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Nat Med 2019 Jul; 25:1104

How the Microbiome Might Enhance Athletic Performance

Marathoners had higher gut concentrations of Veillonella atypica than did nonathletes.

Gut microbes (the microbiome) produce many molecules that affect human physiology. To determine how the microbiome might affect athletic performance, investigators obtained daily stool samples from 15 runners for 1 week before and 1 week after the Boston Marathon and compared the microbiome findings to those of a group of 10 sedentary controls. They then confirmed their findings in a second group of athletes and controls.

Athletes had a higher abundance of one bacterial species, *Veillonella atypica*, than controls. This species was even more abundant following exercise; in addition, the bacterial genes that convert lactate to propionate were activated by exercise. The researchers then fed *V. atypica* (isolated from the athletes) to mice. Mice that were fed *V. atypica* were able to exercise longer than mice fed a lactobacillus control. Blood lactate generated by exercise spilled into the gut lumen, where it was metabolized to propionate by *V. atypica*; it then was reabsorbed in the colon and entered the circulation. Mice given

an intrarectal instillation of propionate also could exercise longer — indicating that additional propionate (not just less lactate) might contribute to better exercise capacity.

COMMENT: This study of human athletes, combined with mouse studies to understand physiologic mechanisms, indicates that at least one bacterial species in the gut might enhance athletic performance by promoting conversion of the lactate produced during exercise into propionate. With this study design, the researchers could not address an obvious question: Does their native microbiome make top marathoners better athletes, or does a marathon training program change the microbiome in a beneficial way — or both? The study suggests another question, as well: Will elite athletes someday be screened not only for performance-enhancing drugs but also for performance-enhancing gut bacteria?

CITATION(S): Scheiman J et al. Meta-omics analysis of elite athletes identifies a performance-enhancing microbe that functions via lactate metabolism. *Nat Med* 2019 Jul; 25:1104. (<https://doi.org/10.1038/s41591-019-0485-4>)

J Pediatr 2019 Jul 17

Smart Phone App to Screen for Vision Problems

The app was sensitive in assessing visual acuity in children, especially 3- to 5-year-olds.

Researchers compared visual acuity assessment with a novel smartphone app (Peek Acuity) and a standard method in 111 children (ages 3–17 years) who were referred to an ophthalmology clinic. The app has been studied in developing countries but is not an approved medical device in the U.S.

Children underwent monocular vision assessments with both methods, in random order. The app was used as follows: with the examiner holding the phone 2 meters away, the child indicated the direction of the arms of an “E” displayed on the screen, and the examiner swiped the screen in that direction. If the child couldn't see the “E,” the app notified the examiner to move to 1 meter away and, if necessary, 30 cm. At the end of the test, the phone displayed visual acuity results. Standard vision assessment was conducted in an examination lane using a computer screen. Four children did not complete the app assessment because they experienced examination fatigue or couldn't follow instructions.

Agreement between the two methods was good (interclass correlation coefficient, 0.88 for the first eye examined, 0.85 for the second). The app was 83% sensitive and 70% specific for identifying children with referable eye conditions (e.g., decreased vision, strabismus, nystagmus). Among children aged 3 to 5 years, the app was 100% sensitive and 39% specific for referable eye conditions and for decreased vision. The app assessment took an average of 125 seconds for children aged 3 to 5 years and 96 seconds for older children.

COMMENT: This smartphone app showed excellent results for detecting eye conditions in children in an ophthalmology setting and holds value as a potential office screening tool for detecting vision problems in the most important early ages.

CITATION(S): Zhao L et al. Visual acuity assessment and vision screening using a novel smartphone application. *J Pediatr* 2019 Jul 17; [e-pub]. (<https://doi.org/10.1016/j.jpeds.2019.06.021>)

Dying of Cancer, but Still Taking a Statin?

Many preventive medications are continued in terminal-cancer patients.

Drugs to treat diabetes, hypertension, hyperlipidemia, and other common conditions presumably offer little benefit to an older patient with a malignancy and only a short time to live. How often are these preventive medications stopped in terminal-cancer patients?

Researchers tabulated medications prescribed to Swedish patients (age, ≥ 65) who died between 2007 and 2013 with solid tumor diagnoses. Those with hematologic malignancies were excluded, as were those who appeared to suffer accidental deaths. Among more than 150,000 patients, the average number of prescribed medications rose from 7 to 10 during the last year of life. Drugs for diabetes were continued to the final month of life in 87% of patients who had received them for ≥ 1 year previously; vitamins, statins, antihypertensives, and bisphosphonates each were continued in about 60%. No major differences in drug continuation were seen between patients whose cancer had been diagnosed at least 1 year previously and those with more recent diagnoses, or in a separate analysis of patients whose tumors carried particularly dire prognoses (i.e., brain, lung, liver, or pancreas).

COMMENT: These researchers calculated that unnecessary preventive drugs raised pharmacy bills by about 20%; they also concluded that the drugs might have caused unnecessary side effects and contributed to “low-value care.” Their point is certainly valid. However, given how difficult it can be to discuss withdrawing care with a patient (and how effortless it is, in comparison, just to continue prescribing), I am impressed that so many medications actually were discontinued by Swedish MDs. I wonder how patterns in other countries would compare.

CITATION(S): Morin L et al. Preventive drugs in the last year of life of older adults with cancer: Is there room for deprescribing? *Cancer* 2019 Jul 1; 125:2309. (<https://doi.org/10.1002/cncr.32044>)

What's the Best Gestational Age for Low-Risk Multiparous Women to Give Birth?

For neonatal as well as maternal outcomes, the 39th week of gestation appears to be the sweet spot.

Little is known about the optimal timing of subsequent birth in low-risk multiparous women with a previous vaginal (and no cesarean) delivery. In a single-center retrospective study, researchers assessed birth outcomes among 453 such women electively induced at 39 weeks 0 days to 39 weeks 4 days' gestation compared with 2174 women delivering at or after 39 weeks and 5 days (expectant management). Rates of the composite perinatal adverse outcome (death, respiratory support, 5-minute Apgar ≤ 3 , and shoulder dystocia) were 4% (induction) and 7.1% (expectant management; adjusted odds ratio, 0.57) and rates of cesarean delivery were 5.1% (induction) and 6.6% (expectant management; aOR, 0.60).

In a retrospective study of 5.4 million U.S. births, birth outcomes were compared among low-risk multiparous women delivering in the 39th, 40th, and 41st weeks of gestation. The composite adverse neonatal outcome (5-minute Apgar score < 5 , respiratory support > 6 hours, neonatal seizure, neonatal mortality) occurred in 0.43%, 0.51%, and 0.96% of births in the 39th, 40th, and 41st weeks, respectively (aOR for 41 vs. 39 weeks, 1.59). The composite adverse maternal outcome (ICU admission, blood transfusion, uterine rupture, unplanned hysterectomy) occurred in 0.21%, 0.24%, and 0.31% of births (aOR for 41 vs. 39 weeks, 1.50).

COMMENT: Both these studies are limited by their retrospective design. In the first study, many confounding factors may contribute to the decision to induce labor at 39 weeks' gestation or await natural labor. The analysis of > 5 million births is

constrained by the paucity of clinical data available on U.S. birth certificates. Pending completion of a large randomized trial, both observational studies suggest that, among low-risk parous women, risk for neonatal and maternal adverse outcomes — although uncommon — rises with gestational age. Decisions about induction or expectant management are jointly made by clinicians and patients. In our practice, such decisions reflect national guidelines to avoid elective induction before 39 weeks and 0 days gestation; also, we recommend against continuing pregnancy beyond 41 weeks and 0 days gestation.

CITATION(S): Sinkey RG et al. Elective induction of labor in the 39th week of gestation compared with expectant management of low-risk multiparous women. *Obstet Gynecol* 2019 Aug; 134:282. (<https://doi.org/10.1097/AOG.0000000000003371>)

Chen HY et al. Neonatal and maternal adverse outcomes among low-risk parous women at 39–41 weeks of gestation. *Obstet Gynecol* 2019 Aug; 134:288. (<https://doi.org/10.1097/AOG.0000000000003372>)

Preterm Infants More Likely to Be Undervaccinated

By Amy Orciari Herman

Edited by David G. Fairchild, MD, MPH, and Lorenzo Di Francesco, MD, FACP, FHM

Preterm infants are less likely than term infants to receive all of their recommended vaccines, according to a *Pediatrics* study.

Researchers retrospectively studied over 10,000 infants born at an urban medical center in Washington State from 2008 through 2013; roughly one-fifth were born before 37 weeks' gestation. The researchers assessed rates of completion of the recommended seven-vaccine series, which comprised vaccines against diphtheria-tetanus-pertussis, poliovirus, measles-mumps-rubella, *Haemophilus influenzae* type b, hepatitis B, varicella, and pneumococcal disease.

Preterm infants were significantly less likely than term/post-term infants to receive the full vaccine series by age 19 months (48% vs. 54%). After adjustment for confounders, preterm infants were 23% less likely to complete the vaccine series. This difference persisted at 36 months of age.

The researchers write, "These findings are worrisome given the increasing prevalence of preterm births and the fact that preterm infants are particularly susceptible to vaccine-preventable diseases."

LINK(S): [Pediatrics article](#) (Free abstract) [Pediatrics early-release page](#) (to access article if above link isn't yet live) (Free)

[Background: NEJM Journal Watch Pediatrics and Adolescent Medicine coverage of 2019 child and adolescent immunization schedule](#) (Free)

Structured Approach to Perioperative Management of Atrial Fibrillation in Patients Who Take DOACs

For elective procedures, briefly holding direct-acting oral anticoagulants is associated with acceptable levels of bleeding and thromboembolism.

Because direct-acting oral anticoagulants (DOACs) have short half-lives, withholding these agents for only a few days should be possible when DOAC-treated patients require interruption of their anticoagulation around the time of elective surgery. In this prospective cohort study, investigators designed a structured approach to DOAC interruption for 3007 adults (mean age, 72) with atrial fibrillation (AF) who were scheduled for elective surgery and who were receiving long-term therapy with apixaban, dabigatran, or rivaroxaban. Patients were excluded if their creatinine clearance was <25 mL/minute with apixaban or <30 mL/minute with dabigatran or rivaroxaban. DOACs were held for 1 day before surgical procedures with low risk for bleeding and for 2 days before procedures with higher risk (with modifications for dabigatran patients depending on renal function) and restarted 1 day after low-risk and 2 to 3 days after high-risk procedures.

Thirty-day postoperative outcomes were as follows:

- Rates of major bleeding were 0.9% with dabigatran, 1.4% with apixaban, and 1.9% with rivaroxaban.
- Rates of bleeding for the subgroup of surgical procedures with high bleeding risk were 0.9% with dabigatran and 3.0% with the other two agents.
- Rates of arterial thromboembolism (i.e., ischemic stroke, transient ischemic attack, or systemic embolism) were 0.2% with apixaban, 0.4% with rivaroxaban, and 0.6% with dabigatran.

COMMENT: These results mostly met the investigators' predetermined goals for rates of perioperative major bleeding <2.0% and arterial thromboembolism <1.5%. No accepted standardized protocols exist with which to compare these results; however, they provide a solid start toward developing a simple protocol with acceptable postoperative risks for bleeding or thromboembolism in AF patients.

CITATION(S): Douketis JD et al. Perioperative management of patients with atrial fibrillation receiving a direct oral anticoagulant. *JAMA Intern Med* 2019 Aug 5; [e-pub]. (<https://doi.org/10.1001/jamainternmed.2019.2431>)

Is Aspirin Associated with Bleeding Risk After Percutaneous Core Biopsies?

In an observational study, taking aspirin within 3 days of biopsy was associated with excess risk for bleeding complications.

The extent to which aspirin imparts risk for bleeding complications after percutaneous imaging-guided core needle biopsies is unclear. In this retrospective study, Mayo Clinic researchers analyzed a database with information on aspirin usage just prior to 30,000 percutaneous biopsies performed by radiologists under computed tomography or ultrasound guidance; 26% of patients took aspirin within 10 days of biopsy. The most commonly biopsied organs were kidney (37%), liver (20%), and lung (10%).

Bleeding complications that required transfusion or intervention (radiologic, endoscopic, or surgical) occurred in 98 patients overall (0.3%). However, risk for bleeding complications was 0.6% in 3800 patients who stopped taking aspirin 0 to 3 days before biopsy and was 1.9% in nearly 900 patients who took aspirin on the day of their biopsies. In adjusted analyses, bleeding risks with aspirin use were significantly elevated compared with no aspirin use during days 0 to 3

before biopsy. Stopping aspirin 4 to 7 days or 7 to 10 days before the procedure was not associated with bleeding complications.

COMMENT: These data suggest that risks for important bleeding complications are uncommon, but not negligible, in patients who take aspirin within a few days of percutaneous biopsy of internal organs; stopping aspirin about 5 days before the procedure apparently would eliminate excess risk. For patients who are taking aspirin for legitimate secondary prevention, risk for a breakthrough thrombotic event during 5 days without aspirin is difficult to quantitate; in such patients, deciding whether to stop the aspirin before percutaneous internal-organ biopsies is a matter of clinical judgment.

CITATION(S): Potretzke TA et al. Frequency of bleeding complications after percutaneous core needle biopsy and the association with aspirin usage and length of aspirin discontinuation. *AJR Am J Roentgenol* 2019 Jul; 213:211. (<https://doi.org/10.2214/AJR.18.20366>)

Lancet Neurol 2019 Aug; 18:736

Home Standing Frame in Progressive Multiple Sclerosis

A randomized trial shows effectiveness of regular assisted standing when done frequently at home.

Investigators randomized 71 patients with progressive multiple sclerosis (MS) to a home standing frame group and 69 patients to usual-care group. The home standing frame consists of platforms with adjustable, padded bars to support the legs and torso. Participants were instructed to stand in the frame for 30 minutes, three times per week. After 20 weeks, they were encouraged to continue on their own volition. At baseline, patients required a walker to ambulate, or they were nonambulatory.

In each group, 61 participants completed the 36-week study. At 36 weeks, motor function (measured by the Amended Motor Club Assessment score) was a baseline-adjusted 4.7 points higher in the standing frame group. As anticipated, scores were even higher when compliance was assessed. The odds of having two or more falls between weeks 21 and 36 was significantly lower with the intervention (0.43; 95% confidence interval, 0.20–0.94).

COMMENT: Standing frames appears to be of potential benefit for those with multiple sclerosis. Physical therapy could help with assessment and instructions if being pursued in patients with significant ambulation difficulties. Although standing frames can be expensive, the study demonstrated the practice to be cost effective based on the benefit.

CITATION(S): Freeman J et al. Assessment of a home-based standing frame programme in people with progressive multiple sclerosis (SUMS): A pragmatic, multi-centre, randomised, controlled trial and cost-effectiveness analysis. *Lancet Neurol* 2019 Aug; 18:736. ([https://doi.org/10.1016/S1474-4422\(19\)30190-5](https://doi.org/10.1016/S1474-4422(19)30190-5))

Brain 2019 Jul; 142:2137

Conversion Disorder and Functional Weakness: Long-Term Outcomes

Over 14 years, prognosis is poor, and misdiagnosis is uncommon.

Patients with functional neurologic symptoms are a challenging and frequent presence in clinical practice. Investigators identified 107 patients with functional limb weakness who had been referred to a tertiary center specializing in this condition and tracked them for a mean follow-up of 14 years.

Among 89 with follow-up diagnostic information, 4 (4%) developed a diagnosable neurologic condition: multiple sclerosis, Huntington disease, Parkinson disease, or idiopathic cerebellar degeneration. In 65 patients with outcomes data, the functional weakness resolved in 20%, improved in 31%, and was the same or worse in 49%. Fair or poor general health was reported by 54%, and 41% were not employed for health-related reasons. Also, 51% agreed that their limb weakness was “a mystery,” only 19% agreed that worry or stress was a causal factor, and 32% believed that they experienced damage to the nervous system. Poor prognostic features included somatization disorder, high number of physical symptoms, and high pain scores and low general health scores on the 36-Item Short Form Health Survey.

COMMENT: An alternative neurologic diagnosis is uncommon in patients with functional limb weakness. The condition appears refractory in most. Likelihood of recovery appears low, and risk for disability is high. Many patients continue to believe that symptoms remain neurologic in origin. These study findings confirm the challenges that this condition poses to both patients and doctors.

CITATION(S): Gelauff JM et al. The prognosis of functional limb weakness: A 14-year case-control study. *Brain* 2019 Jul; 142:2137. (<https://doi.org/10.1093/brain/awz138>)

JAMA Intern Med 2019 Jul 1

When Mammography Identifies Dense Breasts, What's Next?

For focusing discussions about supplemental breast imaging, taking 5-year risk for advanced breast cancer into account is more efficient than considering only breast density.

Many states mandate that patients' screening mammography reports include breast density, and some specify that clinicians discuss supplemental breast imaging (SBI) with ultrasound or MRI when dense breasts are noted. In women at excess risk for breast cancer and those with dense breasts, SBI reduces the likelihood of interval cancers. To evaluate the efficiency of various strategies for recommending SBI, investigators studied a cohort of >638,000 women (mean age, 56) who underwent digital mammography screening from 2005 through 2014. Participants' baseline 5-year risk was evaluated with the Breast Cancer Surveillance Consortium (BCSC) calculator; breast density was assessed with the Breast Imaging Reporting and Data System (BI-RADS). The primary outcome was incidence of advanced breast cancer diagnosed within 12 months of screening mammography.

Rates of advanced cancer were low (<0.61 per 1000 screens) in 34% of the women whose screens identified dense breasts. Rates of advanced cancer were higher (≥ 0.61 per 1000 screens) in women with heterogeneously dense breasts and 5-year risk of $\geq 2.5\%$ (comprising 6.0% of screened women) as well as women with extremely dense breasts and 5-year risk of $\geq 1\%$ (comprising 6.5% of screened women). The estimated utility of discussing SBI was least when only breast density was considered (1866 discussions per potential advanced breast cancer prevented) and greatest when 5-year cancer risk was also factored into the SBI recommendation (1097 discussions per potential cancer prevented).

COMMENT: As editorialists note, discussing SBI with all screened women is less efficient than the strategy of focusing on those women with dense breasts and high 5-year cancer risk; still, the latter approach would only prevent 27% of late-stage cancers. Although the authors' effort to quantify breast cancer risk in women with dense breasts moves the field forward, I'm not convinced we're ready to implement this risk classification strategy. Furthermore, the present findings suggest that state governments have been premature in mandating discussions with women regarding breast density.

CITATION(S): Kerlikowske K et al. Strategies to identify women at high risk of advanced breast cancer during routine screening for discussion of supplemental imaging. *JAMA Intern Med* 2019 Jul 1; [e-pub]. (<https://doi.org/10.1001/jamainternmed.2019.1758>)

Richman IB and Busch SH. Advising women about supplemental screening after dense breast notification: Still no easy answers. *JAMA Intern Med* 2019 Jul 1; [e-pub]. (<https://doi.org/10.1001/jamainternmed.2019.1737>)

Endoscopy 2019 Jul 23

Fine-Needle Aspiration Versus Fine-Needle Biopsy for Liver Biopsy: Which Is Best?

A small prospective, randomized study suggests that core needles are better.

Endoscopic ultrasound–guided liver biopsy (EUS-LB) is a technique still in development. Tools and techniques, which lobe to sample, and other questions inspire considerable debate. A recent prospective, randomized study compared the use of fine-needle aspiration (FNA) needles with fine-needle biopsy (FNB) needles for EUS-LB.

The authors randomized 40 patients to EUS-LB with either a 19-gauge (19G) FNA or 19G FNB needle and evaluated multiple parameters relevant to liver biopsy specimens. Bilobar samples were obtained from all patients. Specimens were evaluated both pre- and postprocessing. The primary outcome was length of the longest piece of liver core specimen. The mean preprocessing length of the longest specimen piece was 2.09 cm (standard deviation, 0.41 cm) with FNB versus 1.47 (SD, 0.46) with FNA ($P<0.001$). Among the secondary outcomes were aggregate specimen length and number of complete portal triads (CPTs). The mean preprocessing aggregate specimen length with FNB was 15.78 cm (SD, 5.19), compared with 10.89 cm (SD, 4.38) for FNA ($P=0.003$). The median number of complete portal triads (CPT) was 38.0 (range, 0–81) with FNB versus 16.5 (range, 6–38) with FNA ($P=0.004$). A diagnosis was reached in all patients regardless of needle used.

COMMENT: This interesting study suggests the superiority of 19G FNB needles relative to FNA needles of the same size, contradicting the finding of a recent meta-analysis on this topic (of which I am an author) that included 437 patients and yielded the opposite result: that analysis favored 19G FNA needles. Still, this study was very well done and provides a solid analysis of multiple valuable parameters. I suspect it will take larger, potentially multicenter, studies to settle this question permanently.

CITATION(S): Ching-Companiononi RA et al. 19G aspiration needle versus 19G core biopsy needle for endoscopic ultrasound-guided liver biopsy: A prospective randomized trial. *Endoscopy* 2019 Jul 23; [e-pub]. (<https://doi.org/10.1055/a-0956-6922>)

Toppling the Ethical Balance — Health Care Refusal and the Trump Administration

Elizabeth Sepper, J.D.

For nearly 50 years, U.S. federal law has permitted medical professionals and religious institutions to refuse, for religious and moral reasons, to provide abortions and sterilizations. In more recent decades, similar safeguards have been developed for medical professionals who do not wish to comply with patients' advance directives or deliver physician aid in dying. Under existing statutes, recipients of federal funding — from hospitals and clinics to states and cities — may not discriminate against individuals or organizations that refuse to provide such care.

But health care providers still bear legal and ethical duties to patients. They must provide information about treatment options. They may not abandon a patient without reasonable notice while that patient needs continuing medical attention. Providers also generally must comply with laws that prohibit discrimination — as is most relevant here — on the basis of sex, sexual orientation, religion, or gender identity. In emergency situations, physicians and hospital emergency departments must deliver even contested care.¹

Ethical guidelines of professional organizations, including the American Medical Association and the American College of Obstetricians and Gynecologists, reflect this compromise between conscience and care. They respect the consciences of clinicians by permitting objection except in emergencies. And they safeguard the welfare of patients by requiring information, referral, and nondiscriminatory treatment.

A new rule published in May 2019 by the Department of Health and Human Services (HHS) topples this delicate balance.² If it goes into effect, patient health and professional practice are likely to suffer. Although it bears the title “Protecting Statutory Conscience Rights in Health Care,” the rule goes well beyond merely enforcing existing statutes. Instead, the rule creates a wide-ranging right to refuse to provide health care services. Any entity carrying out a program funded by HHS is barred from requiring anyone to “assist in the performance” of “any health service or research activity” that is contrary to that person’s religious beliefs or moral convictions. As this language makes clear, a wide range of health care lies in the crosshairs. Although abortion is the primary target, HHS mentions refusal to treat ectopic pregnancy, to comply with advance directives, and to provide cancer care that might result in infertility. Recent lawsuits attest to providers’ objections to contraception, gender dysphoria treatment, and nondiscriminatory care of lesbian, gay, bisexual, and transgender (LGBT) patients³ — refusals that would also be protected under the new rule.

But the rule extends more broadly still. “Assist in the performance” of abortion, sterilization, or other care means “to take an action that has a specific, reasonable, and articulable connection to furthering a procedure or part of a health service program or research activity undertaken by or with another person or entity.” Under this definition, HHS instructs, health care providers may refuse to refer patients or counsel them about the contested service. A nurse could refuse to measure the blood pressure of a woman who had just had an abortion. A physician assistant could withhold a referral for preexposure prophylaxis (PrEP) HIV medications. And they could do so with no repercussions from the health care facility — and to the detriment of the ethical care of patients. According to a nationwide study, the vast majority of physicians with religious objections accept the ethical compromise of agreeing to refer and counsel patients.⁴ The new rule, by contrast, invites the substantial minority who would prefer to withhold counseling and referral to do so, as well as to enter fields where they cannot meet the standard of care.⁴

Furthermore, the rule includes ancillary personnel who are not subject to professional ethical obligations to patients. Scheduling appointments, stocking supplies, and cleaning instruments all fall within its definition of assistance. A billing-

office manager might decline to process insurance claims for patients who undergo abortions. Women might be denied food delivery after tubal ligations. These refusals could impede patients' access to care and compromise the quality of the care they receive.

Hospitals, physician groups, and health insurers will find themselves in a bind. Under existing federal law, health care facilities already accommodate employees with religious objections. By adjusting staffing, scheduling, and job duties, they deliver comprehensive health care and welcome a diverse and plural workforce. But as in other workplaces, antidiscrimination law requires reasonable accommodation. Under the federal Civil Rights Act of 1964, employers need not suffer undue hardships — for example, delays in patient care or a requirement for double staffing — in order to accommodate a religious objector.

The new rule instead introduces a near-absolute duty of accommodation. Employers cannot remove an objector from a given field of practice. An intensive care unit, for example, might have to staff around a nurse who will not follow advance directives — even if doing so amounts to an undue hardship. A pediatric practice might have to accommodate a physician assistant who won't administer vaccines. The employer may post notice that care might be refused but may not identify the objecting employee. As HHS indicates, health plans would be barred from discriminating against an employee who holds religious beliefs against sterilization and refuses to help customers locate an in-network provider of vasectomies. But how could accommodation work in such instances? Would another employee have to prescreen for vasectomy-related calls? Would the customer have to speak to two employees to hedge against receiving bad information? Health care employers will face both hardship and uncertainty.

This new rigidity threatens other legal and ethical mandates and accreditation rules. Emergencies pose particular difficulties. Under the Emergency Medical Treatment and Active Labor Act (EMTALA), hospitals may not turn away patients in need of emergency care. And Congress has repeatedly rejected refusal legislation that supersedes duties of emergency care. This rule, however, includes no emergency exception. Indeed, HHS suggests that it is discrimination to require treatment of a woman who is miscarrying and in need of an emergency dilation and curettage (D&C). Describing a hypothetical situation in which an ambulance driver refuses to bring a woman with an ectopic pregnancy to the hospital, the agency indicates only that EMTALA and the new rule must be applied “harmoniously to the extent possible.” Nor does the rule explain how health care facilities can also meet the requirements of laws that, for example, prohibit sex discrimination or mandate offering emergency contraception to survivors of sexual assault. Regulated entities are left to guess.

Vulnerable patients will bear the costs of this rule. Services denied will lead to morbidity and mortality. When an ambulance driver refuses transport, a woman with an ectopic pregnancy may hemorrhage. When a woman who is

miscarrying goes to a hospital that refuses care, she may become septic. Denied information about vaccination or PrEP, people will contract preventable illnesses. As the county executive of Santa Clara, California, which is challenging the rule, explained, “If the rule goes through as it’s written, patients will die.”⁵

The rule may yet be stymied. It was set to take effect on July 22, but a number of states and cities — including California, San Francisco, and a coalition of 23 cities and states led by New York State — sought a preliminary injunction against it. HHS agreed to delay the effective date to November 22, by which time the federal courts will have ruled on motions for summary judgment to block the rule or put it in place. Patient welfare, public health, and trust in the medical profession hang in the balance.

Combating EPA Rollbacks — Health Care’s Response to a Retreat on Climate

Gina McCarthy, M.S., and Aaron Bernstein, M.D., M.P.H.

The world’s climate crisis has spared no one. Science tells us that the harms of climate change will worsen with time if we fail to take substantial actions now to reduce carbon pollution. In the United States, the growing burden of atmospheric carbon pollution has already fueled searing heat waves that have triggered bouts of asthma, heart attacks, and kidney failure. It has unleashed unprecedented rains in the Midwest that have jeopardized health for thousands of people. It has stoked wildfires in the West that have taken lives, razed homes and hospitals, and sent toxic plumes of smoke across the continent. And it has fueled powerful hurricanes, like Maria and Harvey, that have enfeebled hospitals and clinics and forced rationing of critical medical supplies such as IV fluids nationwide.

Burning fossil fuels generates roughly 80% of our country’s carbon pollution and the bulk of other air pollutants known to cause or exacerbate a host of ailments, including everything from chronic obstructive pulmonary disease, myocardial infarction, and stroke to lung cancer, type 2 diabetes, pneumonia, and possibly even dementia. Actions that reduce carbon pollution often offer important opportunities to reduce conventional air pollution and save lives and health care costs, with benefits that tend to accrue in greater shares to the poor and people of color, because they bear the brunt of air pollution from fossil fuels.

Yet while scientists tell us we have little time to wait if we hope to avoid the most devastating effects of climate change, leaders in Washington, D.C., are attacking science and rolling back Obama-era rules from the Environmental Protection Agency (EPA), as detailed by the Harvard Law School Environmental and Energy Law Program (<https://eelp.law.harvard.edu/epa-mission-tracker> opens in new tab). The EPA is now working to weaken fuel-efficiency standards for cars, relax rules on methane emissions, stop regulating mercury emissions, and implement other changes

related to power plants that all lead to increased air pollution. Such efforts deprecate climate science and advance the interests of the fossil-fuel industries while exacerbating harm to human health.

The EPA's most recent target is the Clean Power Plan (CPP), a policy finalized by the Obama administration in 2015. The CPP established the country's first-ever carbon-pollution limits for coal- and gas-fired power plants, requiring emission reductions beginning in 2022 that were scheduled to ramp up over time. It would have led to a 32% reduction in carbon emissions from power plants below 2005 levels by 2030 — enough to offset all the carbon emissions from the U.S. health care sector. It would also have saved thousands of lives each year while providing states the flexibility to design their own compliance plans.

But the CPP was scuttled this June by the Trump administration's Affordable Clean Energy (ACE) rule, which is neither affordable nor clean. Unlike the CPP, ACE takes credit for all the reductions already projected to happen between now and 2030 but doesn't actually lock in those reductions. Instead, it allows states to decide whether they will require installation of a few technologies that could improve the efficiency of the electric generating units at power plants. But these technologies may also lead to the units running more, resulting in more emissions. So though the EPA projects that ACE could result in a 1% improvement in carbon emissions over "business as usual" by 2030, analysis by our center and our partners suggests that it could end up offering no carbon-reduction benefit at all. In other words, the rule would do little to nothing to address our climate crisis and would cost, rather than save, lives.¹

If these EPA rollbacks are successful, they will diminish our ability to mitigate health effects and diseases related to the burning of fossil fuels and the immense toll they take on our families. If we stop supporting and listening to the best available science, if we allow more pollution to be emitted, and if we start limiting the EPA's ability to monitor and enforce pollution standards, then we put at risk everyone's health — and especially the health and future of our children. Many health care systems, including Kaiser Permanente, Gundersen Health System, and Partners HealthCare, have been responding to the climate crisis. Recognizing that climate change is already harming patients, they are reducing their own greenhouse-gas emissions from hospitals and clinics to ensure that their facilities are not part of the problem. Some are also making their facilities and operations more resilient to the impact of climate change so that they can continue to function if disaster strikes.²

But the health care sector can do so much more to protect patients. Research could explain the vulnerability of critical medical supply chains to climate disruptions and help us adapt the care we provide, including the drugs we prescribe, given changing risks. Since some types of patients are especially vulnerable to health effects of heat waves and other climate-related extreme weather, we can make concerted efforts both to advise them, before disaster strikes, about how to stay safe and to put in place better systems for locating them and getting them access to lifesaving care afterward.

We can also use our roles as trusted advisors to inform and motivate actions that are increasingly necessary to protect the health of the communities we serve. For example, on July 8, 2019, the American Lung Association and the American Public Health Association filed a lawsuit against the EPA claiming that the ACE rule abandons the agency’s legal responsibility to protect health under the Clean Air Act. Although many more lawsuits will follow and the rule may not withstand court challenges, the EPA will already have wasted precious time and meaningful opportunities to reduce carbon emissions — and related health problems — in the time frame that climate change demands.

Other groups are endorsing broader opportunities for increased engagement by health care professionals in the fight against climate change, such as the recently released U.S. Call to Action on Climate, Health, and Equity, signed by 74 health care organizations, including the American Medical Association, the American Academy of Pediatrics, and the American Academy of Nursing.³

This call to action states unequivocally that climate change is a health emergency. It calls out 10 actions to accelerate a just transition to cleaner and safer energy, food, and transportation systems, arguing that we must take these actions to meet our legal obligations and to protect the health and safety of American families, especially those most vulnerable to climate effects. And it makes the case that we must take climate action to protect health care workers’ ability to do our jobs: climate action is as much a medical imperative as a moral one.

Fortunately, some states and cities are working hard to fill the void left by the current administration’s inaction on climate. The Rocky Mountain Institute estimated that the more than 3000 existing climate commitments from cities, states, and businesses could get the United States about two thirds of the way toward our goals set under the Paris Agreement.⁴ Five states and Puerto Rico, as well as 130 cities, including many of the most populous ones, have committed to shifting to 100% renewable or clean energy in coming decades. Six or more additional states may follow suit in the next year. Even more encouraging is news that many politically conservative states, including Kansas, Texas, and Oklahoma, have the greatest use of renewables.

The medical community can help advance these climate actions. We can demand that proposed climate policies come with a credible accounting of their health effects. We can prioritize research evaluating the health effects of carbon-reduction strategies. We can discuss climate action in ways that make it personal, telling stories about the people we see in our clinics, hospital beds, and emergency departments whose health has been compromised by climate change, in an effort to educate and influence the media, decision makers, and parents.⁵ Together, we can transform climate change from a politicized problem for polar bears into an opportunity to improve human health — and act to create a healthier, more just, and sustainable world.
