INTRODUCTION

The intensive care unit (ICU), located at the jagged interface between advanced biomedical technology and strained human biology, is sometimes perceived as an isolated silo within the larger health care universe. For some, this particular clinical setting may seem insulated from broader sociopolitical concerns facing the United States or the world. Practitioners or researchers in the field, it might be thought, could restrict their gaze to derangements in physiology, to the particularities of critical care pharmacology, to the evolving defenses of nosocomial microbes, and so on.

However, as we aim to demonstrate in this chapter, the many political and economic forces at play in society are very much at work in the ICU. Issues of health inequalities, of lack of insurance, of underinsurance, of the appropriate allocation of resources, and of social justice are as relevant to the practice of critical care medicine (CCM) as they are to any other medical specialty. Indeed, particularly in light of growing critical care expenditures, predicted future growth in ICU demand, and the unique ethical issues faced in the ICU, health policy considerations should be considered a primary concern to both practitioners and investigators in the field.

The ICU, in short, is very much an interlocking unit within the larger political economy of health care. An understanding of recent developments in health care reform in the United States—namely the enactment and ongoing implementation of the Affordable Care Act (ACA)—is therefore very relevant to those in the field. Therefore, this chapter takes the following approach. First, we provide a brief overview of the history of health care reform efforts in the United States to contextualize our present situation. Next, we detail the ramifications of recent developments in health care reform in the United States—namely the enactment and ongoing implementation of the Affordable Care Act (ACA)—which are very relevant to those in the field. Therefore, this chapter takes the following approach. First, we provide a brief overview of the history of health care reform efforts in the United States to contextualize our present situation. Next, we detail the ramifications of the ACA, and how it does and does not affect the problems of uninsurance, underinsurance, long-term care, and costs, with a focus on CCM. We then very briefly address how nations outside the United States contend with these issues. Subsequently, we detail some unique ICU-specific policy considerations, including issues of regionalization, workforce, capital allocation, and cost control. Finally, having outlined the problems of the US health care system both in and outside the ICU, we present a case for a national health program (NHP), which, in our opinion, will most adequately address these various problems.

A VERY BRIEF HISTORY OF HEALTH CARE REFORM IN THE UNITED STATES

In 2013, the journalist Steven Brill presented a shocking and widely discussed account of individuals who were brought to financial ruin as a result of encounters with the medical system (1). In this work, he tells the story of one man who is diagnosed with stage IV lung cancer and is given less than a year to live. As Brill describes, a single admission to the hospital—including time in an ICU—generates a massive bill. The family is underinsured—their policy has a limit—and so the man’s widow is left under a mountain of debt in the wake of his death, with a trail of hospital bill collectors in hot pursuit. Such a tragic scenario would be impossible in many countries of the world that have systems of universal health care. However, despite passage of the ACA, some patients admitted to the ICU may still be exposed, to some extent, to the high costs of care. How has this situation come about?

A number of books have traced the rise and fall of health care reform efforts in the United States (2–7). These histories rely on varying sources, underscore different themes, and arrive at inconsistent conclusions, but together they provide a framework for understanding why, in the 21st century, the United States lacks a system of universal health care. At several key junctures, the country turned away from health care reform; in each instance, both “winners” and “losers” would draw on the lessons of the experience, for better or for worse, during subsequent battles.

The first pivotal junction occurred during the Progressive Era of the late 1910s, when reformers sought to pass state-level systems of “compulsory health insurance,” mainly intended for industrial workers. The campaign met fierce opposition from the American Medical Association, insurers, and industrial corporations. Derided by its adversaries as a pro-German, pro-Bolshevik conspiracy, the health insurance movement did not survive World War I (8,9).

A next pivot occurred during the Great Depression. Despite the growth of the welfare state and the potent political mobilization during that era, Franklin Roosevelt ultimately deferred on a system of social health insurance as part of the New Deal, partially due to fear of provoking the resistance of key interest groups in health care, i.e., physicians (10).
The postwar era again saw a powerful push for a national health insurance scheme, which the administration of Harry Truman supported. However, a well-funded public relations campaign and the anti-communism associated with McCarthyism spelled doom to these broader legislative proposals for national health insurance (3,11). Simultaneous to the decline of national health insurance was the rise of the private health insurance industry. Health insurance companies received tax protection during World War II, and following the war health insurance became subject to collective bargaining (4). However, although collective bargaining won private insurance coverage for many families during these decades, many more were left behind, including the unemployed, the poor, and the elderly. The passage of Medicare and Medicaid in 1965 alleviated these injustices, but represented an inadequate replacement for a universal system. Whereas Medicare was meant, at least to some extent, as a universal system for the elderly (12), Medicaid functioned as a “poor people’s program,” associated with inequities in access and quality.

During the 1970s, the Democratic Party turned away from national health insurance. By the end of the decade, for instance, Jimmy Carter was embracing a program more limited than that of Richard Nixon (6). However, following the social austerity and cutbacks of the Reagan years, a window of opportunity seemed to again open with the election of Bill Clinton in 1992. Yet, facing opposition from health care interests as well as critics across the political spectrum, the Clinton Health Plan also failed (3).

Another push for health care reform coincided with the election of 2008. However, as more than one observer has commented, Democrats, including Barack Obama, had by that time more or less abandoned the goal of a comprehensive NHP guaranteeing universal access to care (6,13). As a result, though the 2010 ACA increases access to health care for many, it will not accomplish the goal of universal health care.

THE US HEALTH CARE SYSTEM, THE AFFORDABLE CARE ACT, AND CRITICAL CARE MEDICINE

An appreciation of the core provisions of the ACA is important for practitioners and researchers in the field of CCM. Here, we review four specific shortcomings of the US health care system (lack of insurance, underinsurance, long-term care, and high costs) with a focus on the ICU, and analyze what the ACA does and does not do to address them.

Lack of Insurance, Insurance Disparities, and the ICU

As the result of the history recounted above, lack of insurance has remained one of the graver deficiencies of the US health care system. More recently, however, the system has been further strained by a decade of falling rates of employer-sponsored health insurance (14). Furthermore, lack of insurance in America has always been characterized by stark racial disparities, with substantially higher rates among both Hispanics and blacks than among whites (14).

The negative health consequences of being uninsured on both access to care and outcomes have been well documented. For instance, in one large study using data from the NHANES database, among those with chronic illness, lack of insurance was associated with a significantly increased likelihood of having had no health visits in the previous year, having no “standard site of care” when ill, or identifying the ED as that “standard site” (15). Another study found that even after controlling for socioeconomic status, race, and various behavioral and health factors, the uninsured had a significantly increased risk of mortality (HR = 1.40; 95% CI = 1.06, 1.84) (16). The investigators used census data from 2005 to calculate that such an increased mortality rate translated into an estimated additional 35,327 deaths annually (16).

However, does insurance status affect the care of the critically ill in particular? In the past, uninsured patients might be “dumped”—rejected or transferred to other hospitals—by hospitals uninterested in assuming the financial liability for their care (17). Even critically ill patients have been “dumped” despite the obvious risk to health that such unnecessary transfers entail (17). In part to address this issue, Congress passed the Emergency Medical Treatment and Active Labor Act (EMTALA) in 1986, which granted patients legal protection from being “dumped” by hospitals because of an inability to pay. More specifically, under the act, hospitals have to screen and stabilize patients with emergent conditions regardless of their means (18,19).

Given the emergent presentation of many critical conditions, it might therefore be assumed that insurance status would today be irrelevant for those experiencing a critical illness. However, there is accumulating evidence that insurance status may affect both processes of care and outcomes in the case of the critically ill. To illustrate this, let us consider the hypothetical but unremarkable case of an uninsured individual who develops a potentially emergent symptom—say acute dyspnea—that is the result of pneumonia complicated by severe sepsis, and consider the ways in which insurance status might affect her outcome.

First, before proceeding to the issue of inequalities in care, we should note that there are racial (20) and insurance-related (21) inequalities in the very incidence of critical illness. In one study, for instance, among the nonelderly, being uninsured increased the risk of a sepsis-associated hospital admission (21). Thus, this patient’s insurance status, itself related to socioeconomic status, may have been an important risk factor for the onset of sepsis. But let us put that aside and focus on potential disparities in care. First, this individual may be more likely to delay presentation to an emergency facility after the onset of her symptom. This plausible phenomenon is supported by one study which found that among those with an acute myocardial infarction, uninsured patients were significantly more likely to delay seeking emergency care (even after controlling for a multitude of clinical and social factors) (22). For many clinical conditions, such delays can affect the efficacy of treatment. In this study, for instance, those with an ST-elevation acute myocardial infarction and a 6-hour or greater delay had a lower likelihood of being treated with a percutaneous coronary intervention or thrombolysis (22). It is plausible that the phenomenon described in this paper would be applicable to other symptoms and conditions, and might apply to our hypothetical patient. It also seems plausible that delays in care can worsen outcomes in the critically ill. For instance, one recent study found that patients with pneumonia and severe sepsis (like our patient) had an improved outcome...
if the first dose of antibiotics was administered within the first 6 hours of care (23). There is also some evidence that the uninsured may have reduced access to intensive care services (24).

In any event, let us assume that our hypothetical patient calls an ambulance. Even at this point, insurance status may potentially affect processes of care. Despite EMTALA, for instance, some have described instances in which unstable patients, some uninsured, were inappropriately brought, diverted, or transferred to a safety net hospital even when other hospitals were closer (19). Putting this possibility aside, let us assume that the patient arrives promptly at an appropriate facility. Again, even at this stage insurance status may impact outcome. An American Thoracic Society systematic review, for instance, found evidence of insurance-related inequalities in care delivery and outcomes (21). For instance, based on four studies that adjusted for potential confounders, the critically ill uninsured had adjusted elevated hospital mortality (OR 1.16, 95% CI 1.1–1.33) (24). The causes for this are no doubt multifactorial, but there is evidence that insurance status may affect provided services. For instance, in one large analysis, after adjustment for potential confounders, the uninsured had lower odds of receiving five common critical care procedures (25). Some ICU procedures, particularly when routinely performed, have no clinical benefit, as the story of pulmonary artery catheterization has demonstrated; so, receiving fewer procedures may not, in fact, be a bad thing. However, if we consider these procedures to be more generally “a proxy for ICU service use,” as these investigators argue, then these findings may reflect broader inequalities in the overall level of service provided (25). Such differences, in other words, speak to de facto persistent insurance-related inequalities in the ICU.

How does the ACA affect the issue of insurance-related health inequalities? The law seeks to decrease lack of insurance through a patchwork of programs and mandates, as opposed to providing a universal benefit as a right of citizenship or permanent residency. The provisions of the ACA have been summarized elsewhere (26), but the relevant provisions can be briefly stated here. First, it creates an “individual mandate” that the uninsured purchase qualifying private health insurance, or otherwise, pays a penalty. To facilitate this mandate, the law creates online “exchanges” where qualifying plans are sold, and also offers subsidies to help those with low income purchase these plans. Second, the law creates an “employer mandate,” in which employers with greater than 50 employees are required to provide insurance or pay a fee. Third, the law expands Medicaid for those with incomes up to 138% of the federal poverty level. The federal government will pay for 100% of this expansion until 2016, after which this contribution will endure. Many plans purchased on the ACA exchange, for instance, feature “narrow networks” that may limit access to care. Furthermore, though Medicaid currently functions as a crucial medical safety net for those with low income, inequalities in access to care have been described for participants in the program (30,31). Thus, in these two senses the ACA will not meet the endpoint of “universalism.”

Underinsurance and the ICU

In another very important—and increasingly recognized—respect, the ACA will also not meet the standard of universal health care, and that is its failure to eliminate underinsurance. Though this is a problem no doubt predating the law, underinsurance is predicted to remain an important problem.

As long as there has been health insurance, there has been underinsurance. The concept, however, has been variably defined. For instance, in one study, individuals were defined as underinsured if they met one or more criteria for high financial exposure to health care costs (32). This included having out-of-pocket health care expenses 10% or more of income (or 5% for those with low income), or having out-of-pocket deductibles equal to or greater than 5% of income. Using these criteria, this study found that 20% of the nonelderly insured adult population—or 23 million people—were underinsured in 2007, which was up to 60% from 2003. The study further found that underinsurance affected both those with low income and those in the middle class. It found that the underinsured were more likely to avoid health care and to have increased likelihood of “financial stress” associated with health care, like putting health care costs on their credit card. In more recent years, underinsurance seems to have worsened. Indeed, a more recent study with similar methodology found that in 2014, 23% of nonelderly adults—or roughly 31 million people—were underinsured, which was approximately twice as many underinsured adults as 2003 (33).

One specific “cause” of underinsurance is health insurance plans that feature high levels of “cost sharing,” or out-of-pocket money paid for health care at the time of use. The typical forms of cost sharing include co-payments (fixed fees for services or drugs), co-insurance (a percentage of the service or...
The growth of overly generous plans. The tax, which was initially meant to go into effect in 2018 but has now been delayed, takes the form of a 40% excise tax—payable either by the insurer or the employer—on insurance plans that exceed a specified threshold (41). As a result, some employers have already moved to limit benefits in an attempt to evade hitting that threshold (41,42). Because the threshold is tied to overall inflation (and not to health care inflation, which is higher), one group has predicted that the number of those affected by the Cadillac tax will “grow rapidly over time,” reaching 75.8% of all insurance plans for families by 2029 (43). Higher levels of cost sharing will be one way for insurers and employers to avoid paying this tax.

Second, the individual market insurance plans available through the ACA exchanges also incorporate substantial levels of cost sharing. The plans are divided into four metallic tiers—bronze, silver, gold, and platinum—that have actuarial values of 60%, 70%, 80%, and 90%, respectively. The out-of-pocket maximum for these plans can be as high as $13,200 for a family plan (though this depends on income), therefore requiring potentially high levels of cost sharing in the form of co-payments, co-insurance, and deductibles (44). For instance, in one recent survey, the average Bronze Plan had a medical deductible of $5,372 and a prescription drug deductible of $465 (44). Though there are cost-sharing subsidies for those making less than 250% of the federal poverty level, the burden of cost sharing may remain high for many middle-class families. Underinsurance will persevere; with financial barriers to care still in place, the United States will continue to lack a fully universal health care system.

**Long-Term Care**

The ordeal of surviving critical illness can, in some instances, leave patients profoundly disabled. Survivors of critical illness may be left with deficits in pulmonary function, neuromuscular strength, and cognitive capacity (45). They may face significant psychiatric sequelae including posttraumatic stress disorder, anxiety, and depression (45). Finally, they may have substantial, ongoing requirements for long-term care, whether in a facility or at home (45). Therefore, policy considerations around the question of long-term care should be central to practitioners and investigators in the intensive care field.

Simply stated, there is no “system” of long-term care in the United States. This reflects the historical development of long-term care in the United States, as recounted by Smith and Feng (46). In the 19th century, long-term care in the United States was provided in the tradition of the repressive English Poor Law (a centuries old system of relief for the poor), which essentially meant coupling public disgrace with the provision of benefits (so as to deter others from receiving such care) (46). In the early 20th century, however, long-term care recipients were progressively transferred to private boarding homes, which became the precursors for today’s for-profit skilled nursing facilities (and which were sometimes part of publicly traded corporations) (46). The passage of Medicaid was another crucial pivot in this history. By providing a huge influx of resources for long-term care, the law resulted in a large increase in the number of nursing home beds, while simultaneously fostering the “medicalization and institutionalization” of long-term care (46).

Today, Medicaid remains the only real safety net for long-term care expenses for all but the very wealthy. According to...
one review, for instance, the cost for a nursing home for those paying out-of-pocket averages $75,000 a year (47). Those who are neither impoverished nor rich must, therefore, “spend down” their resources if they require long-term care services—until they reach a state of impoverishment—at which point Medicaid can be accessed. The ACA originally included a provision—the CLASS Act—which would have established a limited long-term care benefit. However, this would have been a voluntary program that provided only a limited set of benefits to a small section of the population (48). The benefits would have only partially reduced the costs of long-term care, and so would not have changed the fundamental dynamic of the “spend down” (48). Particularly as a result of its “voluntary” structure, the underlying finances were found to be profoundly flawed; given the impossibility of repairing the provision legislatively, the act was dropped altogether by the administration (49).

In contrast to the US experience, however, other nations have moved in the direction of providing long-term care as a universal benefit, including Germany (47,50–53), Japan (47,51), and the Netherlands (47). Despite the fact that these countries, unlike the United States, have a universal benefit for long-term care, they have public spending on long-term care that is only either slightly more (Japan) or slightly less (Germany) than the United States (51). These programs often also aim to provide long-term care services to patients in the setting of their home and community. Germany, for instance, encourages and financially supports care provision by family members (53).

To conclude, it is entirely true that the ACA may help many to avoid financial ruin because of an ICU admission. However, it may do little to help our patients who survive the ICU and go on to require long-term care. For those individuals, having to spend down the entirety of one’s life savings to a state of pennilessness can perhaps fairly be compared with the stigma and scorn heaped on the unfortunate in the era of Poor Law–inspired long-term care.

Costs
The cost of health care is by no means a novel concern in the United States. Indeed, in 1927, a “Committee on the Cost of Medical Care” was formed to study this very problem (54). However, there can be no doubting that the problem of overall health care expenditure has reached a new state of urgency in more recent decades. From the comparative perspective, for instance, overall health care expenditures in the United States remain profoundly higher than other developed countries: in 2012, 16.9% of GDP was spent on health care in the United States, as compared to 11.6% in France, 10.9% in Canada, 11.3% in Germany, 10.3% in Japan, and 9.3% in the United Kingdom (55). These differences are particularly striking when we consider that these other nations spend less while covering the entirety of their populations.

However, it is true that the past 5 years has seen growth in US health care expenditures that is very low by historical standards (56). This slowdown in growth has been attributed in large part to the so-called Great Recession, though some provisions of the ACA have also been credited (56). In the long term, however, the ACA lacks potent cost-saving measures. Perhaps the ACA’s greatest inadequacy in this regard is its failure to reduce our exceptionally wasteful spending on health care administration. Overall, data point to a rising proportion of health care dollars devoted to administrative costs, itself the result of our uniquely fragmented, multipayer health care system. For instance, from 1969 to 1999, the percentage of the US health care labor force devoted to administrative activities rose from 18.2% to 27.3% (57). By 1999, expenditures on health administration were $1,059 per capita in the United States, as opposed to the $307 per capita spent by Canada. Similarly, the proportion of total hospital costs spent on administrative activities increased from 23.5% in 2000 to 25.3% in 2011, even while they remained roughly stable in Canada (Fig. 1.2 gives greater detail on international comparisons) (58). Perhaps, more remarkable is the difference in administrative costs among nations: 1.43% of GDP goes to hospital administration in the United States, as compared to 0.41% and 0.51% in Canada and Scotland, respectively (58). Canada and Scotland both have single-payer systems with globally budgeted hospitals (in which hospitals receive a single payment to cover all operating expenses), allowing them to avoid not only the expense of interacting with multiple payers, but also eliminating patient-by-patient billing entirely (58).

Nothing in the ACA will increase the administrative efficiency of the US health care system; doing so would require eliminating the problem of multiple payers and, like Canada and Scotland, globally budgeting hospitals.

The ACA does include a variety of other provisions that, it is hoped, will result in major savings. However, whatever their benefits and downsides may be, there is no strong evidence that many of these changes—for example, the expansion of the electronic medical record or the promotion of preventive medicine— will produce major cost savings (59,60).

As we will argue, an NHP could, conversely, facilitate substantial savings that could then be redirected to providing full coverage to both the uninsured and the underinsured, as well as the creation of new benefits (e.g., long-term care), without changing overall health care expenditures. Before we turn to the details of such a program, however, we will briefly discuss the health care system problems faced by other nations, and then explore some important policy issues specific to the ICU.
International Considerations

A comparative discussion of the health policy problems faced by other nations is well beyond the scope of this chapter. However, it does seem important to briefly emphasize that while the problems of the US health care system, as we have outlined, are to some extent unique to the country, they have important parallels, in both high- and low-income nations, throughout the globe.

However, before briefly discussing areas of overlap, we should first recognize the obvious divergence between the United States and other high-income nations with respect to health care: many industrialized nations have universal systems of health that are inclusive of either all or almost all of the population. A wide variety of explanations have been offered for why the United States failed to follow the developed world’s lead in enacting a system of universal health care, and include such features of American political economy as the politics of race and the strength of powerful health care “stakeholders” (4). Navarro (61) emphasizes the importance of the labor movement (both through its unions and mass political parties) in the genesis of universalist national health programs in Europe. In any event, whether through the “Bismarck” model of health care reform (e.g., the social insurance model in Germany), the “Beveridge” model (e.g., the national health service in the United Kingdom), or some combination or variation thereof, systems of universal health care emerged in Europe and elsewhere in the industrialized world, mostly during the post–World War II period. To some extent, these developments represented a legal commitment to the notion of a right to health care that was proclaimed in such postwar documents as the constitution of the World Health Organization and the United Nations Universal Declaration of Human Rights.

At the same time, however, the universality of these systems has never been complete, and in some instances it has come under significant threat in recent years. For instance, though these systems have been very successful in facilitating universal access to care, they have not always eliminated the problem of underinsurance. Israel, for instance, has raised co-payments to such an extent that they now represent “a major barrier to accessibility” to health care, especially for those with low incomes (62). In the Netherlands, meanwhile, concerns have been raised that health system privatization represents a turn away from universalism and a step toward tiered, inequitable access to care (63). Similarly, some have argued that the 2012 Health and Social Care Act, passed by a Conservative-led government in the United Kingdom, is furthering the privatization of the English National Health Service and taking it away from its universalist foundations (64).

In the wake of the economic crisis of 2008, under the economic policy of austerity, the universality of the health care systems of many European nations has been the object of a more direct attack. Especially in the nations of Southern Europe (but also elsewhere, as in Ireland), the policy of health care austerity has meant reductions in insurance coverage, disrupted access to health care, and increases in co-payments (65). “The erosion of health coverage in a time of economic crisis across hard-hit countries is worrying both in terms of population health and for the future of the welfare state,” as one observer puts it, also noting that “the universal nature of health systems has been consistently undermined, while demands for such publicly provided services are heightened” (65). Such changes have translated into a substantial rise in “unmet medical need” in nations like Greece (66). The onset of austerity policies has also been associated with increases in the suicide rate in Greece (67).

Low- and middle-income countries also face a range of challenges of their own. In particular, lack of access to quality health care remains a grave problem. The Indian health care system, for instance, is characterized by high out-of-pocket expenditures, regressive financing, low rates of insurance coverage, and deep inequalities in access along the lines of class, caste, and rural/urban geography (68). China, meanwhile, “turned its health system on its head” during the years of free-market reform in the 1980s: public funding for hospitals and rural health professionals evaporated as health care became increasingly an entrepreneurial endeavor (69). Out-of-pocket health care expenses became unaffordable for many, resulting in avoidance of health care (70,71). Recent reforms (69) may improve access for many Chinese, but comprehensive universal health care, without financial barriers to care, remains an aspiration in both nations.

In short, progress toward universal health care has proceeded very unevenly; even when it is achieved, it is by no means infallible. Moreover, the problems of being uninsured and underinsured, though particularly marked (among developed countries) in the United States, represent common weaknesses in the health systems of countries throughout the globe.

We now turn to health policy issues specific to the ICU.

**POLICY CONSIDERATIONS IN THE ICU: COSTS, CAPITAL, DEMAND, SUPPLY**

In 1952, Denmark was in the throes of a terrible epidemic of poliomyelitis. By late August, Blegdam Hospital had lost 27 patients to respiratory failure resulting from neuromuscular weakness (72). The hospital’s chief physician, faced with the looming death of yet another patient—a 12-year-old girl—requested assistance from the anesthesiologist Björn Ibsen. Ibsen famously proceeded to recommend a tracheostomy and to carry out manual ventilation, thereby aborting her death (72,73). After this historic success, the protocol was soon repeated on all patients dying of respiratory failure from polio in the hospital (73). The life-saving capacity of this intervention was undeniable: the mortality rate fell from 87% to less than 40% (72).

To some extent, the “birth” of intensive care in Blegdam Hospital might be conceived as a sort of golden model of the potential beneficial effects of intensive care medicine. Patients were facing almost certain death from a condition that might be entirely reversible; with the temporary application of invasive, intensive medicine, lives were saved.

Juxtaposed to this inspiring story, however, is a more critical viewpoint that has emerged in the intervening decades. For instance, as one of us has previously studied, the rapid proliferation of critical care units in the United States was to a significant extent driven not by perceived needs and benefits, but by profit-driven corporate enterprises (74,75). Even putting that issue aside, it is increasingly recognized that the ICU might actually be harmful for some patients. To some extent, a glimpse of that reality may have already been apparent at
the time of the 1952 polio epidemic. Bion and Bennet (76), for instance, have noted that even at the time, it was recognized that though “the new system of management produced many more survivors, it delayed death amongst patients destined not to survive”. Some now see the ICU as representative of the worst of modern medicine: it is conceived as a highly invasive, enormously expensive site where dying is prolonged at the price of profound and unnecessary suffering. One can invoke the (sadly not unfamiliar) sight of a frail, elderly patient with advanced Alzheimer dementia, dying of multi-organ failure, chained to a respirator, invasive tubes, and central venous lines.

An essential goal of ICU policy is to steer the system away from the nonbeneficial interventions toward the beneficial. Achieving this goal is not always possible: Ibsen (76) could not, for instance, have predicted who was “destined not to survive”; he had to try and save all. But as CCM consumes increasingly large proportions of both health care and overall societal resources, it is clear that much more can and should be done to improve the rationale and appropriate use of these services.

Halpern et al. (77,78), for instance, have documented the rising resources devoted to intensive care medicine in two important papers. First, they noted that between 1985 and 2000, even though there was an 8.9% decrease in the number of hospitals and a 26.4% decrease in the number of hospitals beds, CCM beds actually increased by 26.2% (77). During this period, overall CCM costs rose to 190.4%, exceeding overall economic growth, resulting in about a half a percent of total GDP being devoted to critical care by 2000 (77). Between 2000 and 2005, similar trends continued: hospital beds continued to contract (though hospital days increased), while CCM beds continued to grow (78). The percentage of GDP devoted toward CCM rose to 0.66% (which did not account for physician costs that were privately billed) (78). “We surmise that in the current climate,” the investigators noted, “the number and type of CCM beds will continue to increase without a ‘plan,’ simply as a response to increasing hospital admissions and days” (78). And in light of these trends, some have described an “impending critical care crisis,” characterized by massive shortfalls in critical care physician staffing (79).

Are such trends problematic? We and others believe that they are. ICU care is one instance in which evidence points strongly to supply-driven demand, as convincingly argued by Gooch and Kahn (80). This situation is not necessarily driven by nefarious motives: we all want the best for our patients, not, for instance, have predicted who was “destined not to survive”. Insights can also be gained from international comparisons. For instance, 2.2% of discharged patients received critical care services in English hospitals, as compared to 19.3% in the United States (78), a huge difference that is not explained by any obvious regional differences in the availability of ICU infrastructure.

Outcomes (84). But in that case, a perceived inadequacy was associated with a case mix–adjusted fall in hospital mortality (81). Despite these differences, however, an absence of empty beds was not associated with greater hospital mortality (81). This finding suggests that having more beds available resulted both in greater use and greater intensity of care, without a corresponding improvement in overall outcomes.

Insights can also be gained from international comparisons. For instance, 2.2% of discharged patients received critical care services in English hospitals, as compared to 19.3% in the United States (82). ICU mortality is actually much higher in England (suggesting sicker patients), but overall a much smaller proportion of total deaths involved critical care services in England (5.1%) as compared to the United States (17.2%) (82). Also, in England, only 1.3% of those aged over 85 died in an ICU, as compared to 11.0% in the United States (82). Another study (also cited by Gooch and Kahn), based on 102,346 admissions to ICUs in the United States and 70,439 in the United Kingdom, found that patients admitted to the ICU in the United States were older, less sick, less likely to die, and less likely to require mechanical ventilation (83), again suggesting the possibility that patients in the United States were less likely to need ICU services. From such studies, a complex picture emerges. On the one hand, patients in US ICUs are less sick overall, and are also less likely to die in the course of a single ICU stay, which is consistent with an overall increased use and supply of the ICU. On the other hand, in the United States (as compared to England), we are all more likely to be admitted to the ICU and to ultimately die there, even if we live to be older than 85.

Now the story is never so simple. For instance, it is also possible that NHS ICU spending and supply were too low during this period. After 2000, the English NHS pursued a major increase in the number of critical care beds, which was associated with a case mix–adjusted fall in hospital mortality thought consistent with a substantial improvement in outcomes (84). But in that case, a perceived inadequacy was met with a deliberate, planned expansion. In the case of the United States, there is simply no explicit effort to match ICU demand and supply, which results in significant and irrational regional differences in the availability of ICU infrastructure. For instance, within hospital referral regions, the number of ICU beds per 10,000 population ranges from 1.01 to 5.95 (85), a huge difference that is not explained by any obvious differences in need. There is also substantial variability in rates of ICU admission from hospital to hospital, a point emphasized by Gooch and Kahn (80). For instance, they cite a study...
involving Veterans Administration hospitals, in which—even after adjustment for important patient and hospital characteristics—rates of ICU admission ranged from 1.2% to 38.9%, among hospitals for patients with “median predicted mortality” (86). Such variation in the availability of ICUs on the regional level and the utilization of ICUs on the hospital level speaks to two potential, intertwined problems: excess ICU capital and excessive ICU use (at least in certain regions or hospitals).

Against the indefinite expansion of supply, some have proposed other approaches. For instance, it has been argued that the regionalization of ICU services may help address the high costs and presumably lower efficiency of widely dispersed ICU capital. The model for such a reorganization comes, in part, from the experience with trauma care; some evidence points to an improvement in outcomes as a result of centering trauma care at certain hospitals (87). By restricting high-cost ICU infrastructure to particular regionalized centers, it has been proposed that the resulting efficiency gains and “economies of scale” might permit substantial savings and possibly improved outcomes (88). At the same time, as many have noted (88,89), there are several potential downsides to regionalization, foremost that it would involve moving patients away from their families and their communities at a crucial and trying time. Additionally, as has been recognized for some time (89), strong evidence that regionalization will reduce costs is still lacking.

From a broader perspective, however, we can perceive two overall narratives emerging. One is that we face a “crisis” in critical care, in which rising demand should be accommodated through aggressive efforts to further expand the critical care workforce (79). A second, which we favor, is a more skeptical perspective which maintains that the indefinite expansion of critical care services is neither sustainable nor necessarily beneficial. Kahn et al. (90), for instance, recently made this point in a perspective article titled the “Myth of the [Critical Care] Workforce Crisis”. Instead of simply expanding ICU beds and training more ICU physicians, they contend that we should instead be looking to alternative solutions like regionalization. Indeed, they argue that states could legally regulate the growth in ICU beds, which would result in a lower ICU bed supply per capita over time.

We are sympathetic to the viewpoint of Kahn et al. (90). But we go further in contending that an NHP is crucial to the goal of matching regional ICU demand and supply, and of regionalizing where appropriate and localizing where this is not the case. No doubt, more work needs to be done to better define the appropriate number of ICU beds per capita from the perspective of optimizing population health, and at present, there may be disagreements as to what this number should be.

Theoretical underpinning of an NHP is universalism. That is to say, unlike a patchwork system in which the poor partake in designated programs that provide certain benefits while those who are better off utilize separate private programs, the NHP would cover everyone. In this sense, the NHP would be more akin to Medicare than to Medicaid (though, as we will see, it would also address many of Medicare’s inadequacies). The NHP would, simply put, function as a single-payer universal health insurance system, and would thereby entirely eliminate the problem of lack of insurance.

In terms of benefits, the NHP would provide the full spectrum of medical services. These services would include inpatient and outpatient medical care. However, they would also include mental health services, dental care, and palliative care, as well as prescription drugs. Importantly, it would cover these benefits without cost sharing; cost sharing, as previously discussed at length, deters patients from obtaining care and filling prescriptions, while also encouraging them to delay presentation to emergency rooms. With no financial liability at the time of care, underinsurance also would be eliminated. Additionally, some new benefits would be made available. Access to long-term care would become a universal benefit. As discussed, an emphasis on home and community solutions to those with long-term care needs—as opposed to institutionalization—would be an important aspect of this program.

We earlier discussed the enormous waste devoted to administrative overhead in the US health care system. In particular, we outlined how hospital administration has come to represent a huge cost in the United States. Hospital administrative expenses alone cost 1.43% of GDP in the United States (58), more than twice that of other developed countries and also more than twice that of total US critical care expenditures (78). Under an NHP, dramatic reductions in these expenditures can be expected. First, we already have evidence that Medicare (a public program) outperforms private insurance companies greatly with respect to administrative efficiency. For instance, the administrative overhead of traditional Medicare is estimated to be approximately 2.1% (94), whereas Medicare Advantage Plans run by private insurers have an overhead (including profits) closer to 13.6% (95). Second, providers,
patients, and hospitals would no longer have to deal with a multiplicity of payers, greatly streamlining payment (and minimizing hassle for providers and patients alike). Third, hospitals would be allocated a “global budget,” essentially a single sum of money that would cover all operating expenses for a given year. As a result, patient-level itemized billing could be discarded altogether.

An NHP could achieve additional savings through a number of measures. For instance, the system would, like other countries, negotiate directly with pharmaceutical companies over drug prices. One think tank has estimated that Medicare alone could save hundreds of billions of dollars over a decade through such negotiations (96). Another crucial aspect of an NHP is that it would facilitate a coherent system of health care capital planning. Until now, proliferation of medical resources and ICU beds has often been poorly planned and irrational. Insofar as the supply of health care drives demand—which as we have emphasized, clearly seems to be the case with ICU care (80)—such capital expenditures necessarily create new operating expenses. Thus, under an NHP, funding for new health care infrastructure would be independent from operating expenses. Thus, under an NHP, funding for new health care (80)—such capital expenditures necessarily create new operating expenses, which will help to create a more sustainable and equitable distribution of health care capital. With respect to the ICU, an NHP would allow the country to make and meet regional goals for ICU beds per capita (whatever the precise goal may be). The NHP would help facilitate regionalization of specific ICU services, where appropriate. With global budgets in place, for instance, the financial incentives of having an ICU for individual hospitals will be attenuated. The focus could, therefore, be on meeting population needs in a coordinated fashion, not on the financial bottom line of particular institutions.

In sum, an NHP would provide health care for all as a right. By producing sufficient savings through reduced administrative spending and pharmaceutical expenditures, it could do so without an overall increase in health care expenditures. It would additionally be an important first step in the rational, regionalized, organized, and equitable distribution of ICU capital.

Key Points

- The Affordable Care Act expands access to health insurance, but does not resolve major problems in the US health care system including uninsurance, underinsurance, high costs, and administrative inefficiency.
- There is evidence that persistent insurance-related disparities may be detrimental to the health of those with acute and critical illness.
- The health care system still lacks adequate coverage for long-term care, which may be harmful to survivors of critical illness who are often left with significant disability.
- Overall spending on CCM is exceeding the rate of growth of the overall economy, necessitating that new ICU infrastructure is more rationally and explicitly planned.
- In the opinions of the authors, a single-payer NHP would best address the persistent deficiencies of the US health care system, both in and out of the ICU.

References

31. Lyon SM, Douglas IS, Cooke CR. Medicaid expansion under the Affordable Care Act: implications for insurance-related disparities in pulmonary, criti-
33. Collins SR, Rasmussen PW, Beutel S, Dory MM. The problem of underin-
surance and how rising deductibles will make it worse: findings from the Com-
34. Henry J, Kaiser Family Foundation. 2014 Employer health benefits. Avail-
able at: http://kff.org/health-costs/report/2014-employer-health-benefits-
35. Lohr KN, Brook RH, Kamberg CJ, et al. Use of medical care in the Rand
Health Insurance Experiment: Diagnosis- and service-specific analyses in a
36. Swartz K. Cost-sharing: effects on spending and outcomes. Robert Wood
rwjf.org/library/research/2011/12/cost-sharing-effects-on-spending-and-out-
37. Wharam JD, F. Landon BE, et al. Low-socioeconomic-status enrollees in
high-deductible plans reduced high-severity emergency care. Health Aff (Mil-
38. Sinnott SJ, Buckley C, O’Riordan D, et al. The effect of co-payments for pre-
scriptions on adherence to prescription medicines in publicly insured popu-
of drugs by the chronically ill. JAMA. 2004;291:2344–2350.
after income-based deductibles and prescription copayments in older users
August 4, 2013.
43. Herring B, Lentz LK. What can we expect from the “Cadillac tax” in 2018
Henry J. Kaiser Family Foundation; 2015. Available at: http://kff.org/health-
high-deductible plans reduced high-severity emergency care. Health Aff (Mil-
46. Smith DB, Feng Z. The accumulated challenges of long-term care. Health
47. Gleckman H. Long-term care financing reform: lessons from the U.S.
commonwealthfund.org/publications/fund-reports/2010/feb/long-term-care
48. The Kaiser Commission on Medicaid and the Uninsured. Health care
reform and the CLASS Act. Available at: http://kff.org/health-costs/issues-
50. Cuellar AE, Wiener JM. Can social insurance for long-term care work? The
51. Extre A. Health care access in the Netherlands: a true story. In: Flood CM,
Gross AM, eds. The Right to Health at the Public/Private Divide: A Global
53. Kentikelenis A. Bailouts, austerity and the erosion of health coverage in
54. Reeves A, McKee M, Stuckler D. The attack on universal health cover-
55. Branas CC, Kastanaki AE, Michalodimitrakis M, et al. The impact of eco-
nomic austerity and prosperity events on suicide in Greece: a 30-year inter-
56. Balarajan Y, Selvaraj S, Subramanian SV. Health care and equity in India.
Lancet. 2011;377:505–515.
57. Blumenthal D, Hsiao W. Lessons from the East: China’s rapidly evolving
58. Blumenthal D, Hsiao W. Privatization and its discontents: the evolving Chi-
59. Meng Q, Xu L, Zhang Y, et al. Trends in access to health services and finan-
3:159–165.
62. Waitzkin H. A Marxian interpretation of the growth and development of
64. Bion JF, Bennett D. Epidemiology of intensive care medicine: supply versus
65. Halpern NA, Pastores SM, Greenstein RJ. Critical care medicine in the
2005: an analysis of bed numbers, occupancy rates, payer mix, and costs. Crit
68. Gooch RA, Kahn JM. ICU bed supply, utilization, and health care spending:
69. Stelfox HT, Hemmelgarn BR, Bagshaw SM, et al. Intensive care unit bed avail-
ability and outcomes for hospitalized patients with sudden clinical deteriora-
services during terminal hospitalizations in England and the United States.
Am J Respir Crit Care Med. 2009;180:875–880.
71. Wunsch H, Angus DC, Harriston DA, et al. Comparison of medical admis-
sions to intensive care units in the United States and United Kingdom. Am
J Respir Crit Care Med. 2011;183:1666–1673.
dedication to critical care services in England: time series and cost effective-