate beyond the evidence base.

**Patient Goals and Preferences.** Patients' goals may relate to a functional or health state (eg, being able to walk independently), symptom control (eg, control of pain or dyspnea), living situation (eg, remaining in one's home), or survival (eg, living long enough to reach a personal milestone such as a family member's wedding). Sometimes patient and physician goals may differ. For example, a patient may seek a cure when the physician believes that only symptom management is possible. In other cases, the physician may believe that a better outcome is possible but the patient declines to pursue the recommended path (eg, physical therapy to regain mobility). In addition, patient preferences for specific treatments may lead to care that is not the best evidence-based option (eg, using pads to manage urinary incontinence although effective behavioral and pharmacologic therapy is available).

Eventually, however, Mr Z's physician will need to manage his inevitable decline and his care will be guided by Mr Z's personalized goals. In this phase, the evidence for many decisions may not fit the individual patient's specific clinical situation or unique cluster of medical and social issues. Hence, the physician must rely on experience, knowledge, and clinical judgment. This combination of the science, wisdom, and skill of medicine is the key to providing the best care for older patients in their final years of life.

This article presents a framework for how clinicians can use prognosis to tailor their approach to caring for elderly patients. By addressing the types of issues Mr Z will face over time, beginning with his current problem—a fall-related injury—an approach to his goals and treatment for the next 5 years and for the longer term will be presented. The final section of this article focuses on practice changes that clinicians can make to manage these issues efficiently and comprehensively for aging patients.

### METHODS

For specific disease management issues (eg, fall prevention) and clinical questions (eg, the value of vitamin and mineral supplements), relevant key terms with limits of *human, English language, aged 80 years and older*, and when appropriate, *clini-*

cal trials were used to search MEDLINE via PubMed for evidence. For consideration for inclusion in the compilation of questions and screening assessments of older patients in declining health (TABLE 1), MEDLINE search terms *geriatric screening instruments* and *geriatric assessment instruments* with the same limits were used; disease-specific instruments (eg, for patients with cancer or stroke) and those in specific settings (eg, hospital, nursing home, emergency department) other than the office were excluded. For most dimensions of geriatric assessment, many instruments are available and candidates were selected based on brevity, psychometric characteristics, and ease of use. Priority for final inclusion was given to instruments that could be administered via questionnaire or by office staff rather than requiring a clinician. For each domain, 1 or

2 instruments were selected as examples of currently used screening instruments.

Finally, the Centers for Disease Control and Prevention,<sup>7,11,12</sup> the US Preventive Services Task Force,<sup>13,14</sup> and the National Center for Health Statistics<sup>15</sup> Web sites were searched to provide evidence-based recommendations and other data.

## ASSESSING PROGNOSIS AND LIFE EXPECTANCY

Dr B: *I always start by asking, "How are you doing?" I'll also ask if there is anything that he wants to talk about. I let the patient set the agenda. Then I'll review the big issues about his gait, how many falls, what happened. I'll assess his gait. Then I'll focus on his caregiver strain, his mood, ask about depression, how are things going with his wife . . .*

**Table 1.** Questions and Simple Tests for General Screening Assessment of Frail Older Patients<sup>a</sup>

	Question	Answer or Indicator	Alternative
Functional status Activities of daily living (ADLs)	Bathing, dressing, toileting, transferring, maintaining continence, feeding	Able to complete without assistance; able but with difficulty; unable to complete without assistance	
Instrumental activities of daily living (IADLs)	Using the telephone, shopping, preparing meals, housekeeping, doing laundry, using public transportation or driving, taking medication, handling finances	Able to complete without assistance; unable to complete without assistance	
Visual impairment	Do you have difficulty driving, watching television, reading, or doing any of your daily activities because of your eyesight, even while wearing glasses? <sup>2</sup>	Yes indicates positive screen	Snellen eye chart
Hearing impairment <sup>b</sup>	Is your age older than 70 years? Are you of male gender? Do you have 12 or fewer years of education? Did you ever see a doctor about trouble hearing? Without a hearing aid, can you usually hear and understand what a person says without seeing his face if that person whispers to you from across the room? Without a hearing aid, can you usually hear and understand what a person says without seeing his face if that person talks in a normal voice to you from across the room?	1 Point 1 Point 1 Point 2 Points If no, 1 point  If no, 2 points  ≥3 Points, positive screen	Alternative is Audioscope <sup>3</sup>
Urinary incontinence <sup>c</sup>	Have you had urinary incontinence (lose your urine) that is bothersome enough that you would like to know how it could be treated?	Yes indicates positive screen	
Malnutrition	Have you lost any weight in the last year? <sup>4</sup>	Loss of at least 5% of usual body weight in last year indicates positive screen <sup>4</sup>	
Gait, balance, falls <sup>c</sup>	Have you fallen 2 or more times in the past 12 months? Have you fallen and hurt yourself since your last doctor's visit? Have you been afraid of falling because of balance or walking problems?	Any yes response indicates positive screen	
Depression <sup>d</sup>	Over the past 2 weeks, how often have you been bothered by: Little interest or pleasure in doing things? Feeling down, depressed, or hopeless?	Response score for each: 0, Not at all 1, Several days 2, More than half the days 3, Nearly every day Total ≥3, positive screen	
Cognitive problems	3-Item recall <sup>5</sup>  Clock drawing test <sup>6</sup>	<2 Items recalled indicates positive screen <sup>5</sup> Any of the following errors indicate positive screen: wrong time, no hands, missing numbers, number substitutions, repetition, refusal <sup>6</sup>	
Environmental problems	Home safety checklists <sup>7</sup>		

<sup>a</sup>All except the Snellen eye chart, Audioscope, and evaluation for cognitive problems can be assessed by self-report using questionnaire.

<sup>b</sup>Questions and response indicators are from the National Health and Nutrition Examination Survey (NHANES) battery.<sup>9</sup>

<sup>c</sup>Questions and response indicators are from the ACOVE-2 Screener.<sup>9</sup>

<sup>d</sup>Questions and response indicators are from the Patient Health Questionnaire-2.<sup>10</sup>

Medical visits should begin with an assessment of the patient's agenda and issues, including immediate concerns and threats to quality of life. However, to appropriately focus the limited time available, the clinician must establish priorities, determined in part by prognosis.

To understand Mr Z's health trajectory, the clinician can draw on both clinical experience and epidemiologic data on life expectancy and prognosis (TABLE 2). Life tables enable one to estimate remaining life by age, sex, and race. The median survival for 83-year-old white men in the United States is 6.2 years<sup>16</sup> to 6.9 years,<sup>15</sup> which provides an initial estimate of Mr Z's life expectancy. However, life tables do not consider clinical characteristics or functional status that can lead to wide variations in survival. For example, an 85-year-old man has a 75% chance of surviving 2 years and a 25% chance of living 9 years,<sup>16</sup> with the variability being largely dependent on comorbid conditions and functional status. Although the actual survival of individual patients may deviate substantially from predicted survival, estimates of prognosis may guide thinking about disease prevention and other long-term strategies and frame treatment discussions.

To identify high-priority issues, the clinician might first draw upon clinical experience to categorize Mr Z's current and future issues into 3 time periods: short-term (within the next year), midrange (within the next 5 years), and long-term (beyond 5 years). The longer the range of projections, the less can be said with certainty about his future health and social needs. The FIGURE demonstrates how events and diseases could alter Mr Z's trajectory of function and survival from gradual decline (trajectory A) to more rapid or precipitous decline and death. For example, Mr Z could fall and fracture his hip (trajectory C) or develop Alzheimer disease (trajectory B). Although meeting Mr Z's health care needs will require continual reevaluation of goals, this framework allows the clinician to focus on the more immediate issues while keeping the long-term issues in mind. TABLE 3 presents the anticipated treatment and monitoring tasks over the next 5 years and beyond based on Mr Z's current health status.

### Short-Term Issues (Present Day Through 1 Year)

Dr B: After I call for a patient from the waiting room, as we walk down the hall, I'm really looking at how the patient is walking and if they look unsteady. . . . I'm pretty direct. I told Mr Z that he wasn't walking as well as the previous time that I'd seen him. He agreed right away . . . We talked about the risk of falling and some of the bad things that could happen. He agreed that he definitely wanted physical therapy.

The most pressing issues for Mr Z are rehabilitation from his recent injury and reduction of the risks of falling in the future and of harm if he does fall. Most of the recommended evidence-based falls evaluation<sup>17,18</sup> has already been performed. Specifically, the circumstances surrounding Mr Z's falls have been assessed and Dr B has evaluated potentially contributing medications, postural hypotension, vision, gait, and balance. Mr Z has been referred to physical

therapy and was given an assistive device and an exercise prescription, which he is following. The physical therapist should communicate with the clinician about his progress and the need for continued therapy vs transition to a community-based falls prevention or exercise program.

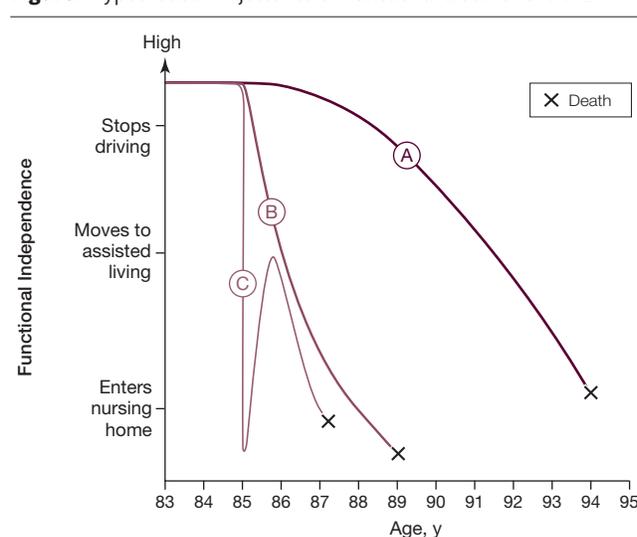
Many patients who have multiple falls are homebound and therefore are eligible through Medicare's home health benefit, for a more comprehensive home safety evaluation by a rehabilitation therapist or nurse. This evaluation often leads to modifications (eg, installation of grab bars, railings, lighting) that may help prevent future falls. In a randomized clinical trial of a home intervention team for older persons with mobility limitations who had recently been hospitalized, participants in the intervention group had 31% fewer falls at 1 year compared with the control group.<sup>19</sup> A recent Cochrane

**Table 2.** Life Expectancy for Older Persons by Age, Race, and Sex<sup>a</sup>

Age, y	White		Black	
	Men	Women	Men	Women
65	17.2	20.0	15.2	18.6
70	13.7	16.2	12.4	15.3
75	10.7	12.8	9.9	12.2
80	8.1	9.7	8.0	9.6
85	6.0	7.1	6.3	7.5
90	4.3	5.1	4.9	5.7
95	3.1	3.6	3.8	4.3
100	2.2	2.5	2.9	3.2

<sup>a</sup>Data adapted from National Vital Statistics Reports.<sup>15</sup>

**Figure.** Hypothetical Trajectories of Functional Decline for Mr Z



Possible future functional and health status trajectories for Mr Z. Trajectory A assumes good health and gradual functional decline with Mr Z living twice the median survival of 85-year-old US men. Trajectory B assumes that he develops a chronic degenerative disease (eg, Alzheimer disease, Parkinson disease) and experiences steady functional decline with a period of prolonged functional dependency and the expected length of survival. Trajectory C assumes a sudden catastrophic event (eg, hip fracture, stroke) with some functional improvement but without return to baseline and a shorter than expected life.

review found that home assessment and modifications can reduce falls by 41% among individuals with visual impairment and by 44% among those at high risk for falling (prior falls or 1 or more risk factors), but there was no effect for those at low risk.<sup>20</sup>

Based on 2 meta-analyses, vitamin D supplementation can reduce falls<sup>21</sup> by 22% and hip and nonvertebral fractures<sup>22</sup> by 20% and 18%, respectively. Thus, Mr Z's physician should prescribe 800 IU of vitamin D.<sup>23</sup> A bone mineral density study<sup>24</sup> should be obtained and the results used to reopen the discussion about calcium supplementation and, if he has osteopenia or osteoporosis, bisphosphonate therapy. Both observational and clinical trial data suggest that calcium supplementation does not increase the risk of nephrolithiasis<sup>25</sup> and a low-calcium diet may increase the risk of recurrent kidney stones.<sup>26</sup>

During this period of rehabilitation, Mr Z should be seen every 1 to 2 months to monitor progress, revise his treat-

ment plan if necessary, and to provide encouragement. In addition, Mr Z's functional status should be explored (Table 1). Although he is independent in completing basic ADLs and IADLs, inquiring about difficulty with ADLs may provide additional prognostic information.<sup>27</sup> In addition, performance-based testing of gait speed; side-by-side, semi-tandem, and tandem stance balance; and standing from sitting in a chair may provide prognostic information beyond the patient's self-reported functioning.<sup>28</sup>

Other geriatric aspects of health should also be assessed. Table 1 provides a list of domains and screening questions that are appropriate for all elderly patients who are not terminally ill. The questions can be self- or medical assistant-administered. Positive screens need further evaluation by either the primary care physician or another clinician.<sup>29</sup> The frequency of these assessments and the age when they should begin has not been determined. One approach would be to administer these assessments annually beginning at age 75 years, when impairments become more common, and in persons younger than 75 years who have multiple comorbidities. Major illnesses (eg, those requiring hospitalization) should prompt reevaluation sooner and more frequently than annually, particularly of ADLs and IADLs; gait, balance, and falls; depression; and cognitive problems.

### Midrange Issues (1-5 Years)

Mr Z: *About 4 years ago, my wife started having her first episodes of Alzheimer disease. It's changed some things in our house considerably. [O]ne of the worst things that happened was that they had to take the car away from her. She was upset about losing her independence. Now, I have become a caretaker . . . I have gone to see the Family Caregiver Alliance.*

Dr B: *I asked him what was involved in his caregiving for his wife . . . was he doing her activities of daily living? . . . I'm trying to understand how much of a problem it is and where we can help.*

The next set of issues to address with Mr Z are the midrange issues that will require planning and, in some cases, preventive steps. Such issues would be pertinent for adults with at least a 3- to 5-year life expectancy. With the short-term interventions, Mr Z should be expected to return to his baseline mobility status. If he does not develop new symptoms or signs, the frequency of Mr Z's primary care visits could be increased to intervals of 3 to 6 months. At each of his follow-up visits, Mr Z should be asked whether he has fallen or has fear of falling; an affirmative response would warrant reassessment of what has changed and whether new treatment is indicated. For example, worsened balance may require additional physical therapy.

At these visits, Dr B should inquire about Mr Z's functional status, his wife's health, and his ability to cope with her illness. Because Mr Z will be the primary decision maker about where he and his wife live, this will be a topic for ongoing discussion. Currently he is able to accommodate her desire to remain in their home but changes in either of their conditions may prompt reevaluation. It is likely that her needs

**Table 3.** Treatment and Monitoring of Mr Z

Assessment/Treatment	Time Frame	Administrator/Method
Short-term (within 1 y) issues		
Physical therapy	Now	Physical therapist
Home safety inspection	Now	Home health
Vitamin D replacement	Now	Clinician
Bone mineral density and bisphosphonates if osteoporosis	Now	Clinician
Assessment of function, falls, and fear of falling	Now and every visit	Self-report (Table 1)
Influenza vaccination	Yearly	Office staff or community
Midrange (1-5 y) issues		
Community-based fall prevention program	In 3-6 mo depending on physical therapy progress	Clinician provides list of nearby programs
Assessment of caregiver burden	Now and every visit	Clinician asks; may need social worker
Blood pressure screening	Every visit	Office staff
Vision testing	Yearly	Office staff or optometry
Weight	Every visit	Office staff
Height	Yearly	Office staff
Hearing impairment screening	Yearly	Self-report or office staff (Table 1)
Depression screening	Yearly	Self-report (Table 1)
Lipid screening	Every 5 y	Clinician
Long-term (>5 y) issues		
Assessment of living situation	Yearly or more often if clinical situation changes	Clinician or social worker
POLST form	Now and updated as clinical situation changes	Previsit questionnaire and clinician

Abbreviation: POLST, physician orders for life-sustaining treatment.

eventually will exceed his capacity and additional help in the home or relocation will be necessary. Sometimes patients with dementia become less resistant to having help in the home as the dementia progresses.

Based on Mr Z's evolving situation, the clinician may need to further assess for depression, recommend additional supportive services, or refer his case to a psychiatrist or social worker. Referrals to community-based organizations (eg, the Alzheimer's Association) can augment the quality of dementia care that the general internist or family physician can provide, particularly by providing caregiver counseling.<sup>30</sup> Discussions might also explore the amount and types of support that their children can provide and the role of other community-based resources such as adult day care centers that can provide some respite time for Mr Z (typically private pay but some have sliding scale fees based on income). At some point, Mr Z may also benefit from seeing a social worker, a financial planner, or an attorney who is experienced with eldercare issues. Legal issues, such as power of attorney and signatory authority, may need to be addressed. Although social work and case management services are available in the community, these services are generally not covered by fee-for-service Medicare and must be paid for out of pocket except for individuals insured by Medicaid or managed care programs.

It is likely that Mr Z will outlive his wife and he will need to prepare for life as a widower. The clinician can be exceptionally valuable in helping patients like Mr Z go through the grieving process and adjust to the next phase of their lives by inquiring about personal interests, goals, values, and physical, environmental, social, and financial resources. In contrast to the structured assessment that a social worker might perform, assessment by the primary care physician can be done more informally over time.

### PREVENTIVE CARE TO MAINTAIN HEALTH

As Dr B continues to observe and provide care to Mr Z, it will be important to build the relationship—establishing trust, rapport, and mutual understanding as they consider the longer-term issues that Mr Z will face. Keeping him as healthy as possible should include appropriate preventive services and assessment of social and lifestyle issues. Among the preventive services are vaccinations and screening tests to detect asymptomatic disease. Although the effectiveness of vaccines in the elderly population is not as convincing as in younger age groups, several are recommended in the Centers for Disease Control and Prevention's adult immunization schedules<sup>11</sup> including annual influenza vaccination, 1-time pneumococcal vaccination, 1-time herpes zoster vaccination, and tetanus toxoid vaccination every 10 years. Currently, the Advisory Committee on Immunization Practices does not recommend routine pneumococcal revaccination of immunocompetent adults.<sup>12</sup> The US financing of zoster vaccination through Medicare Part D has made prescribing and administration cumbersome for patients and also for physician practices. In most cases, physicians need to provide a pre-

**Table 4.** USPSTF Recommendations for an 83-Year-Old, Nonsmoking, Sexually Inactive Man<sup>a</sup>

Recommendation	Grade <sup>b</sup>
Primary prevention	
Alcohol misuse screening and behavioral counseling interventions to reduce alcohol misuse by adults	B
Intense behavioral dietary counseling for adult patients with hyperlipidemia and other known risk factors for cardiovascular and diet-related chronic disease	B
Obesity screening	B
Secondary prevention	
High blood pressure screening	A
Lipid screening	A
Depression screening in clinical practices that have systems in place to assure accurate diagnosis, effective treatment, and follow-up	B
Diabetes screening if sustained blood pressure (either treated or untreated) greater than 138/80 mm Hg	B

Abbreviation: USPSTF, US Preventive Services Task Force.

<sup>a</sup>Data adapted from Agency for Healthcare Research and Policy preventive services selector.<sup>14</sup>

<sup>b</sup>The USPSTF recommends the service. Grade A denotes there is high certainty the net benefit is substantial and grade B denotes there is high certainty the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.

scription that the patient must fill and bring to the physician's office to be injected.

Although the value of screening for cancers has not been demonstrated for individuals of Mr Z's age, there is good evidence that screening and appropriate treatment of other asymptomatic diseases confer beneficial health outcomes. For example, performing bone mineral density testing in a man of Mr Z's age, even in the absence of prior falls, is cost effective.<sup>24</sup> A strategy of screening and treating with bisphosphonates, if the femoral neck T score is less than 2.5, costs less than \$50 000 per quality-adjusted life-year and considerably less if nonproprietary formulations costing less than \$500 per year are used.<sup>24</sup> Blood pressure screening can be justified because treatment of hypertension leads to a 21% reduction in rate of death from any cause in patients of Mr Z's age.<sup>31</sup> The US Preventive Services Task Force provides evidence-based recommendations for screening tests<sup>13</sup> and has created an interactive Web site<sup>14</sup> with recommendations based on the patient's age, sex, use of tobacco, and current sexual activity status. Because little evidence supports most screening interventions in someone of Mr Z's age and life expectancy, there are relatively few preventive services recommendations for him (TABLE 4). For example, no cancer screening tests are recommended. Currently, the US Preventive Services Task Force offers little guidance about time frames for the frequency or cessation of screenings in older individuals.

Calcium supplements, multivitamins, and aspirin are commonly prescribed as preventive measures but their value is less well-established. A meta-analysis demonstrated no benefit from calcium supplements alone in preventing hip fractures.<sup>32</sup> The Women's Health Initiative cohorts failed to show that multivitamins reduce cancer, cardiovascular disease, or mortality<sup>33</sup> and a randomized clinical trial showed no benefit on the prevention of infections.<sup>34</sup> The US Preventive Services Task

Force concludes that there is insufficient evidence to recommend aspirin to prevent cardiovascular outcomes in persons older than 80 years of age, such as Mr Z.<sup>14</sup>

Once recovered from his current injury, Mr Z should begin to engage in balance exercise programs to reduce his risk of falling (eg, tai chi)<sup>35</sup> and aerobic exercise (eg, walking) to reduce the risk of functional decline.<sup>36</sup> Similarly, maintaining social contacts and particularly cognitive training may help prevent functional decline,<sup>37</sup> although this evidence is more preliminary.

### Long-term Issues (Longer Than 5 Years)

The clinician should also keep in mind longer-term issues that a patient will face if his health does not deteriorate in the near future (eg, Figure, trajectory A). During the next 5 to 10 years, Mr Z will likely need to reconsider his living situation regardless of his wife's condition. Unless he has a catastrophic or rapid decline, he and his physician will also need to plan for his functional decline and frailty. Will he be able to remain in his condominium or will he require more support such as assisted living? These decisions will be guided by his personal preference, his financial resources, and safety concerns. Balancing a patient's desire for independent living with the ability to do so safely is a common conundrum that physicians must face with their elderly patients.

Both Mr and Mrs Z have in place durable powers of attorney for health care, and Mr Z has discussed his preferences with their son. A durable power of attorney is helpful in overcoming some of the limitations of living wills and other documents that only specify wishes in specific situations. The person designated with power of attorney can speak for an incapacitated patient to make decisions about the situation at hand. If a patient has specific wishes about life-sustaining therapies, the clinician and patient (or surrogate) should also complete a standard physician order for life-sustaining treatment (POLST) form, which can help ensure that his preferences for end-of-life care are followed in all settings where care is provided, including by emergency medical services personnel. Although POLST forms are not recognized by all states, this approach is expanding.<sup>38</sup>

### HOW TO PROVIDE THIS CARE IN PRIMARY CARE SETTINGS

Managing the short-term, midrange, and long-term issues that Mr Z is likely to face will take a substantial amount of time. Without better systems of care, primary care physicians cannot accomplish all the work that needs to be done.<sup>39</sup> Accordingly, clinicians should consider restructuring their practices to accommodate the diverse ongoing needs of elderly patients using currently available approaches.<sup>40</sup> A population-based approach provides a useful framework to guide practice redesign to meet the full range of patients' needs. This framework divides patients into 3 populations: those who are functioning well with or without chronic diseases and with life expectancies of more than 5 years; those who

have poor function, multiple chronic diseases, and life expectancies of 2 to 5 years; and those who are at the end of life and have life expectancies of less than 2 years.

For patients who are at the end of life, the focus is on only short-term issues, whereas for those with multiple chronic diseases who may be frail (such as Mr Z's wife), the focus is on short-term and midterm issues. For those like Mr Z, who are healthy or have few chronic diseases, issues that fit within all 3 time frames are relevant. TABLE 5 indicates how priorities change based on life expectancy. Tools and approaches to care for each type of patient can be tailored to help the primary care physician save time and focus on the issues of greatest importance to the patient.

Communication across sites of care, health care systems, and health care professionals is essential. Most practices in the United States do not have fully electronic medical records that communicate across sites of care.<sup>43</sup> E-mail communication about progress of patients in hospital (eg, a daily update on patients) and nursing home settings (an e-mail and dictated summary when discharged home) can help maintain continuity when other physicians are involved in patients' care.

In the office setting, prevention and screening tasks should be routinely incorporated, as much as possible, into the practice through standing orders and previsit questionnaires. Examples are available at the UCLA geriatric medicine Web site.<sup>44</sup>

Management of specific geriatric conditions (eg, falls, urinary incontinence) can also be structured to provide high-quality, efficient, and comprehensive office-based care.<sup>9,45</sup> This care includes identification through screening or case-finding as described previously, follow-up on positive screenings, and monitoring response to treatment with revision of the treatment plan as needed. Tools such as structured visit notes that lead clinicians through recommended care processes and patient information sheets that identify nearby community-based resources can facilitate high-quality comprehensive care. Several disease-management strategies that add dedicated personnel (eg, a depression clinical specialist or a guided care nurse who coordinates care and provides suggestions for management of specific disorders) or that link the health care system with community-based organizations have improved quality of care and have led to some better clinical outcomes.<sup>46-49</sup> These programs fit well within the chronic care model,<sup>50</sup> a theoretical construct that espouses better health care linked to community-based services through 4 components: delivery system design, self-management support, decision support, and clinical information systems. Patients become more informed and activated and practice teams are more prepared to be proactive with the intended result of improved clinical and functional outcomes. A meta-analysis examining the model's effect on asthma, congestive heart failure, depression, and diabetes demonstrated that interventions with at least 1 chronic care model element had beneficial effects on clinical outcomes and processes of care across all conditions.<sup>51</sup> However, implementing this type of care requires staff, support systems, and a payment mechanism.

Currently the workload of primary care practice, the lack of preparation of physicians to initiate and complete practice redesign, and the economics of medical practice in the United States are substantial barriers to adopting these approaches. The patient-centered medical home—advocated by internists, family physicians, and pediatricians<sup>52</sup>—might provide a mechanism to develop systematic approaches to managing chronic diseases along the principles of the chronic care model including providing team care when appropriate. For Mr Z, the patient-centered medical home might mean that some tasks (eg, monitoring his fall risk, coordinating care between Mr Z's many physicians, and communicating with Mrs Z's physician) may not be done by Dr B. Most of the increased Medicare payment proposed as part of the patient-centered medical home will need to be devoted to providing new services by additional personnel who have clearly defined complementary roles and to enhancing the information systems available to the office team. Based on early experience, the transition to medical homes is unlikely to be easy or quick.<sup>53</sup>

### MR Z'S FUTURE CARE

As Mr Z ages, he will need to receive evidence-based care when evidence is available, and care based on good clinical reasoning when it is not. A summary of the anticipated monitoring and treatment for Mr Z, based on his current health status, is

provided in Table 3. However, this plan will certainly change as new diseases and conditions appear. For Mr Z and his physician, this is the great unknown that will be discovered through screening and presentation of new symptoms. Regardless of what emerges, optimal care for Mr Z will require a prepared physician who has maintained clinical skills and knowledge through processes such as maintenance of board certification.<sup>54</sup> Mr Z's physician will also need to provide care in an efficiently redesigned health care system, using teams (even in solo and small group practices) and incorporating the chronic care model. Finally, Mr Z will need a physician who will serve as his advocate and guide as he confronts the medical and social issues of the last years of his life. Anything less is unlikely to meet his current and future needs.

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**Online Features:** A list of relevant Web sites is available online at <http://www.jama.com>. Readers may submit comments for online posting.

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**Table 5.** Priorities in the Care of Older Patients by Life Expectancy

Life Expectancy	Medical		Nonmedical	
	Priorities	Tools and Approaches	Priorities	Tools and Approaches
Long (>5 y)	Address the patient's concerns Evidence-based disease management Identify and manage geriatric conditions Preventive services as indicated Coordinate care across health care professionals and settings Advance directives (eg, designate DPOAHC)	Open-ended questions Guidelines Table 1 USPSTF interactive tool <sup>14</sup> Discharge summaries, e-mail, telephone Medical association and state forms (DPOAHC)	Lifestyle changes Engage in social and work activities Environment safety and access (eg, driving)	Health educator, CBOs <sup>a</sup> CBOs, <sup>a</sup> AAAs <sup>42</sup> Occupational therapist, home modification companies, home health agencies
Mid (2-5 y)	Address the patient's concerns Evidence-based disease management (must expect benefit within patient's lifetime) Identify and manage geriatric conditions Preventive services as indicated (eg, influenza vaccination) Coordinate care across health care professionals and settings Advance directives	Open-ended questions Guidelines Table 1 USPSTF interactive tool <sup>14</sup> Discharge summaries, e-mail, telephone Medical association and state forms (DPOAHC, living will, POLST <sup>41</sup> )	Environment safety and need for ADL and IADL support Engage in social activities (eg, senior citizen centers) Identify and evaluate resources (eg, social support, financial)	Home health agencies, social workers, private care managers CBOs, <sup>a</sup> AAAs <sup>42</sup> Social workers, financial planners
Short (<1-<2 y)	Address the patient's concerns and identify patient goals Symptom management Coordinate care across health care professionals and settings Advance directives (eg, POLST form)	Open-ended questions Palliative care guidelines Discharge summaries, e-mail, telephone Medical association and state forms (POLST, <sup>41</sup> DPOAHC)	Living situation Caregivers and their health, respite care Engage in social activities (eg, adult day care centers)	Social workers Open-ended questions, also see Table 1 Social workers, CBOs, <sup>a</sup> AAAs, <sup>42</sup> hospice (when life expectancy ≤6 mo)

Abbreviations: AAAs, Area Agencies on Aging; ADL, activities of daily living; CBOs, community-based organizations; DPOAHC, durable power of attorney for health care; IADL, instrumental activities of daily living; POLST, physician orders for life-sustaining treatment; USPSTF, US Preventive Services Task Force.

<sup>a</sup>Examples of community-based organizations include Alzheimer's Association chapters, the Braille Institute, and Lighthouse for the Blind. A list of relevant Web sites is available with the article at <http://www.jama.com>.

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# Resources for Medical Care for the Final Years of Life

## WEB LINKS FOR CLINICIANS

### Life Expectancy Table

<http://www.ssa.gov/OACT/STATS/table4c6.html>

This US Social Security Administration Web site provides life expectancy based on current age and sex.

### Recommendations for Screening Tests

<http://epss.ahrq.gov/ePSS/search.jsp>

This Agency for Healthcare Research and Policy/US Preventive Services Task Force (USPSTF) Web site provides evidence-based recommendations for screening tests based on age, sex, tobacco use, and current sexual activity status.

### Recommended Immunizations

<http://www.cdc.gov/mmwr/PDF/wk/mm5753-Immunization.pdf>

US Centers for Disease Control and Prevention—recommended immunizations for adults.

### Office Forms and Patient Education Materials

#### From ACOVE and UCLA

[http://www.geronet.ucla.edu/centers/acove/office\\_forms.htm](http://www.geronet.ucla.edu/centers/acove/office_forms.htm)

Web site includes previsit questionnaires, structured visit notes, community resource templates, and condition-specific patient education materials used in the ACOVE studies and the UCLA geriatrics practice.

### Home Safety Checklists

<http://www.cdc.gov/ncipc/falls/FallPrev4.pdf>

US Centers for Disease Control and Prevention—compiled collection of home safety checklists and fall prevention patient education materials.

### American Geriatrics Society

<http://www.americangeriatrics.org>

Professional society organization provides educational materials, practice

guidelines and clinical practice tools for clinicians.

## WEB LINKS FOR PATIENTS AND FAMILIES

### Alzheimer's Association

<http://www.alz.org>

Patient and family information to help support patients with dementia and local chapter information for additional support.

### Family Caregiver Alliance

<http://www.caregiver.org>

State-by-state guide to help family caregivers and fact sheets in English, Spanish, and Chinese.

### AGS Foundation for Health in Aging

<http://www.healthinaging.org>

Educational materials for patients about specific geriatric conditions and general care of older persons.