better overall results. Underlying the NSRI and similar target setting approaches is a principle of gradual and nuanced rather than drastic and sudden changes in the sodium content of foods. If applied across the spectrum of packaged foods, this approach should allow consumers to recalibrate their salt preferences downward. Consistent with this reasoning, the emerging FDA guidance includes both short- (two-year) and long-term (10-year) targets.

## MONITORING PROGRESS

As with any population-wide intervention on a universal and fundamental behavior such as food consumption, future actions should rely to the greatest extent possible on sound evidence generated from numerous perspectives, with ample consideration of the potential for adverse unintended human or social (including economic) consequences. Research to inform product reformulation is the food technology domain, but public health estimates of impacts on morbidity reductions, associated health care costs, and lives saved under various scenarios must continue. Well-reasoned and executed studies can refine our ability to convince both public and private sector decision-makers of why it is important to take sodium reduction initiatives to scale. These studies are needed in a variety of population contexts, including developing countries where processed foods are less likely to be the dominant sodium sources or where cultural practices include very high sodium intakes. Intricate tracking of implementation progress with respect to food sodium content, and linking observed changes to effects on dietary patterns, as illustrated by the NSRI report in this issue,[2] will be critical. Monitoring of progress on sodium must also consider overall dietary adequacy and quality and food safety in the contexts of developmental or life stage, cultural influences, socioeconomic status, and health profiles.

The basis for the convergence around the need for food supply sodium reduction stems from the widespread consensus that this, as a core strategy, will have commensurate effects in lowering population dietary sodium intake. This, in turn, is expected to have a huge impact in reducing the prevalence of hypertension and related disease risks. This approach will only work if enough companies change enough products to achieve tipping points in shifting consumer preferences, and sustain these changes. Successful efforts will presumably be facilitated by complementary consumer awareness and education programs and food labeling strategies.

Clearly much more needs to be done from a public health perspective—a combination of advocacy, health diplomacy, and vigilance—to achieve targets and to make sure that their achievement yields results that are favorable from all perspectives. That said, an optimistic view of the message of the NSRI report given what is happening in the US federal government and globally is that a historic public health success is in the making. AJPH

*Shiriki K. Kumanyika, PhD, MPH*

### REFERENCES


1. Institute of Medicine. *Strategies to Reduce Sodium Intake in the United States*. Washington, DC: The National Academies Press; 2010.

2. Curtis CJ, Clapp J, Niederman SA, Ng SW, Angell S. US Food industry progress during the National Salt Reduction Initiative: 2009-2014. *Am J Public Health*. 2016;106(10):1815–1819.

3. Center for Science in the Public Interest. FDA Sued for Failing to Regulate Salt. Available at: https://cspinet.org/new/201510081.html. Accessed October 8, 2015.

4. He FJ, Jenner KH, Macgregor GA. WASH-world action on salt and health. *Kidney Int*. 2010;78(8):745–753.

5. Institute of Medicine. *Sodium Intake in Populations: Assessment of Evidence*. Washington, DC: The National Academies Press; 2013.

6. Trieu K, Neal B, Hawkes C, et al. Salt reduction initiatives around the world—a systematic review of progress towards the global target. *PLoS One*. 2015;10(7):e0130247.

7. Webster J, Trieu K, Dunford E, Hawkes C. Target salt 2025: a global overview of national programs to encourage the food industry to reduce salt in foods. *Nutrients*. 2014;6(8):3274–3287.


# Dental Benefits: "Because Medicaid Has, How Do You Call It? A Limit"

*Follow up on: Neeley M, Jones JA, Rich S, Gutierrez LS, Mehra P. Effects of cuts in Medicaid on dental-related visits and costs at a safety-net hospital.* Am J Public Health. *2014;104(6):e13–e16.*

During the current US presidential campaign season, Senator Bernie Sanders has argued for a single-payer health care plan that he refers to as "Medicare for all." Recently, the Democratic nominee Hillary Clinton has suggested that Americans younger than 65 years, perhaps "people 55 or 50 and up," could voluntarily pay to join the program.[1] While Medicare covers most health services for adults aged 65 years and older as well as for younger adults with disabilities, it provides no benefits for routine dental care.[2] Medicaid, the major health coverage program for low-income Americans, provides a comprehensive mandatory benefit package for children that includes oral health screening, diagnosis, and treatment services, but allows states to determine whether to offer dental benefits for adults.[2]

## MEDICAID CUTS AND DENTAL-RELATED VISITS AND COSTS

In an *AJPH* report published two years ago, Neely et al. found that dental-related emergency department (ED) visits and costs increased at Boston Medical Center in Massachusetts when Medicaid coverage for adult dental care was reduced in July


### ABOUT THE AUTHOR

*Mary E. Northridge is* AJPH *editor emerita and Associate Professor, Department of Epidemiology & Health Promotion, New York University College of Dentistry, New York, NY.*

*Correspondence should be sent to Mary E. Northridge, PhD, MPH, 433 First Avenue, Room 726, New York, NY 10010 (e-mail: men6@nyu.edu). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.*



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2010.[3] By age group, the greatest percentage increases in ED visits for dental reasons were in persons aged 55 to 65 years (50%), followed by persons aged 65 years and older (45%).[3]

These findings are consistent with other evidence that when states have faced budgetary pressures—as Massachusetts did during and following the US Great Recession that began in December 2007 and lasted through June 2009—adult dental services in Medicaid have typically been among their first cutbacks.[2,3] For instance, California removed all but emergency adult benefits in 2009 and restored a subset of these benefits in 2014.[4] Glassman argues that the cycle of removing and restoring benefits has been among the deterrents to dentists providing dental care to low-income adults covered by Medicaid.[4]

## VARIATION IN ADULT DENTAL BENEFITS BY STATE

Nearly all states (46) and Washington, DC, currently provide adult dental benefits, with 15 states providing extensive dental benefits (including more than 100 diagnostic, preventive, and minor and major restorative procedures), 19 states providing limited dental benefits (including fewer than 100 dental procedures), and 13 states providing emergency-only dental benefits (including pain relief and extractions).[2] Furthermore, many state Medicaid programs set a maximum on per-person spending for adult dental benefits or impose caps on the number of certain services covered.

The Affordable Care Act (ACA; Pub L No. 111–148), signed by President Obama in 2010, requires states to provide Alternative Benefit Plans for Medicaid expansion adults, modeled on one of four benchmark options specified in the law, including an option for coverage approved by the US Secretary of Health and Human Services.[2,4] Of the 31 states and Washington, DC, that have adopted Medicaid expansion, all but two have used the Secretary-approved coverage option to conform the benefits provided for expansion adults with the benefits for adults in traditional Medicaid, modifying them as necessary to comply with the 10 Essential Health Benefits established by the ACA.[2]

Even in New York State, where Medicaid enrollees are covered for essential dental services, locating dentists who accept Medicaid can be problematic. Reimbursements for dentists by Medicaid are often lower than those paid by private insurers, the program places restrictions on the scope and timing of services covered (e.g., no dental implants, fixed bridgework, immediate full or partial dentures, or molar root canal therapy for adult beneficiaries except in narrowly defined medical situations), and the policies and procedures for participation in Medicaid are often onerous.[5]

## CHALLENGES FOR OLDER ADULTS ON MEDICAID

Beyond the effects of cuts in Medicaid and the scope and timing of services covered, we asked 194 racial/ethnic minority adults aged 50 years and older who participated in 24 focus groups in New York City from 2013 to 2015 about their experiences in seeking and receiving dental care. A hierarchical coding scheme was developed for data analysis that included Financial and Insurance as a core code, with Medicaid as a subcode. Preliminary findings regarding Medicaid are presented here.

Participants reported stigma in dental settings related to their Medicaid coverage, for themselves and others.

> "When you walk in [neighborhood clinics] the first thing they ask you is what kind of insurance you have, when you come in is Medicaid or Medicare, they turn up their nose at you."

> "The ones from Medicaid are left sitting there and the ones who pay cash, they come to the front."

Furthermore, the distinctions among which, if any, dental services are covered under Medicaid, Medicare, and other insurance plans is not always straightforward.

> "I have Medicare, which you know I pay forever more, I have Medicaid, and I have Health First. So, when one don't take over, the other one take over. They send me a book every year explaining to me what Medicaid pays, Medicare pays, and health insurance pays. . .if I had to pay that out of my pocket, I'd have been dead and never got it."

> "What Medicaid tells you when you look in your provisions, if you got Medicare and you got Medicaid it's supposed to be a full service coverage, but in reality when it comes to dental, it's not. Then they compound their arrogance by making you get another card, United or Metro and you still don't get full coverage, somebody need to do something about that."

While participants may not have been as explicit as the official Dental Policy and Procedure Code Manual about the essential services covered by Medicaid in New York State,[5] they appreciated both the limited scope and the changes over time of the dental services covered by the program.

> "Yeah, Medicaid, they real, they only go for the minimum like if you need extensive dental work done they are going to deny you, every time."

> "Well, I remember when Medicaid used to pay for root canal. And that would save the tooth. But now they have discarded that. And they want to pull the teeth now."

Finally, participants on Medicaid reported needing to pay out-of-pocket for part of the dental services they received.

> "I am on Medicaid and there is a loophole when it comes to dental that you still got to pay."

> "Because Medicaid has, how do you call it? A limit. . . I tell you because of my own case. I have to pay a certain amount because I went beyond the limit. They go up to $820. . ."

## PROGRESS AND PROMISE

Since the Neely et al. findings[3] were published two years ago, Massachusetts has gradually added back Medicaid coverage on a service-by-service basis through the state budget process.[6] For instance, in January 2013, coverage was added for fillings on front teeth, which are important for employability; in May 2014, coverage for all fillings was restored; and in May 2015, coverage for dentures was restored.[6]

During this election season, there has been a palpable lack of optimism, not only among the presidential contenders, but

among Americans overall.[7] Past reforms—notably the ACA—fail to receive the credit they deserve, especially for enhancing children's use of preventive dental care services.[2] As a society, we need to fulfill the promise of health care for all, and develop integrated and humane models of care that include the mouth in the rest of the body for adults, too. AJPH

*Mary E. Northridge, PhD, MPH*


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## REFERENCES


1. Rappeport A, Sanger-Katz M. Hillary Clinton takes a step to the left on health care. *The New York Times*. May 10, 2016. Available at: http://www.nytimes.com/2016/05/11/us/politics/hillary-clinton-health-care-public-option.html. Accessed May 15, 2016.

2. Hinton E, Paradise J. Access to dental care in Medicaid: spotlight on nonelderly adults. Menlo Park, CA: The Henry J. Kaiser Family Foundation, March 2016. Available at: http://kff.org/medicaid/issue-brief/access-to-dental-care-in-medicaid-spotlight-on-nonelderly-adults. Accessed May 15, 2016.

3. Neely M, Jones JA, Rich S, Gutierrez LS, Mehra P. Effects of cuts in Medicaid on dental-related visits and costs at a safety-net hospital. *Am J Public Health*. 2014;104(6):e13–e16.

4. Glassman P. Geriatric dentistry in the 21st century: environment and opportunity. *J Calif Dent Assoc*. 2015;43(7):389–393.

5. New York State Medicaid Program. Dental Policy and Procedure Code Manual. Available at: https://www.emedny.org/ProviderManuals/Dental/PDFS/Dental_Policy_and_Procedure_Manual.pdf. Accessed May 16, 2016.

6. National Academy for State Health Policy. Adult dental benefits in Medicaid: recent experiences from seven states. Available at: http://www.nashp.org/wp-content/uploads/2015/07/Massachusetts-Case-Study-Adult-Dental-Benefits-in-Medicaid-Recent-Experiences-from-Seven-States.pdf. Accessed May 16, 2016.

7. Easterbrool G. When did optimism become uncool? *The New York Times*. May 12, 2016. Available at: http://www.nytimes.com/2016/05/15/opinion/sunday/when-did-optimism-become-uncool.html?_r=0. Accessed May 16, 2016.


# The Rush to Drill for Natural Gas: A Five-Year Update

*Follow-up on: Finkel ML, Law A. The rush to drill for natural gas: a public health cautionary tale*. Am J Public Health. *2011;101(5):785–85.*

Five years ago, *AJPH* published our article[1] discussing the potential harm to the environment and human health from horizontal drilling and high-volume hydraulic fracturing of shale (e.g., fracking; hereafter referred to as unconventional gas development or UGD). At that time, the United States was importing oil and gas to meet its energy needs, gasoline prices at the pump were at record high levels, and UGD was proceeding at a rapid pace. There was a paucity of empirical data to confirm or refute the potential for harm from the process of drilling, extracting, and transporting natural gas and oil trapped in formations of low permeability (e.g., shale). We concluded that much remained unknown about the potential for harm from UGD and advocated that preventive, cautionary action should be taken in the face of uncertainty. Given the lax regulatory climate at the time, we felt that the burden of proof should be shifted to the industry to minimize degradation and damage to the public's health and the environment.

Since 2011, there has been not only a surge in drilling for natural gas and oil in the United States (e.g., California, Colorado, Louisiana, North Dakota, Pennsylvania, Texas) and in other countries (e.g., Australia), but also a huge increase in the number of published studies focused on environmental and public health impacts associated with UGD. Nearly 700 peer-reviewed publications, most published since 2013, provide empirical evidence of the various environmental, health, and societal effects of UGD. Potentially serious consequences associated with UGD have become more clearly defined.

Environmental and health impacts are evident at every stage of UGD, including construction of well pads, drilling the wells, extracting the gas, storing the byproducts of the extraction (e.g., flowback fluids), transporting the natural gas by diesel trucks, construction of compressor stations, and building pipelines. Well blowouts, spills, and release of methane into the atmosphere occur to the detriment of the environment. Of particular concern is the use of chemicals, many known to be carcinogens, in the extraction phase. Industry is legally protected from disclosing the composition of chemical mixtures, making it very difficult to determine the consequences of exposure in the short and long term.

Management (storage, treatment and disposal) of flowback wastewater containing thousands of gallons of toxic chemicals is often lax, creating a situation of potential danger to those living in areas where UGD is active as well as to those living out of the region. Proper disposal of flowback fluids is critically important to the protection of both surface and ground water. Flowback wastewater can be stored in containment pits or tanks on site, but there are problems with this option. The failure of a tank, pit liner, or the line carrying fluid ("flowline") can result in a release of contaminated materials directly into surface water, shallow ground water, and soil. Streams and aquifers have been polluted from flowback wastewater.

Although some drill operators recycle flowback wastewater to be used again in the extraction phase, another option is to transport the wastewater to water


## ABOUT THE AUTHORS

*Madelon L. Finkel is with the Department of Healthcare Policy & Research, Weill Cornell Medicine, New York, NY. Adam Law is with the Cayuga Medical Center, Ithaca, NY, and the Department of Medicine at Weill Cornell Medicine, New York, NY.*

*Correspondence should be sent to Madelon Finkel, Department of healthcare Policy & Research, Weill Cornell Medicine, 402 E 67 St. New York, NY 10065 (e-mail: maf2011@med.cornell.edu). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.*



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