Crises and Opportunities

Economic Crisis, Restrictive Policies, and the Population's Health and Health Care: The Greek Case

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The global economic crisis has affected the Greek economy with unprecedented severity, making Greece an important test of the relationship between socioeconomic determinants and a population's well-being.

Suicide and homicide mortality rates among men increased by 22.7% and 27.6%, respectively, between 2007 and 2009, and mental disorders, substance abuse, and infectious disease morbidity showed deteriorating trends during 2010 and 2011. Utilization of public inpatient and primary care services rose by 6.2% and 21.9%, respectively, between 2010 and 2011, while the Ministry of Health's total expenditures fell by 23.7% between 2009 and 2011.

In a time of economic turmoil, rising health care needs and increasing demand for public services collide with austerity and privatization policies, exposing Greece's population health to further risks. (*Am J Public Health.* 2013;103:973–980. doi:10.2105/AJPH.2012.301126)

THE CURRENT GLOBAL ECO-nomic crisis, manifested in 2007 with the collapse of the subprime mortgage market and the bankruptcy of several financial institutions in the United States, affected the Greek economy—viewed by some as the Eurozone's weakened economic link—with unprecedented severity.

Many commentators in the past and present have debated whether the ongoing international economic turmoil, the worst since the Great Depression, threatens the health of the population both in the United States and throughout the developed and less-developed world.[1–5] The World Health Organization has added one more concern to this dialogue: whether spending restrictions in times of economic downturn (especially in countries that have required emergency assistance from the International Monetary Fund [IMF]) could impose further risks on the population's health.[6,7]

We present empirical evidence from Greece's experience that clarifies the impact of restrictive policies during economic crisis and illustrates the implications for public health in other countries.

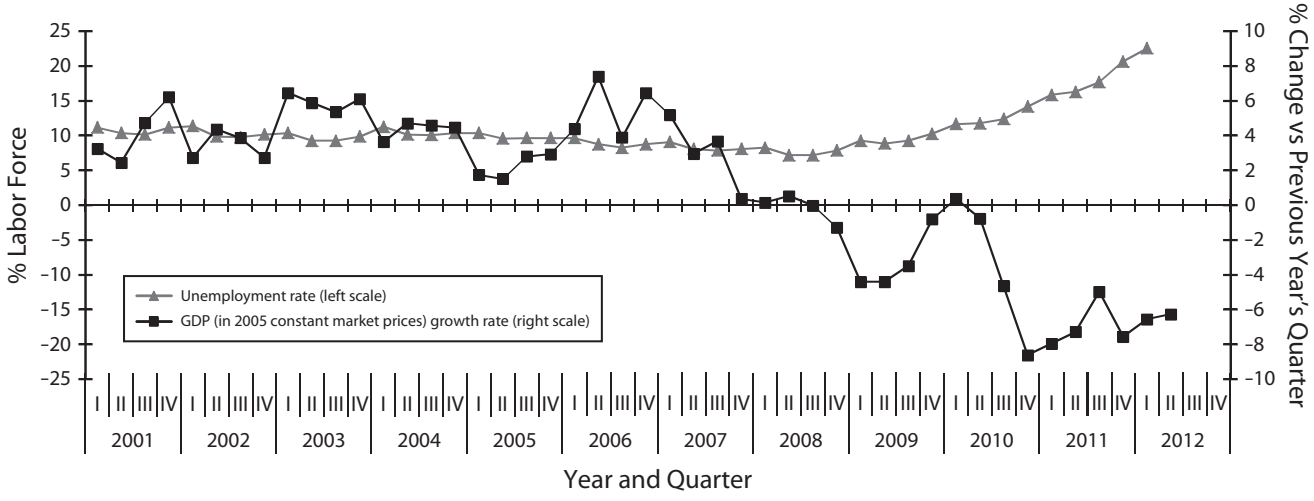
ECONOMIC CRISIS AND RESTRICTIVE HEALTH POLICIES

After 14 years of continuous economic expansion since 1994, Greece's gross domestic product (GDP) started showing zero or close to zero growth rates since the fourth quarter of 2007 and negative growth rates from the fourth quarter of 2008 onward (Figure 1).[8] During the 5-year period of recession (2008–2012), GDP (in 2005 constant market prices) cumulatively dropped by 20.8%, shrinking to its 2002 level.[8] The unemployment rate, 7.2% of total labor force in the third quarter of 2008, soared to 22.6% during the first quarter of 2012 (Figure 1).[9] In June 2012 the unemployed were estimated at 1.2 million people—816 000 more since the onset of the crisis in 2008.[10]

In this situation of economic hardship, a substantial part of the population started living under extreme financial pressure. In 2010, 3 million people—27.7% of Greece's 11.3 million total population—were at risk for poverty and social exclusion, defined by the Hellenic Statistical Authority as people living in households with very low work intensity, with income below 60% of national median, and with severe material deprivation.[11] As of 2011, an estimated 20 000 people were homeless (12 280 more than in April 2009),[12] and more than 20 000 people in the 2 largest cities of Greece were receiving daily food rations from nongovernmental organizations and other community-based agencies.[13]

In the midst of the crisis (November 2009–May 2010), international financial markets started focusing on the growing Greek government deficit (15.4% of GDP in 2009, compared with 9.8% in 2008 and 6.5% in 2007).[14] The public deficit (defined as the difference between what the government takes in from taxes and what it spends in a year[15]) abruptly came to be seen as the cause rather than the symptom of the Greek crisis,[16,17] leading gradually to the downgrading of the country's credit rating and to an unaffordable increase in the cost of borrowing and repayment of public debt.

Against this background the Greek government agreed to borrow €110 billion in May 2010 and an additional €130 billion in



Source. Data presented are authors' calculations based on Hellenic Statistical Authority.[8,9]

FIGURE 1—Unemployment rate and gross domestic product (GDP) growth rate: Greece, 2001–2012.

February 2012 from the IMF and the Eurozone, to finance the country's debt. Historically and contrary to the IMF's official discourse, IMF loans come with strings attached, known as "conditionalities," which include privatization of state-owned enterprises, liberalization of markets, and imposition of public spending (health and education included) ceilings, with an assumption that these policies will trigger economic growth and eventually improve the chance that the loans will be paid back.[18,19] The IMF's loans to Greece were no exception; austerity measures were adopted, services in the public sector were cut back, markets and professional services were deregulated, and an ambitious plan for liquidation of public assets was put forward.

Consistent with these broader policies, between 2010 and 2012 the Greek Ministry of Health started restructuring the Greek health care system. Until now, the Greek health care system has included a mix of public-sector and private-sector services with a tripartite structure: a tax-funded National Health System, multiple public sickness funds based on occupations, and an unregulated private for-profit health care market.[20]

In adhering to the requirements imposed by the IMF and the Eurozone, the Greek Ministry of Health has adopted a wide range of "reforms" that can be summarized into 3 main categories: (1) austerity measures, (2) restrictions on access and privatization schemes, and (3) deregulation of private health services. These controversial and market-oriented "reforms" in Greece[21] followed the standard prescriptions that the World Bank and IMF previously had favored in many other countries of the less-developed world.[22]

Austerity measures included curtailing of government health spending, loss of bonus payments, and reductions in the salaries of health professionals working in the public sector, a freeze on recruitment of personnel at all public health care services, layoffs of temporary workers and those near retirement at public hospitals, and covering crucial vacancies with transfers of medical staff members from other institutions. Within the first 2 years of austerity the Ministry of Health's total expenditures fell by €1.8 billion (23.7% reduction between 2009 and 2011) while overall expenses of public hospitals declined by €0.74 billion (12.5% reduction from 2009 to 2011).[23,24] Contrary to the government's argument that cuts in public hospitals' budgets were the "positive result of improvements in financial management efficiency (e.g., procurement, logistics),"[25] recent official data revealed that reduction of public hospitals' expenditures resulted from 75% payroll cuts rather than enhanced efficiency (between 2009 and 2011 payroll expenses of public hospitals fell by €0.56 billion, a 16.5% reduction[23,24]). A further 8.3% reduction in the Ministry of Health's and public hospitals' budgets was expected in 2012.[24]

Restrictions on access and privatization schemes involved introduction of copayments for outpatient services of public hospitals, closures and mergers of public hospitals' beds and clinics, and contracting with private insurance companies for services delivered by public hospitals. A new public sickness fund, which merged the 4 largest sickness funds in the country, led to substantial reductions in social insurance health benefits, as well as increased copayments for drugs and diagnostic tests.[21,26] In 2011 Greek

patients spent more than €25.7 million on out-of pocket payments for outpatient services delivered during daytime hours in public hospitals,[24] services that were free at the point of use before the crisis; during the same year 556 luxury hospital beds in public hospitals (1.6% of total public hospital infrastructure) were allocated to private insurance companies,[27] restricting public patients' access to key hospital services.

Deregulation of private health services involved several important changes. Restrictions on private hospitals, such as legislative controls concerning the expansion of these hospitals' infrastructure, were removed. All limitations concerning the establishment of laboratories, medical centers, and dialysis units by entrepreneurs were rescinded. In addition, the social insurance funds' reimbursement prices for private hospital services increased substantially, based on a newly introduced program of diagnostic related groups.

HEALTH AND HEALTH CARE

The determinant role of economic and social conditions on population health is well documented.[28] Evidence from historical and epidemiological research reveals that in many cases economic crises have been associated with increased suicide, homicide, male cardiovascular disease, alcohol abuse, and communicable disease mortality,[29–34] as well as increased morbidity[35] mainly attributable to malnutrition, infectious diseases, alcohol abuse or dependence, and mental disorders incidence.[32,36–38] These associations between economic crises and health can result in an increased need for services during periods of economic downturn, especially among vulnerable groups such as the unemployed, the uninsured, immigrants, and those lacking a living wage.

Evidence from past economic crises implies that decreased household income and purchasing power (because of unemployment and reduction of real wages) can lead to reduced health expenditures by households, decreased consumption of private health services, and increased utilization of services in the public sector.[39–41] In other words, these indirect effects of economic crises can result in increased demand for public services, especially services that are free or low cost at the point of delivery.

In light of such observations, in a situation of economic contraction such as the one Greece has experienced, restrictive public health policies predictably could result in a deterioration of the population's health status.

Many researchers have highlighted the challenges in studying the impacts of economic crises on health, such as lag effects, policies' feedback loops, contradictory trends, and the uniqueness of each economic crisis (initial stock of capital; depth and duration of the crisis).[32,37,42] Such challenges hinder definitive estimations regarding the net effects of economic contractions on health.[43,44] Despite these limitations, existing data show that the economic crisis in Greece is exerting detrimental effects on health and health services. These data contradict the claims of those favoring restrictive policies that "no hard evidence has proven that the financial crisis (in Greece) has become a health hazard or even more so a disaster."[45(p3–4)]

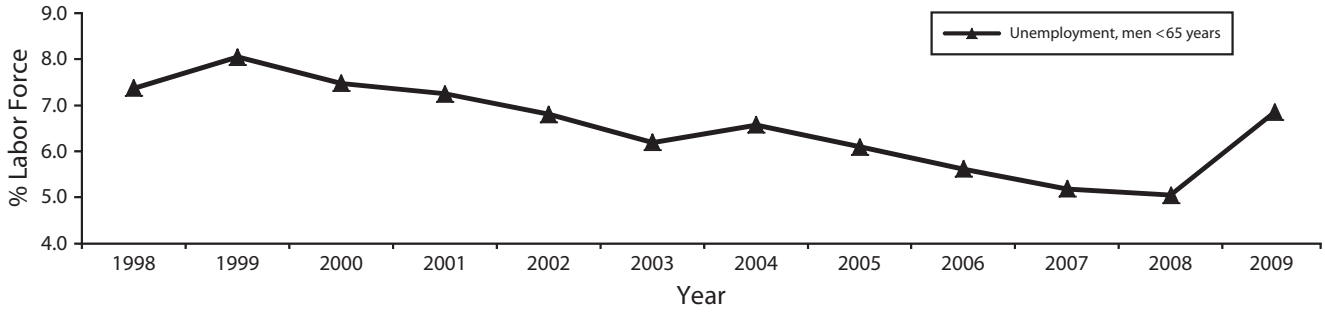
Regarding mortality, although the all-cause mortality rate continued its declining trend during the years of the crisis, suicide, homicide, and infectious diseases mortality rates increased by 16.2%, 25.5%, and 13.2%, respectively, between 2007 and 2009 (for those years the corresponding mortality rates increased from 2.6, 1.06, and 5.52 to 3.02, 1.33, and 6.25 per 100 000 population, respectively).[46] In the population subgroup of men younger than 65 years, who were hit harder by unemployment (Figure 2), the relative increases were more intense (22.7%, 25%, and 27.6%, respectively, between 2007 and 2009; the corresponding mortality rates for those years increased from 4.01, 1.6, and 1.99 to 4.92, 2.0, and 2.54 per 100 000 population, respectively). Cause-specific mortality rates in 2008 and 2009 were well above predictions based on the decade's precrisis mortality trends (Figure 3).[9,46]

In the case of suicides, these findings contrast with those of an earlier study that found no link between the ongoing economic crisis and suicide in Greece[47] (when studying crude numbers of deaths from suicide rather than age- and gender-specific mortality rates) but are in accordance with past and most recent international evidence showing that suicides tend to increase very quickly during economic downturns,[30] particularly among men.[31,48] In a similar manner, increased homicide mortality rates are associated with rising unemployment.[30] This latter association seems the most obvious explanation for the sharp increase of homicide mortality in Greece during the first 2 years of the crisis.

The failure of total mortality to deteriorate may indicate either that most causes of death have not yet been affected by recession and austerity, or that already reported deteriorating care for chronic conditions in Greece[49] (which are responsible for most deaths) might result in deteriorating mortality but only after a time lag.

Regarding morbidity, available evidence reveals similar deteriorating trends. According to data from the European Union Survey on Income and Living Conditions, the prevalence of people reporting that their health was bad or very bad rose 14% between 2007 and 2009.[50] In a similar way, according to the results of 3 nationwide cross-sectional studies conducted by telephone in early 2008, early 2009, and mid-2011, the 1-month prevalence of major depression doubled between 2008 and 2009 (from 3.3% in 2008 to 6.8% in 2009),[51] and the proportion of the surveyed population having attempted suicide in the month before the survey increased from 0.6% in 2008, to 1.1% in 2009 and to 1.5% in 2011.[51,52]

According to the latest data from the Greek Documentation and Monitoring Centre for Drugs, the number of persons with problematic drug use (heroin as the primary addictive substance) rose



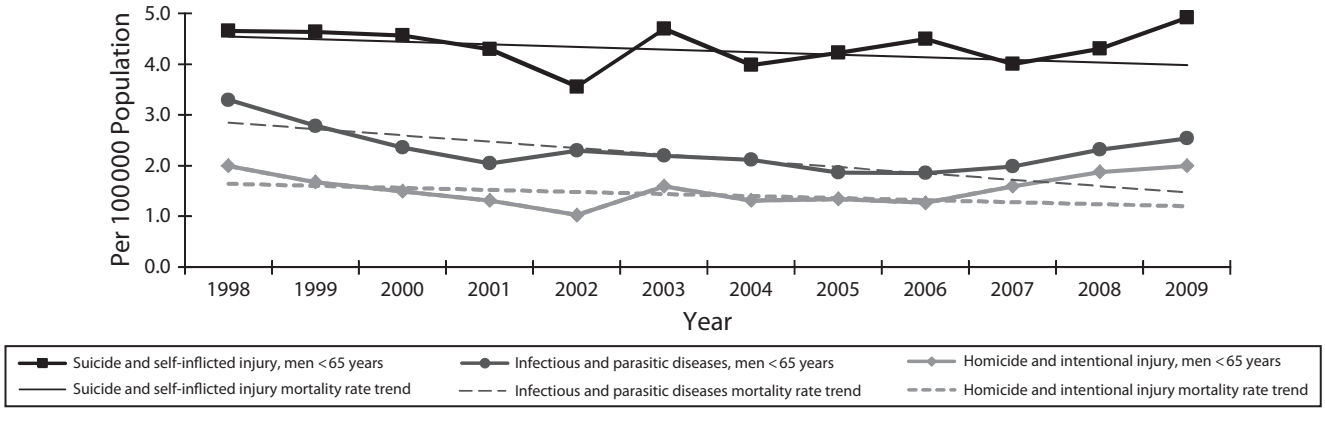
Source. Data presented are authors' calculations based on Hellenic Statistical Authority.[9]

FIGURE 2—Rates among men younger than 65 years for unemployment: Greece, 1998–2009.

by 11.6% between 2008 and 2010 (from 20 181 cases in 2008 to 22 515 cases in 2010)[53,54]; among those aged 35 to 64 years, the increase was far more intense at 88.2% (from 4875 cases in 2008 to 9176 cases in 2010). Taking into account that in 2010 the average age for initiation of injection drug use was estimated at 22.4 years old,[54] this sharp increase of older heroin users in Greece indicates probable relapses rather than new cases, presumably associated with the ongoing economic downturn.

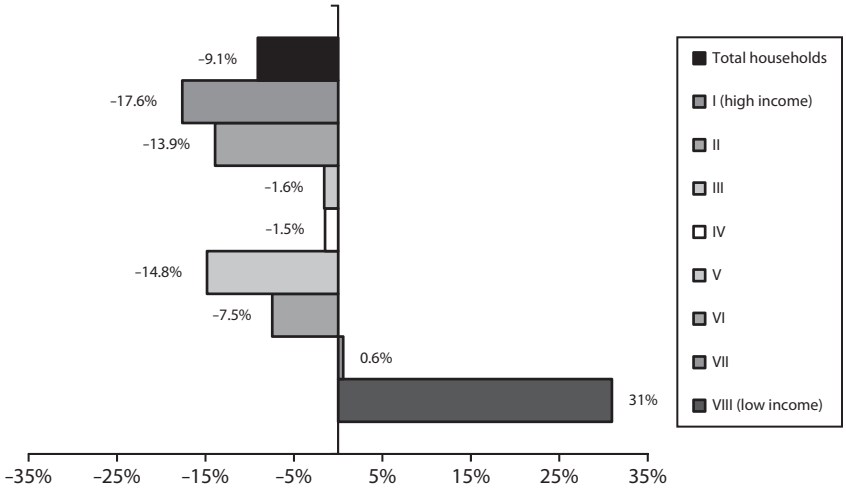
Trends in infectious diseases hold particular interest. Whereas tuberculosis incidence continued its declining trend (according to the Hellenic Centre for Disease Control and Prevention, reported new cases of tuberculosis decreased by 26.8% between 2007 and 2010),[55] Greece surprisingly faced 3 infectious disease outbreaks in a period of less than 18 months, between July 2010 and December 2011: an outbreak of West Nile virus infection in northern Greece between July and October 2010, including 197 patients with neuroinvasive disease and 35 deaths[56]; an outbreak of malaria in southern Greece between May and October 2011, including 63 cases, of which 40 reported no travel history to endemic countries[57]; and worsening trends in HIV infection between 2010 and 2011, such as a 57.2% increase in newly diagnosed cases of HIV-1 infection (from 607 new cases in 2010 to 954 cases in 2011) and a 1506.7% increase of newly diagnosed cases of HIV-1 infection among injection drug users (from 15 cases in 2010 to 241 cases in 2011).[58]

In all 3 examples, outbreaks were initially attributed to environmental risk factors[59,60] or to migrant populations.[60,61] Nevertheless, the public health measures that have been retrospectively



Note. Mortality trends were calculated with the method of least squares, based on rates for the period 1998–2007, with a 2-year projection (2008–2009).
Source. Data presented are authors' calculations based on World Health Organization Regional Office for Europe.[46]

FIGURE 3—Rates among men younger than 65 years for suicide, infectious diseases, and homicide mortality: Greece, 1998–2009.



Source. Data presented are authors' calculations based on Hellenic Statistical Authority.[64,65]

FIGURE 4—Households' health expenditures (calculated as percentage of households' total expenditure) by households' income class: Greece, 2009.

implemented for the control of the epidemics (intensified distribution of needles and condoms among injection drug users, intensification of vector- and mosquito-control activities) imply that the risks of transmission had not been addressed through prevention, most likely because of the dismantling of services previously provided by national and regional public health agencies. For example, the number of needles and condoms that were freely distributed to injection drug users by public preventive programs decreased sharply in 2010 (by approximately 31% compared with 2009) just before the marked increase in newly diagnosed cases of HIV-1 infection.[62] Mosquito-control activities implemented by public local authorities also were delayed in 2011 because of financial problems.[63]

The economic crisis also has had an impact on the utilization and financing of health care services. According to the Hellenic Statistical Authority's Households Budgets Surveys, private health expenditures in Greece (calculated in 2009 constant market prices) decreased by 3.6% in 2009 compared with 2005 (from €6.87 billion in 2005 to €6.62 billion in 2009).[64,65] These changes probably reflected households' decreased ability to purchase health services on an out-of-pocket payment basis because of declining income. When private health expenditures are calculated as a percentage of households' total expenditure, similar declining trends are found in all middle- and high-income strata (Figure 4).[64,65]

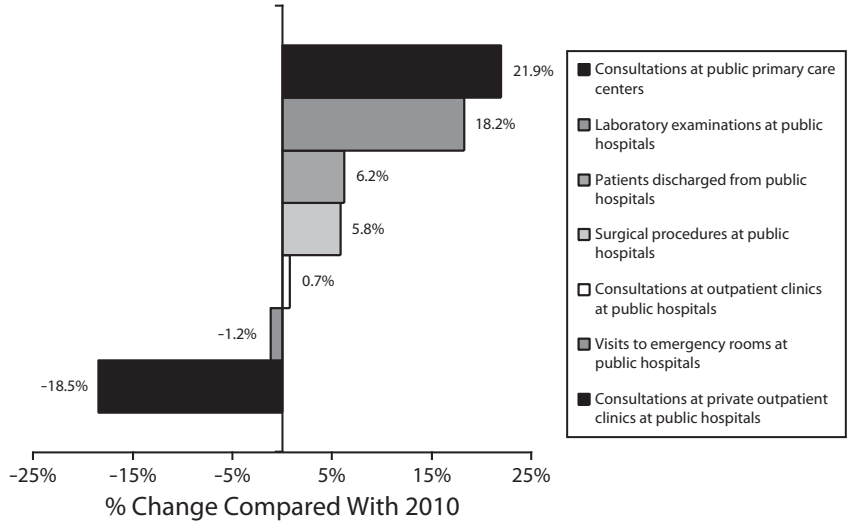
It is interesting that the trend in low-income strata showed the opposite direction (Figure 4).[64,65] This finding indicated that low-income households during the crisis spent an even larger share of their reduced income to access health services such as pharmaceuticals and hospital services. That is, among low-income households, utilization of services proved relatively inelastic, based on relatively inflexible need for care.

According to data from the Ministry of Health, utilization of public sector services during 2011 increased 21.9% compared with 2010 (Figure 5).[66] On the contrary, utilization of private outpatient clinics that operate on an ability-to-pay basis during evening hours within public hospitals decreased by 18.5% in 2011 compared with 2010 (Figure 5).[66] This sharp increase in utilization of services at public hospitals, combined with cuts in public hospital budgets and services, resulted between 2009 and 2011 in a 14.7% decrease of the average length of stay (from 4.84 days in 2009 to 4.13 days in 2011), a 14.1% increase of the average public hospitals' occupancy rate (from 64% in 2009 to 73% in 2011), and a 33.6% reduction in the average cost per hospitalization (from €3522 in 2009 to €2340 in 2011).[23,24] This finding partly reflects problems of understaffing and shortages of medical supplies in Greek public hospitals, as already highlighted in earlier studies.[50]

WHAT TO LEARN FROM THE GREEK CASE

It is tragic that Greece has become an important test regarding the impact of economic and social determinants on a population's health and well-being. Evidence presented indicates that economic recession and its consequences (unemployment, poverty and social exclusion, homelessness, and insecurity) exert important effects on Greece's population health and health care services. Several causes of mortality and morbidity related to mental health, substance abuse, and infectious disease already show clear rising trends. Heightened needs and increased demand on public services collide with austerity and privatization policies.

While people in Greece are facing these dangerous conditions, similar to those that Latin American countries and countries in the ex-Soviet bloc faced during the 1990s,[4,33,34,36,37,41] citizens from Portugal, Spain, Italy, and Ireland are experiencing similar policy changes. The latest forecast by the European Commission predicts negative GDP growth rates in



Note. Outpatient clinics at public hospitals operate during daytime hours on a minimum cost-sharing basis (Consultations at outpatient clinics at public hospitals), whereas during evening hours they operate entirely on an ability-to-pay basis (Consultations at private outpatient clinics at public hospitals).
Source. Data presented are authors' calculations based on ESY.net.[66]

FIGURE 5—Utilization of public health care services: Greece, 2011.

2012 for at least 7 countries within the Eurozone.[67] Arguments about the "public debt crisis" and "unaffordable welfare states" have appeared already in other countries[68–70] to justify the spread of restrictive health policies and other austerity measures throughout Europe.[16,70] It is interesting that, during the 1980s and 1990s, the shift toward privatization and public spending cuts was based mainly on the claim that these policies could offer an all-purpose key to better provision of public services[71]; nowadays the slogan used to justify the same policies is that certain countries have been living beyond their means and therefore cannot any longer afford their welfare states and public services.[70]

Historical evidence suggests that in times of economic downturn, policies of cutbacks and privatization can further jeopardize populations' health and health services.[18,32,72] On the other hand, sustained public spending or creative reorganization and expansion of public sector health services can protect populations' health status.[37,73,74] For instance, in Latin America, countries such as Argentina, Venezuela, Ecuador, Uruguay, and Bolivia have acted to foster their populations' health by resisting the demands of international financial institutions to reduce public investments in health services.[22] The improvements of economic and health indicators seen in those countries have demonstrated that the policies of austerity are unscientific, dangerous, and resistible.[22] As the populations of Greece and other European countries face unprecedented austerity policies, the dangers to public health likely will deepen, unless popular resistance leads to the defeat of such policies. ■

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Contributors

E. Kondilis designed the study, collected and analyzed the data, and prepared the article. S. Giannakopoulos, M. Gavana, and I. Ierodiakonou contributed to data analysis and interpretation and article editing. H. Waitzkin and A. Benos supervised the study design, data analysis, and article preparation, and edited the article. All authors have read and approved the final version of the article.

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Human Participant Protection

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The Maladies of Water and War: Addressing Poor Water Quality in Iraq

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Water is essential in providing nutrients, but contaminated water contributes to poor population health. Water quality and availability can change in unstructured situations, such as war.

To develop a practical strategy to address poor water quality resulting from intermittent wars in Iraq, I reviewed information from academic sources regarding waterborne diseases, conflict and war, water quality treatment, and malnutrition. The prevalence of disease was high in impoverished, malnourished populations exposed to contaminated water sources.

The data aided in developing a strategy to improve water quality in Iraq, which encompasses remineralized water from desalination plants, health care reform, monitoring and evaluation systems, and educational public health interventions. (*Am J Public Health.* 2013;103:980–987. doi: 10.2105/AJPH.2012.301118)

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rule, border disputes, and religious strife has created continuous conflict in Iraq, with wars conducted from the beginning of the 20th century to the present. Iraq took part in World Wars I and II. The Persian Gulf wars had three phases: 1980 to 1988, 1988 to 1991, and 2003 to 2010.[1,2] The American involvement in Iraq and Afghanistan represent the most sustained combat in the world since the Vietnam War.[3]

War causes worker shortages, skill-set imbalances, and unreliable distribution of supplies.[4] Unstable leadership, disputed territory, and degradation of land and supplies lead to various public health challenges, which Iraq has experienced throughout the past century.[5] Iraq's geography exposes inhabitants to significant threats of waterborne and infectious diseases because of the construction of cities along the Tigris and Euphrates rivers and the proximity to neighboring territories that have frequent disease outbreaks. In the mid-20th century, during a hiatus between World War II and the Persian Gulf wars, Iraqis enjoyed comprehensive health care services, including modern hospitals, throughout the country. By 1992, most hospitals were operating at a fraction of their previous level and faced severe medical and supply shortages. Health care access declined and disease proliferated. Malaria, cholera, gastrointestinal diseases, and typhoid fever became prevalent throughout Iraq.

Another effect of war in Iraq is infrastructure deterioration. The destruction of Iraq's water supply system caused widespread failure of water purification and sewage systems.[5] Public health issues became secondary to fundamental human needs; Iraq has become a developing country whose people suffer decreased access to clean water, increased prevalence of malnutrition, and heightened severity of disease outbreaks.

Research regarding practical strategies to address Iraq's water crisis is sparse and outdated. The most recent article on the United Nations (UN) Educational, Scientific, and Cultural Organization's Web site concerning water in Iraq was published in August 2010.[6] I evaluated water quality issues in Iraq, beginning with a review of historical and current accounts of waterborne disease outbreaks resulting from war. My aim was to amass information on sustainable water quality measures to use in preventing and mitigating disease outbreaks resulting from poor water quality in Iraq. Useful knowledge includes historical and current data on waterborne diseases, best practices for rebuilding war-torn societies, nutritional status of the population, public health infrastructure and awareness, and the country's overall economic and political state.

REVIEW

I searched multiple search engines (PubMed, Web of Science,