Facts and ideas from anywhere

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DYSTHYMIA

The word was new to me, but according to Melinda Beck, who summarized several articles in medical journals for *The Wall Street Journal*, it is when someone has a dark mood on most days for at least 2 years (1–3). Persistent feelings of hopelessness, irritability, low self-esteem, and low energy are among its signs and symptoms. Even mild depression that

is unrelenting can have severe consequences for work, family, and social life, as well as a high risk for suicide.

Researchers at the New York State Psychiatric Institute of Columbia University analyzed government surveys of 43,000 Americans and found that those with dysthymia were more likely to have physical and emotional problems and be on Medicaid or Social Security Disability than those with acute depression. They were also less likely to work full-time. Major depression shares some of the same symptoms, but it is 3 times as common and is more severe. It also tends to come in acute episodes, sometimes requiring hospitalization. Many people with dysthymia do not even realize they are depressed and never mention that feeling to their physicians. Some studies have found that nearly 80% of people with dysthymia also have episodes of major depression—sometimes known as “double depression.” People with chronic depression are more likely to attempt suicide than those with more acute forms.

Officially, dysthymia affects only about 1.5% of the US population in any given year and 5% at some point during their lives. The current definition of dysthymia excludes anyone who had an episode of major depression during the past 2 years. Some experts have recommended combining dysthymia, double depression, and chronic major depression into a single category of chronic depression because symptoms often wax and wane over the years. In about half the cases the gloomy moods, chronic pessimism, and low self-esteem begin before age 18, and the disorder can look like shyness or irritability in young children. Dysthymia frequently runs in families, but it is unclear how much of that is due to nature or nurture. Children who suffer abuse or trauma have high rates of dysthymia, often

have trouble in school and in social relationships, and are less likely to get married than their peers.

Dysthymia that starts later in life is often triggered by a major life stress, such as the loss of a job, the death of a loved one, or the break-up of a marriage. It can also masquerade as chronic pain or other physical symptoms, further complicating diagnosis. Like other mood disorders, dysthymia is diagnosed about twice as often in women as in men, but men may simply be more stoic, be less willing to seek help, or attempt to self-medicate.

Dysthymia has not been studied as extensively as major depression, but treatment is generally the same. About one third of people with chronic depression respond briskly to antidepressants. Others try several medications or combinations of them to find relief. Talk therapy has been helpful also for chronic depression. Cognitive behavioral therapy is useful to teach patients to challenge negative thought patterns that bring them down. Treatment for chronic depression also generally takes longer than for the more acute forms. Relapse rates are high, and many people find they need to stay on medication long term. About 25% of people with dysthymia never find relief.

BRAIN SHRINKAGE

Robert Lee Hotz summarized a study in the *Proceedings of the National Academy of Sciences* that highlights what researchers call “the unique character of human aging” (4). The human brain can shrink up to 15% as it ages, a change linked to dementia, poor memory, and depression. Until now, researchers had assumed that this gradual brain loss in later years was universal among primates.

In the first direct comparison of humans to chimpanzees, a brain-scanning team led by anthropologist Chet Sherwood found that chimpanzees do not experience such brain loss. Using magnetic resonance imaging scans to measure changes in five key brain structures involved in memory, reasoning, and other mental processing, as well as overall brain volume, they compared measurements from 87 adult humans, aged 22 to 88 years, with the brain volumes of 99 adult chimps, aged 10 to 51 years. On average, human brains weigh about 3 pounds; chimp brains, about 1 pound. The researchers found that the human brain lost significant volume over time whereas the chimpanzee brain did not. Unlike chimpanzees and other

primates, older humans are prey to a host of neurodegenerative diseases such as Alzheimer's disease. Stress, depression, and diet were also found to affect brain size.

Human brain shrinkage may simply be the price our species pays for living so much longer than other primates. Barring serious illness or injury, humans can expect to live about 80 years or more, almost twice the normal lifespan of a chimpanzee in the wild. During those extra decades of life, natural cell-repair mechanisms wear out and neural circuits wither. Natural grooves in the brain widen. Tangles of damaged neurons become dense thickets of dysfunctional synapses. So the chimpanzees have something on us humans.

ALZHEIMER RISK FACTORS

Barnes and Yaffe (5) from the University of California–San Francisco described seven conditions or behaviors that contribute to about 50% of Alzheimer's cases, which number 3 million in the USA and 34 million around the world. With no cure or treatment to reverse the mind-robbing disease, preventing new cases, of course, is crucial. They determined that physical inactivity had a 21% contribution to development of Alzheimer's; depression, 15%; smoking, 11%; hypertension, 8%; obesity, 7%; low education, 7%; and diabetes mellitus, 3%.

INSOMNIA

According to Petersen (6), about 30% of American adults have insomnia symptoms each year. About 10% of the population has chronic insomnia (difficulty sleeping at least 3 times a week for a month or more), leading to feeling tired, cranky, or foggy-headed during the daylight hours. Some people have a tough time falling asleep, others wake in the middle of the night and have trouble getting back to sleep, and still others rise for the day too early. Insomnia can increase the risk for other conditions, including heart disease, diabetes mellitus, and depression.

Americans spent about \$2 billion on prescription sleep drugs in 2010. Although the number of prescriptions written rose 23% to about 60 million in 2010 from 49 million in 2006, total dollar sales decreased as generic versions of drugs like Ambien have entered the market. Sales of prescription sleeping pills in 2006 in the USA were \$3.6 billion. This cost does not include self-treatment with alcohol or over-the-counter medications, such as Tylenol PM and Benadryl, which contain an antihistamine.

The most common sleep-aid drugs, called benzodiazepine receptor agonists, alter the activity of gamma-aminobutyric acid, a neurotransmitter thought to facilitate sleep. These sedatives slow the brain down and put it to sleep. These drugs have side effects, including daytime drowsiness (the "hangover effect"), memory problems, and balance problems. They can be dangerous when combined with other sedatives like alcohol, and there are some concerns that they can be addictive and abused.

The good news is that several pharmaceutical companies are working on newer approaches to treat insomnia. The compounds are meant to work differently than the current leading sleep-aids such as Ambien and Lunesta, which while generally

safe can have troubling side effects. By contrast, many of the drugs being developed target particular systems responsible for sleep and wakefulness. The hope is that they will have fewer side effects and less potential for addiction and cognition problems the next day. Merck and Company is investigating a compound that inhibits the action of orexin receptors, which in turn interfere with the activity of orexin, a chemical in the brain that produces alertness. The company hopes to file for Food and Drug Administration approval by 2012. Other companies are working on similar products.

PREPARING FOR DEATH

George Burns stated something to the effect that we all die but he was looking for another way out. Saabira Chaudhuri (7) has provided a list of 25 documents we all need before we die, and their preparation could save our heirs great frustration and financial pain. These items are a marriage license; divorce papers; personal and family medical history; durable health care power of attorney; authorization to release health care information; living will; do not resuscitate order; housing, land, and cemetery deeds; escrow mortgage accounts; proof of loans made and debts owed; vehicle titles; stock certificates, savings bonds, and brokerage accounts; partnership and corporate operating agreements; tax returns; life insurance policies; individual retirement accounts (IRAs); 401(k) accounts; pension documents; annuity contracts; list of bank accounts; list of all user names and passwords; list of safe deposit boxes; will; letter of instruction; and trust documents.

An original will is the most important document to keep on file. It allows one to dictate who inherits what assets and the guardians for any underage children. Dying without a will means losing control of how one's assets are distributed. Instead, state law will determine what happens. Wills are subject to probate—legal proceedings that take inventory, make appraisals of property, settle outstanding debt, and distribute remaining assets. Not having an original document means this already onerous process could be much more of an ordeal, since family members can challenge a copy of a will in court.

A "letter of instruction" can be a useful supplement to a will, though it does not hold legal weight. It is a good way to make sure one's executor has the names and contact information of one's attorneys, accountants, and financial advisors. While the will should be stored with one's attorney or in a courthouse, the letter of instruction should be more readily accessible, particularly if it contains instructions on funeral arrangements. Heirs should also have access to a durable financial power of attorney form. Without it, no one can make financial decisions on one's behalf if one is incapacitated.

The most recent 3 years of tax returns should be available to one's heirs. These returns offer a snapshot of what assets the heirs should be looking for. These returns also help one's personal representative file a final income tax return and, if necessary, a revocable-trust return.

The most important health care document to fill out in advance is a durable health care power of attorney form. This allows one's designee to make health care decisions on one's

behalf if one is incapacitated. The document should be compliant with federal health information privacy laws, so that physicians, hospitals, and insurance companies can speak with the designee. An authorization to release protected health care information is also useful to have.

The living will and the power of attorney constitute what are called “advance directives”; some states consolidate these into a single form. (AARP offers a state-by-state listing of advance directive forms on its website.) Terminally ill patients may wish to have their physicians make a do not resuscitate order.

Copies of life insurance policies are among the most important documents for one’s family to have. Family members need to know the name of the carrier, the policy number, and the agent associated with the policy. Chaudhuri cautions that one should be especially careful with life insurance policies granted by an employer upon retirement since those are the kind that financial planners most often miss.

Estate planners also recommend drawing up a list of pensions, annuities, IRAs, and 401(k)s for one’s spouse and children. An IRA is considered dormant or unclaimed if no withdrawal has been made by age 70½. According to the National Association of Unclaimed Property Administrators, tens of millions languish in unclaimed IRAs every year. One can track unclaimed pensions, 401(k)s, and IRAs at *Unclaimed.com*.

It is important for a spouse to know the location of the marriage license. For divorced people, it is important to leave behind the divorce judgment and decree or, if the case was settled without going to court, the stipulation agreement. These documents lay out child support, alimony, and property settlements and may also list the division of investment and retirement accounts.

URBAN VS. SUBURBAN VS. RURAL HEALTH

The County Health Rankings, a research project, recently issued its second annual report of state-by-state comparisons of health measures in every US county, and the findings were summarized by Melinda Beck in *The Wall Street Journal* (8). Many cities that were once notorious for pollution, crime, crowding, and infectious diseases have generally cleaned up, while rural problems have festered. Rural residents are now more likely than any other Americans to be obese, be sedentary, and smoke cigarettes. They also have higher rates of diabetes mellitus, stroke, heart disease, and high blood pressure. Although city dwellers have more air pollution, crime, sexually transmitted diseases, low-birthweight babies, and alcoholism, overall urbanites are healthier and are less likely to die prematurely than are rural Americans. In many measures, residents of suburban areas are the best off. They generally rate their own health the highest and have fewer premature deaths than either their urban or rural counterparts. Suburbanites also have the fewest low-birthweight babies, homicides, and sexually transmitted diseases.

Much of the health advantage in cities and suburbs may be a function of age, income, and education levels. The average annual household income in central cities is \$53,000 according to the county ranking report, compared with \$39,000 in rural areas and \$60,000 in suburbs, and rural residents tend to be

older and less educated than their urban counterparts. Rural residents also have less access to health care. About 25% of the US population lives in rural areas, but they are served by only 10% of the country’s physicians. They are also less likely to have private health insurance, prescription drug coverage, or Medicaid coverage. Rural America is a place where those most in need of health care services often have the fewest options.

Unhealthy habits can start early. Rural children aged 2 to 5 are nearly twice as likely as urban kids to consume 24 ounces of sweetened beverages a day. From age 6 to 11, rural kids consume on average 80 g of fat a day, compared with 73 g for urban children. Patterns of TV watching and physical inactivity are roughly similar between the two groups. Obesity hits the rural areas the hardest. Overall, 19% of rural children aged 2 to 19 are obese, with a body mass index (BMI) >30 kg/m², and 36% of them are overweight, with a BMI of 26 to 30 kg/m². By comparison, 15% of urban kids the same age are obese and 30% are overweight.

Several factors make country living less healthy. Deaths from traffic accidents are more common in rural areas, not just because speed limits are higher, but also because the average emergency medical response to an accident is 18 minutes compared with 10 minutes in urban areas. Country living, of course, has some advantages. Children who grow up on farms tend to have less asthma and fewer allergies and autoimmune disorders than city kids. City dwellers have higher rates of mental health problems than rural residents. People who move from a city environment to the country or vice versa generally bring their health habits with them.

SUDDEN CARDIAC DEATH IN COLLEGE ATHLETES

The National Collegiate Athletic Association (NCAA) consists of a unique group of athletes. In any given year, there are approximately 400,000 student athletes aged 17 to 23 years who compete in 40 sports in three different NCAA divisions. Every institution uses a medical staff, which includes at least a certified athletic trainer, and each institution has a designated media staff. Although there is no mandatory reporting of deaths, NCAA athlete deaths are less likely to go unnoticed or unreported than deaths of other groups of athletes, and media searches may be more likely to identify deaths. In addition, the NCAA publishes records of the number of athletes participating each year in each sport as well as their sex and ethnic makeup.

Harmon and colleagues (9) from Seattle, Washington, and Indianapolis, Indiana, identified deaths among NCAA athletes between January 1, 2004, and December 31, 2008. During the 5-year period, there were a total of 1,969,663 athlete participant-years, with 843,106 female and 1,126,557 male athlete participant-years and 300,835 black and 1,583,635 white athlete participant-years. There were 273 deaths, and 187 (68%) were nonmedical and occurred off the playing field; these included accidents (51%), suicide (9%), homicide (6%), and drug overdose (2%). A cause of death could not be attributed in 6 (2%) of the 273 cases. Medical causes of death numbered 80 (29%), and the 45 with cardiac causes accounted for 56% of the medical deaths.

The risk of death varied by sport. Basketball was by far the highest-risk sport, with an overall annual death rate of 1:11,394. The risk of sudden cardiac death was 1:5743 in black basketball athletes and 1:21,824 in whites per year. There were 36 medical deaths that occurred with exertion. The others either occurred at rest or could not be classified. Of the exertional deaths, 27 of 36 (75%) were related to cardiac causes, with the remaining exertional deaths related to heat stroke. The sports with the next highest overall risk were swimming and lacrosse, followed by football and cross country.

INDOOR TRAMPOLINE PARKS

As of July 2011, about 50 indoor trampoline parks were operating in 12 states, with revenues approaching \$100 million (10). The parks, which charge \$8 to \$14 an hour, feature wall-to-wall trampolines. They may be good exercise, but they are also a good source of broken ankles, arms, legs, and even necks. The American Academy of Orthopedic Surgeons does not recommend recreational use of trampolines. Be careful!

E. COLI, VEGETABLES, AND FRUITS

According to David Rising (11), as of early June 2011, >1800 people in Germany have been sickened by *E. coli* infection, mainly during the month of May. Of those sickened, 520 have had a life-threatening complication (like kidney failure) and 18 have died. The World Health Organization said that as of June 2011, 10 other European nations and the USA have reported 90 people sick with the same bacterium, and all but two of them had recently visited northern Germany. The source of the *E. coli* has been unclear, but raw tomatoes, cucumbers, and lettuce have been the main focus. To avoid food-borne illnesses, the World Health Organization recommends washing hands, keeping raw meat separate from other foods, thoroughly cooking the food, and washing fruits and vegetables, especially if eaten raw. Peeling raw fruits and vegetables is also recommended.

FEEDING A WARMING PLANET

The rapid growth in farm output that defined the late 20th century has slowed to the point that it is failing to keep up with the demand for food. Driven by population increases and rising affluence in once poor countries, consumption of the four staples that supply most human calories—wheat, rice, corn, and soybeans—has outstripped production for most of the past decade, drawing once large stockpiles down to low levels. The imbalance between supply and demand has resulted in two huge spikes in international grain prices since 2007, with some grains more than doubling in cost. Those price jumps, though felt only moderately in the West, have worsened hunger for tens of millions of poor people, destabilizing politics in scores of countries.

The previously discounted climate change is playing a role in the destabilizing of the food system. Many of the failed harvests of the past decade were a consequence of weather disasters, some of which were caused or worsened by human-induced global warming. Temperatures have risen rapidly during the growing

season in some of the most important agricultural countries, and this increase has shaved several percentage points off of potential yields, adding to the price gyrations. Farmers everywhere, according to Justin Gillis writing for *The New York Times*, are facing water shortages and flash floods (12). Their crops are afflicted by emerging pests and diseases and by blasts of heat beyond anything that they remember.

The Green Revolution in agriculture several decades ago was led by Norman E. Borlaug, a young US agronomist who helped Mexico increase its wheat production sixfold. (Borlaug won the Nobel Prize in 1970 and is the only agronomist ever to win.) As the output rose, staple grains—which feed people directly or are used to produce meat, eggs, dairy products, and farmed fish—became cheaper and cheaper. Overall, the percentage of hungry people in the world shrank. By the 1980s, food production seemed under control. Governments and foundations began to cut back on agricultural research. During the past 20 years, Western aid for agricultural development in poor countries fell by almost half, with some of the world's most important research centers suffering mass layoffs. The consequence of this loss of focus began to show up in the world's food system toward the end of the last century. Output continued to rise, but fewer innovations were reaching farmers and the growth rate slowed.

That lull occurred just as food and feed demand was starting to take off, thanks in part to rising affluence in much of Asia. Erratic weather began eating into yields, such that the low grain supplies in 2007 and 2008 led to the doubling and in some cases tripling of prices. Whole countries began hoarding food, and panic buying ensued in some markets, notably for rice. Food riots broke out in >30 countries.

Farmers responded to the high prices by planting as much as possible, and healthy harvests in 2008 and 2009 helped rebuild stocks to a degree. That factor plus the global recession drove prices down in 2009. But by 2010, more weather-related harvest failures sent them soaring again. This year, rice supplies seem adequate but bad weather threatens the wheat and corn crops in some areas. Some experts fear that the era of inexpensive food is over. There would be no shortage if most of the grains did not go to feeding the nonhuman animals rather than directly to feeding people.

SHORTENING TIME TO MEDICAL SCHOOL

A program currently being developed will allow students throughout the University of Texas system to start college in 2013 and graduate from medical school in spring 2020, 1 year faster than earlier (13). Presently, medical education is the longest and most expensive of any profession. Students now spend 4 years in college, 4 years in medical school, and then 3 to 7 years more in training in their chosen specialty. For medical school alone, average student debt is \$160,000.

The time and cost is considered a factor in the physician shortfall, expected to be 150,000 physicians in 15 years. Texas, the nation's second most populous state, already ranks last in the ratio of physicians to population. When I entered medical school in 1954, many medical schools accepted students who

had finished only 3 years of college. The present “innovation” is simply a return to a previous program.

GRADUATE MEDICAL EDUCATION

On June 23, 2010, the Accreditation Council for Graduate Medical Education (ACGME) posted on its website new program requirements for residency training in the US, and these have been summarized by Dr. John W. Caruso of Jefferson Medical College (14). These guidelines contain the duty-hour regulations that will likely frame the work schedules of housestaff for the next decade. The guidelines were highly anticipated by the academic medical community and were heightened by the release in 2008 of the Institute of Medicine report: “Resident duty hours enhancing sleep, supervision and safety.” This report raised concerns that the ACGME 2003 duty-hour regulations did not go far enough to ensure the safety of patients and residents. Specifically, the Institute of Medicine identified research models that found safety gains from more restrictive shift lengths and highlighted other industries that have aggressively regulated hours at work and at rest.

The new ACGME guidelines went into effect July 1, 2011. Specific changes to resident duty hours affect all years of post-graduate training. The 2003 requirements allowed for shifts of 24 hours plus an additional 6 hours for educational activities and patient sign-out. This effectively resulted in residents at all levels working for periods of up to 30 consecutive hours. The new guidelines are more restrictive and are differentiated for level of training. For PGY-I residents (interns), duty periods may no longer exceed 16 total hours. For PGY-II residents and above, the new limit is 24 total hours, and it was strongly suggested that this time period include an opportunity for “strategic napping” between the hours of 10:00 PM and 8:00 AM. These upper-level residents will now be allowed only an additional 4 hours for patient transition, instead of the 6 hours in the previous iteration of the duty-hour requirements.

Time off between duty periods is also stipulated by the ACGME requirements. Similar to the earlier regulations, residents must have at least 8 hours off between work periods and “should have 10 hours off.” A new component stipulates that these work-free intervals must be >14 hours for upper-year residents following any 24-hour shift. The total limit of 80 hours per week is similar to the 2003 regulations. A new caveat requires all moonlighting activities of residents to be counted against this limit. This stipulation addressed a frequent concern that sleep deprivation of residents was also influenced by activities some individuals pursued outside of their appointed training programs. The requirements for call no more frequently than every third night and 1 day free from duty each week were not changed.

While the duty-hour requirements have generated the most attention, several other new stipulations intended to improve the safety of patient care in a training environment have been instituted. One initiative is outlined within the core competency category of “systems-based practice.” Here it is stipulated that residents “must systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement.” This competency statement further

dictates that residents “work in interprofessional teams to enhance patient safety and improve patient care quality” and also that they “participate in identifying system errors and implementing potential system solutions.” The program director must ensure that residents are “integrated and actively participate in interdisciplinary clinical quality improvement and patient-safety programs.” Finally, the ACGME added that “residents and faculty members must demonstrate an understanding and acceptance of their personal role in the monitoring of their patient-care performance and improvement indicators.”

These requirements will ensure that residency programs go further to involve residents and faculty in safety and quality efforts. The current ACGME requirements are easily satisfied with conferences; programs have most often used the “morbidity and mortality” format to do so. The new requirements will require training programs to make certain that residents are active participants in the process. Creating multidisciplinary efforts will be a new paradigm for many programs, and the monitoring and use of performance indicators for residents will likely be a challenge for some.

Another new focus has been placed on resident sign-outs or handovers (“transitions of care”). The new guidelines ask that programs create clinical schedules that minimize these transitions. It is specified that there be “structured handover processes to facilitate continuity and safety” and that programs ensure that “residents are competent in communicating with team members” in the handover process. These new features will require training programs to develop systems and solutions that are beyond the current norms.

Finally, the ACGME has formally outlined supervision models for residents. The new requirements define these levels as “direct,” “indirect,” and “oversight.” They further outline that PGY-I residents be directly supervised or indirectly supervised, with the latter model allowable only if the supervisor is immediately available. While this intensified need for supervision will be a shift for some programs, it is likely the single most important safety measure to be adopted. It is no longer acceptable for the least experienced team member to make critical decisions without the input of senior residents and faculty. The goal here is to lessen the likelihood of a PGY-I learning of a flawed decision only during teaching rounds that occur hours after the clinical events that ensued.

In summary, the new ACGME requirements go beyond the well-publicized ones intended to ensure that residents are less fatigued. Quality and safety are further stressed in these requirements. Medical life, as in other areas, is getting more and more complicated.

US POPULATION GROWTH

The average number of children among women aged 40 to 44 in the USA among Asians is 1.8; blacks, 2.0; whites, 1.8; and Hispanics, 2.3 (15). The growth of Latinos in the USA, once driven by immigration, is now fueled by births, chiefly by Mexicans and Mexican-Americans, according to a new analysis of US Census Bureau data. The number of Hispanics in the USA has increased 43% since 2000 and more than doubled since

1990. With a population of 50.5 million in 2010, Hispanics now account for nearly 1 in 6 US residents and for 23% of people under the age of 18. The population of Latinos of Mexican origin, who represent nearly two thirds of US Hispanics, grew by 7.2 million between 2000 and 2010 as a result of births and only about 4.2 million due to immigrant arrivals.

In the previous 2 decades, the number of new Mexican immigrants in the US either matched or exceeded the number of births. The current surge in births follows the massive wave of Hispanic immigration to the US that began in the 1970s. The tilts suggest that descendants of immigrants could be the main engine of US population growth for decades to come. It is predicted that >80% of US population growth through 2050 will come mainly from Hispanic immigrants and their children. In 1970, <1 million Mexicans lived in the USA. By 2000, that number had jumped to nearly 10 million, and by 2007, it had reached 12.5 million. Since then, the Mexican population in the US has remained constant because the influx of immigrants has slowed dramatically—400,000 in 2010 compared with about 1 million in 2006. In the last decade, the Hispanic share of the population grew in every US state. Texas' Hispanic population increased 41%, accounting for two thirds of the state's growth.

DECREASING PERCENTAGE OF CHILDREN IN THE US POPULATION

The 2010 census data show that the percentage of children in the US is 24%, falling below the previous low of 26% in 1990 (16). The share is projected to slip to 23% by 2050, even as the percentage of people ≥65 is expected to increase from 13% today to 20% by 2050 because of the aging of baby boomers. In 1900, the share of children reached as high as 40%, compared with a 4% share for those ≥65 years. The percentage of children in subsequent decades was >30% until 1980, when it fell to 28% amid declining birth rates, mostly among whites. With the low percentage of children now, this generation will grow up to become a shrinking workforce that will have to support the nation's expanding elderly population—bad news for health care, pensions, and other programs.

The children of immigrants make up one in four people <18 years of age in the US and are the fastest growing segment of the nation's youth, an indication that both legal and illegal immigrants as well as minority births are lifting the nation's population. Nationwide, the number of children has grown by 1.9 million, or 2.6%, since 2000. That represents a drop-off from the previous decade, when even higher rates of immigration by Latinos, who are more likely than other ethnic groups to have large families, helped increase the number of children by 8.7 million, or nearly 14%.

Twenty-three states and the District of Columbia had declines in the number of children in the first 10 years of this century, with Michigan, Rhode Island, Vermont, and the District of Columbia seeing some of the biggest drops. In contrast, states with some of the biggest increases—Texas, Arizona, Florida, Georgia, Nevada, and North Carolina—also ranked in the bottom third of states in terms of child well-being (levels of poverty,

single-parent families, unemployment, high-school dropouts, and other factors).

The slowing population growth in the US mirrors to a lesser extent the situation in other developed nations, including Russia, Japan, and France, which are seeing reduced growth or population losses due to declining birth rates and limited immigration. Depending on future rates of immigration, the US population is estimated to continue growing through at least 2050. Currently, 54% of the nation's children are non-Hispanic white, while 23% are Hispanic, 14% black, and 4% Asian. Over the past decade, the number of non-Hispanic white children declined 10% to 40 million, while the number of minority children rose 22% to nearly 35 million.

EXTREME CHILDHOOD OBESITY

A piece in the July 13, 2011, *Journal of the American Medical Association* argues that parents of extremely obese children should lose custody for not controlling their kid's weight (17). The journal piece argues that putting children temporarily in foster care is in some cases more ethical than obesity surgery. University of Pennsylvania bioethicist Art Kaplan argues that the debate risks putting too much blame on parents. Obese children are victims, he opines, of advertising, marketing, peer pressure, and bullying—things that parents cannot control. Roughly 2 million US children are extremely obese. Their obesity-related conditions, such as type 2 diabetes mellitus, breathing difficulties, and liver problems, might kill them by age 30. It is these kids for whom state intervention, including education, parent training, and temporary protective custody in the most extreme cases, should be considered.

AGING AND GAINING WEIGHT

Because gaining weight is so common in our population, many believe it is a normal part of getting older. Mozaffarian and colleagues (18) studied the weight, eating, and living habits of nearly 121,000 men and women from the Nurses' Health Study and the Health Professionals Follow-Up Study. Participants were tracked every 4 years for 20 years. They gained an average of 3.35 pounds over the 4-year periods and almost 17 pounds over the 20-year period. People who made the most unhealthy dietary changes gained nearly 4 pounds more in 4 years than those who had the healthiest dietary changes. People who ate an extra serving of chips a day gained an average of 1.7 pounds more in 4 years than those who didn't eat that extra serving. People who drank one more sugar-sweetened beverage added an extra pound more in 4 years than those who didn't. Other factors also led to weight gain: decreased physical activity, increased alcohol intake, <6 or >8 hours of sleep a night, and increased television viewing. And it's more than just watching the fat intake. Some foods such as nuts that are high in fat helped prevent weight gain. Other foods that are generally low in fat, such as white bread and low-fiber cereal, contributed to weight gain. People who increased their physical activity gained less weight than those who didn't. There are clearly healthy foods, less healthy foods, and the least healthy foods, and all of us must make the choices.

MOSQUITOES DYING FROM BITING HUMANS

Ivermectin, an inexpensive deworming pill used in Africa for 25 years against river blindness, was recently shown by Kobylinski and associates (19) to have a power that scientists had long suspected but never before demonstrated: mosquitoes die when they bite people who have recently swallowed the drug. While the mosquito-poisoning tool is effective, it is not very practical: for it to work effectively, nearly everyone in a mosquito-infested area must take the pill simultaneously. And, getting thousands of villagers to do that is a logistical nightmare. The mosquito effect appears to fade out within a month, so it would need to be repeated monthly. The investigators vacuumed mosquitoes from the walls of huts in three villages whose inhabitants had recently been given ivermectin and in three villages whose inhabitants had not and tested to see how many mosquitoes had malaria parasites. The ivermectin villages had almost 80% fewer. Interestingly, only older mosquitoes transmit malaria since they must get it first from humans.

THE WAR ON DRUGS

The Global Commission on Drug Policy, a 19-member panel chaired by former Brazilian President Fernando Henrique Cardoso, has declared America's "war on drugs" a failure with "devastating consequences for individuals and societies around the world" (20). The commission's report was released in June 2011 and recommended "far reaching changes including . . . decriminalization and experiments in legal regulations."

In July 2011, Representatives Barney Frank and Ron Paul introduced a bill in Congress to remove marijuana from the list of federally controlled substances, leaving it up to the states to decide if they wanted to legalize it. As Joseph A. Califano Jr. and William J. Bennett argue in *The Wall Street Journal*, legalization will only make harmful substances cheaper, easier to obtain, and more socially acceptable to use (20). The US has some 60 million smokers, 20 million alcoholics and alcohol abusers, and 21 million illicit drug users (over 7 million of whom are addicts). If illegal drugs were easier to obtain, the latter figure would rise sharply. Moreover, these two authors argue that more readily available drugs would increase criminal activity. Most violent crimes, such as murder, assault, and rape, occur when the perpetrator is either on drugs or drunk, and a high percentage of property crime involves people seeking money to buy drugs and alcohol.

Approximately 30% of federal and state health care spending is attributable to the use and abuse of addictive substances, including tobacco, alcohol, and illegal drugs. The National Center on Addiction and Substance Abuse at Columbia University (CASA) estimated the total financial cost to taxpayers to be \$500 billion annually. The human misery is incalculable. Increased use of illegal drugs will increase these costs and this misery.

A Medicaid patient with drug and alcohol problems costs \$5000 to \$15,000 a year more in health care costs than one without such problems. Most Medicaid hospital patients readmitted within 30 days are those with drug and alcohol problems.

The notion that taxing sales of marijuana and drugs like cocaine and heroin will provide a windfall for our public

coffers also is illusory. For every \$1 of taxes collected from the sale of tobacco and alcohol, we incur \$9 in state and federal health care, criminal justice, and social service costs. These costs will skyrocket if legalization becomes the norm, draining our public coffers at an even more alarming rate.

Legalization in other countries has had disastrous results. In the 1990s, Switzerland experimented with what became known as Needle Park, a section of Zurich where addicts could buy and inject heroin without police interference. Policymakers saw it as a way to restrict a few hundred legal heroin users to a small area. It soon morphed into a grotesque tourist attraction of 20,000 addicts that had to be closed before it infected the entire city. In the Netherlands, where marijuana can be bought in "coffee shops," adolescent use, citizen anger, and international irritation have soared. Responding to the outcry from its own citizens and from other countries, the Dutch government has reduced the number of marijuana shops, limited the amount that can be purchased, and raised the age of legal buyers to 18 from 16. In May 2011, the Dutch government also announced that it will prohibit tourists from purchasing marijuana at "coffee shops" by the end of 2011.

Facing an onslaught of angry citizens whose neighborhoods were overrun with marijuana users, the Los Angeles City Council in 2010 closed 437 of the 1000 or more "medical marijuana shops" that opened after California's medical marijuana law passed in 1996.

Sweden provides an example of a successful restrictive drug policy. Faced with rising drug use in the 1990s, the government tightened drug control, stepped up police action, mounted a national action plan, and created a national drug coordinator. The result: drug use is a third of the European average.

Califano and Bennett strongly support greater emphasis on prevention and public health initiatives to reduce drug use, especially among children and teens. They argue that legalization, a policy certain to increase illegal drug availability and use among the nation's children, hardly qualifies as sound prevention. The facts are indisputable: 20 years of CASA research shows that a child who reaches 21 without using illegal drugs is virtually certain never to do so. Unfortunately, the US has shown little capacity to keep our two legal drugs, tobacco and alcohol, out of the hands of children and teens. There is little reason to believe that we can legalize drugs like marijuana, cocaine, and heroin only for adults and keep them away from children and teenagers. Califano and Bennett conclude: "We must remember one thing: drugs are not dangerous because they are illegal; they are illegal because they are dangerous."

These two individuals should know what they are talking about. Mr. Califano is the founder and chairman of the National Center on Addiction and Substance Abuse, and Mr. Bennett was secretary of education during the Reagan administration and the first director of the Office of National Drug Control Policy during the George H. W. Bush administration.

SYNTHETIC PSYCHOACTIVE DRUGS

Packaged and sold as innocent products such as "herbal incense" and "bath salts," synthetic psychoactive drugs are touted

by users as legal alternatives to marijuana, cocaine, and other controlled substances that can bring stiff penalties and jail time (21). The bath salts are psychoactive stimulants that mimic cocaine, amphetamines, and other drugs. The synthetic marijuana includes JWH-O18, sprayed on potpourri or herbs to mimic marijuana. Some research chemicals are psychedelics, including 2C-E and similar chemicals that mimic LSD and other drugs.

But, the consequences of using these alternative products are proving to be devastating. According to Pam Louwagie, poison control centers have received >6000 calls about designer synthetics in 2011, 10 times more than in the first half of 2010. Synthetic drugs have been linked to or suspected in 20 deaths nationally in the past year. Emergency rooms are treating more patients who have overdoses on sometimes tiny amounts. The severity of the cases is what makes it so bad. The symptoms are severe and people are a threat not only to themselves but to those around them.

The new drugs are easy to find. Merchants promote the drugs on the Internet, and some are available on the shelves of record stores and smoke shops. Authorities believe the drugs are often manufactured by rogue chemists in foreign countries. Federal officials say many of the new designer drugs are already illegal under existing laws. To strengthen the hands of police and prosecutors, lawmakers in Washington, DC, and in many state capitols are trying to combat the burgeoning crisis by banning specific substances in designer synthetics and their chemical cousins. Thus far, few prosecutors have brought charges under the laws, which have yet to be fully tested in court.

SIXTEEN POUNDER

Janet Johnson, a 39-year-old woman with diabetes mellitus, gave birth to a 16 pound, 1 ounce baby by cesarean section on July 8, 2011 (22). Guinness World Records says the heaviest newborn ever recorded weighed 23 pounds, 12 ounces, born to an Ohio woman in 1879. Johnson's baby was born almost 2 years to the day after the hospital delivered its smallest baby, which weighed 15 ounces.

MEDICARE'S 45TH ANNIVERSARY

Medicare went into effect in 1966 (23). Initially it covered senior citizens only (those ≥ 65 years). Former President Harry S Truman, then 81, received the first Medicare card. Now Medicare and Medicaid cover not only seniors but young disabled adults and low-income children. In 2010, Medicare covered 47.2 million people and cost \$525.7 billion in the federal budget; Medicaid covered 53.9 million and cost \$272.8 billion. Medicare primarily provides insurance for hospitalization, physician visits, and prescription drugs. Medicaid not only covers these expenses but also provides dental services, eyeglasses, home health services, nursing home care, and many services necessary for children. Unlike Medicare, Medicaid is run by the states. Although there are broad federal guidelines, states have a great deal of flexibility to set eligibility and benefits and to determine how much providers are paid. The federal government pays an average of 57% of Medicaid costs and states provide the rest. How ObamaCare is going to change these programs is unclear.

GOVERNMENT SPYING ON PHYSICIANS

Alarmed by a shortage of primary care physicians, the Obama administration is recruiting a team of "mystery shoppers" to pose as patients, calling doctors' offices and requesting appointments to see how difficult it is for people to get care when they need it (24). The administration says the survey will address a "critical public policy problem": the increasing shortage of primary care physicians, including specialists in internal medicine and family practice. It will also try to discover whether physicians are accepting patients with private insurance while turning away those in government health programs that pay lower reimbursement rates. Federal officials predict that >30 million Americans will gain coverage under the health care law passed in 2010, and these newly insured Americans will need to seek out new primary care physicians, further exacerbating the problem. The survey is planned to take place in Texas and in eight other states.

The so-called "mystery shoppers" will not identify themselves as working for the government. According to government documents, the mystery shoppers will call medical practices and ask if doctors are accepting new patients and, if so, how long the wait would be. The government wants to know if doctors give different answers to callers depending on whether they have public insurance, like Medicaid, or private insurance, like Blue Cross and Blue Shield. Most doctors accept Medicare patients. In many parts of the country, Medicaid, the program for low-income people, pays so little that many physicians refuse to accept them. This, of course, could become a more serious problem in 2014 when the new health care law will greatly expand eligibility for Medicaid.

The administration has signed a contract with the National Opinion Research Center at the University of Chicago to help conduct the survey. Access to care has been a concern in Massachusetts, which provides coverage under a state program many in Congress have cited as a model for President Obama's health care overhaul. In a recent study, the Massachusetts Medical Society found that 53% of family physicians and 51% of internal medicine physicians were not accepting new patients. When new patients could get appointments, they faced long waits, averaging 36 days to see family physicians and 48 days to see internists.

MAKING PREDICTIONS

Dan Gardner, a Canadian journalist, recently authored *Future Babble: Why Expert Predictions Are Next to Worthless, and You Can Do Better* (25). The book is ultimately a devastating case for the inability of our so-called seers to call it right, regardless of the field in question. He demonstrates that history is rife with failed predictions. In 1990, Japan was the odds-on favorite to dominate the 21st century, a role now filled by China. Might India be the next nominee for the world's winners circle? Gardner rebukes our modern pundits with a rigorous analysis of their lack of accountability and an explanation of why humans continue to seek them out, even as failed forecasts follow failed forecasts. Humans crave future knowledge and have an aversion to uncertainty. We dislike randomness and consequently see patterns where none exist.

Among those who receive well-deserved scorn is Paul Ehrlich. His 1968 book, *The Population Bomb*, sold millions of copies and confidently predicted that famines in the 1970s would kill hundreds of millions. It didn't happen. Nobel Prize-winning economist and columnist Paul Krugman foresaw a depression if currency controls weren't introduced during the 1997 Asian financial crisis. Controls mostly were not introduced, and Asia was booming again in relatively short order.

A good part of the book is spent describing less dramatic psychological research on human decision making. Such studies of negativity bias, confirmation bias, and the importance of social status, among others, provide useful explanations of why humans crave predictions.

One key value of the book is the author's coverage of a groundbreaking study by Philip Tetlock, now professor at the University of California at Berkeley. In a 1984 study with 284 experts, he collected 27,450 judgments about the future. Results showed that their predictions would beat a dart-throwing chimp by a whisker, making the forecasts no more accurate than random guesses. Tetlock later found that the more famous the expert, the worse the accuracy. The overall findings remained valid irrespective of whether the predictions were pessimistic or optimistic, and whether they came from the political left or right.

HUMAN SPACE TRAVEL

The space shuttle *Atlantis* landed back on Earth on July 21, 2011, bringing an era to an end (26, 27). For the first time in 30 years, NASA has no program for human space travel. Lawrence Krauss opined in a recent piece in the *Wall Street Journal* that the space-shuttle program failed to live up to its primary goal of providing relatively cheap and efficient human space travel (26). There were a total of 135 shuttle flights at a cost of approximately \$1 billion per flight, or \$55 billion in the last decade alone. The \$100 billion space station orbiting no further from Earth than Washington is to New York City cost \$100 billion. Either aboard the shuttle or the International Space Station, astronauts have explicitly demonstrated that what we learned from sending people into space is not much more than how to keep them alive up there. The lion's share of cost associated with sending humans into space was devoted, as it should have been, to making sure that they survived the voyage. No other significant science has emerged from a generation's worth of roundtrips in near-Earth orbit.

There were some highlights. The Hubble Space Telescope launch and repair missions were useful. Certainly the shuttle program cannot be justified on the grounds that it helped us build the International Space Station. The station, according to Krauss, is a largely useless international make-work project that was criticized by every major science organization in the USA. The station now houses a \$2 billion particle-physics experiment, the results of which have been inconsequential. The best science done by NASA consisted of sending robots to places humans could never survive and peering into the far depths of the cosmos, back to the early moments of the Big Bang, with instruments far more capable than our human senses, all for a

small fraction of what it cost to send a living person into Earth's orbit. The first rovers went to Mars for what it would cost to make a movie about sending Bruce Willis to Mars. Professor Krauss concludes: "If we are going to spend hundreds of billions of dollars on human space travel, we need to have a rational plan and one that can excite the imagination of the next generation of would-be scientists and explorers." The space shuttle did not provide such a plan or inspiration.

Giving up space ventures probably is a bad idea, according to Al Neuharth (27). After the Sputnik Satellite was launched by the USSR in 1957, President John F. Kennedy concluded that any nation wanting to be number one on Earth must also be number one in space. Ironically, as Al Neuharth writes, we are again at the mercy of the Russians. We are a distant second in space behind Russia and may soon be third behind China, which has announced that it will put a man on the moon after 2020, in hopes of later exploring Mars or Venus. The critics of the space program have long said that it cost too much, but it cost only an eighth of the cost of the wars in Iran and Afghanistan up to this point. Is nation-building in places like Afghanistan 8 times more important than exploring the universe? Probably by the time we start the US space program again, Russia, China, Japan, and India will be ahead of us.

BIN LADEN'S PORN

According to Asra Q. Nomani (The DailyBeast.com), pornography is the Muslim world's "dirty little secret" (28). US intelligence sources found a cache of video porn in Osama Bin Laden's hideout in Abbottabad. Called *fuhsha* in Arabic, pornography is strictly forbidden under Islamic law, though Muslim nations that repress and segregate women also have the highest rates of pornography use in the world. Porn invariably turns up in raids of al Qaida safe houses. The finding of the x-rated material in Bin Laden's home points to the tortured hypocrisy at the heart of militant Islam's restrictive culture. Although Islam "has very rich traditions of sacred sexuality and eroticism, extremists have turned that tradition rancid with their misogyny; by dehumanizing women and making sex dirty and forbidden, they actually encourage young men's porn fetishes." Bin Laden's stash apparently is inspiring mocking tabloid headlines throughout the world.

AUTO THEFT

Car theft is greater during the summer than at any other time of the year (29). According to comments from members of the Tarrant Regional Auto Crime Task Force, car theft is much less likely if things are hidden from view, the car is locked, and keys are removed from the car. Many thieves apparently see items in a car to steal and then discover keys once inside. Half of the stolen cars had been left unlocked, and nearly one third had the keys in the ignition. One member of the Reduce Auto Theft in Texas group indicates that crime groups are increasingly targeting trucks: the top three stolen vehicles in Texas are Ford, Chevrolet, and Dodge pickups. Lock the car. Put potentially valuable items in the trunk. Keep the keys in your pocket or purse.

THE KNOWN KNOWNS, THE UNKNOWN KNOWNS, AND THE UNKNOWN UNKNOWNNS

These are phrases used by Donald Rumsfeld when he was secretary of defense. Thomas Sowell in a recent column gave examples of these phrases (30). Known knowns might be that we know how many aircraft carriers some other country has. An example of unknown knowns would be our knowing that another country has troops and tanks but not knowing how many of each. An example of the unknown unknown would be having no clue, for example, that on September 11, 2001, somebody was going to fly two commercial airplanes into the World Trade Center. We have many unknown knowns and unknown unknowns in medicine.

MANAGING FEDERAL MONEY

Al Neuharth, who founded *USA Today*, is now 87 years old and writes a weekly column in the newspaper he started. He rates the top five most important federal expense categories in this order: health, education, transportation, military, and exploration (31). The present Congress does put health as number one, and the Medicare and Medicaid bill for 2011 is expected to be nearly \$850 billion. But the military (mis-labeled Defense Department) is a close second at \$712 billion. The nation-building misadventures in Afghanistan and Iraq account for \$154 billion of the military budget. By comparison, our budget for public education is \$77 billion, half of what we spend in Afghanistan and Iraq! Maybe that's why Japan, China, and India are putting too many of our young students to shame. Maybe Congress not only needs to raise the debt limit, but also put education ahead of the military.

TAXES

Tax the rich; down with the corporate jets—that's the present-day theme. But, some facts: 50% of Americans who file tax returns pay almost 100% of the income taxes; the top 25% of filers pay 86% of the taxes; the top 10% pay 67% of the taxes; and the top 1% pay 38% of the tax revenues (32). In 2008, that was \$392 billion paid by that 1% out of a total take of \$1003 billion. The rich are doing their share. It is not good to play one part of our population against another. What we need is more rich people, and then more taxes would be paid.

—WILLIAM CLIFFORD ROBERTS, MD
8 August 2011

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