European Journal of Clinical Nutrition
https://doi.org/10.1038/s41430-019-0426-9

PERSPECTIVE

Crystal Ball series

A food lover's love of nutrition science, policy, and politics

M. Nestle[1]

Received: 2 April 2019 / Accepted: 2 April 2019

In 1991, I was invited to the National Institutes of Health to speak about dietary approaches to disease prevention at a conference on the influence of behavior on cancer risk. Most of the other speakers were international physicians and scientists deeply engaged in trying to stop cigarette companies from promoting their products. In those pre-PowerPoint days, they showed slide after slide of cigarette marketing from the jungles of Africa to the high Himalayas. What particularly got my attention were the photographs shown by John Pierce of the University of California San Diego—the Joe Camel character and other examples of cigarette advertising aimed directly at children. I was stunned by these talks. I knew that the tobacco industry spent a fortune on marketing cigarettes, but its advertisements were so much a part of the landscape that I barely noticed them. I had never paid attention to how insidiously cigarette companies targeted children or populations in developing countries. The parallels to food marketing seemed obvious. I walked out of that meeting convinced that nutrition scientist ought to be scrutinizing Coca-Cola in the same way that anti-smoking scientists had scrutinized tobacco companies.

At that point, I was in my mid-50s, a tenured professor at New York University, chairing what was then its Department of Home Economics. I had managed to get that job despite being a nutrition generalist, writing and speaking about a broad range of topics related to diet and health vaguely grouped under the heading of nutrition policy. After that meeting, I began paying close attention to food industry marketing, and focused my teaching, writing, public speaking, and daily interviews with the press specifically on the ways in which food politics affects diet and health.

✉ M. Nestle
Marion.nestle@nyu.edu

[1] Department of Nutrition and Food Studies, New York University, New York, NY, USA

A woman of the 1950s

I explain my late start as the result of growing up in a family with no money, aspirations, or expectations in an era when opportunities for women hardly existed. I lived in California and could go to a state university at low cost, but what to study? I would be the first in my family to attend college, but nobody expected me to end up working as anything other than a secretary or elementary school teacher. Doors to other options appeared firmly closed. Knowing that I enjoyed growing, cooking, and eating food, a cookbook-collecting friend of the family suggested I study food. But how? The choices were agriculture, which this city girl did not appreciate until much later, or dietetics. I went to Berkeley as a dietetics major, but left it quickly when I found the required chemistry courses more challenging, and drifted from one science major to another in my freshman and sophomore years.

Women were supposed to marry young, and I did, at age 19. I dropped out of college, returned a year later, found out that I could graduate most quickly in bacteriology, did so, worked as a laboratory technician, then stayed home to raise two children. Friends urged me to go to graduate school. Because my favorite science course had been with a professor of molecular biology, I applied to his department. I had good grades, and was admitted with a fellowship that would cover the cost of child care. The graduate advisor let me know that I was given the fellowship only because no men had applied, and I should not expect to keep it beyond the first year. From this, I gathered that I would not be taken seriously as a student, and had best keep my career expectations low. In the event, men did apply but my funding continued. I was able to finish my degree in nucleic acid enzymology, ironically just before restriction enzymes came into use [1–3].

In the late 1960s, I moved to the Boston area to do a postdoc in a lab working on the developmental biology of slime molds at Brandeis University [4]. There, my basic science career came to an abrupt end when I recognized that I had no way to manage child care while meeting demands to work in the lab at night and on weekends. Some women can handle a laboratory career while raising young children, but I was not

Published online: 24 April 2019

one of them. I left the lab and took a non-tenure track teaching job in the Brandeis Biology Department where I ran the laboratory course for premedical students and taught courses in cell and molecular biology. Students were demanding courses in human biology, and the department expected instructors to teach whatever was needed. In 1975, I was assigned to teach an undergraduate course in human nutrition.

Like the students, I was intrigued by nutrition. Linus Pauling's *Vitamin C and the Common Cold* (WH Freeman, 1970) was a best seller. Frances Moore Lappé's *Diet for a Small Planet* (Ballantine, 1971) was generating widespread interest in vegetarian diets. The newly formed nutrition advocacy group, Center for Science in the Public Interest, had just published *Food for People, Not for Profit* (Ballantine, 1975), a collection of articles on topics ranging from food production to public health. I wanted to know whether science supported the contentions in these books. Students, intimidated by original research in molecular biology, would be able to understand nutrition studies and relate to them personally. I could see that nutrition would be a superb way to teach critical thinking in biology.

Preparing that first nutrition class was like falling in love. I loved the uncertainties of nutrition science, and the puzzle of trying to figure out what people eat and how diets affect health. I loved the way the field of nutrition drew on my background in molecular biology, but also on what I knew or could learn about economics, sociology, anthropology, and political science. I had a wonderful time teaching that course and an advanced course that followed it.

That turned out to be my last year at Brandeis. In 1976, My then-husband got a job at the University of California San Francisco (UCSF), where I was hired as an accompanying spouse with the title of Associate Dean, and given a few hours in the first-year medical biochemistry course to teach nutrition. This was another non-tenure track position, split between the dean's office and an unwelcoming department, but I did what I could to make it work. I read widely and deeply and learned clinical nutrition well enough to teach it, one topic after another. Over the next 8 years, I worked with faculty and students to win federal and private grants for teaching nutrition, and developed a comprehensive program that introduced relevant nutrition topics into every level of medical training [5].

I also started writing about the material I was teaching. I began by reviewing dozens of books for *Medical Self-Care*, and writing articles, book chapters, and letters to editors about nutrition in general [6], in medical education [7] and on diet and chronic disease [8], dietary guidelines [9], nutritional support [10], and nutrition policy [11]. In 1985, I pulled together what I'd written and published my first book, *Nutrition in Medical Practice* (Jones Medical Publications), a summary of everything I thought medical students and practitioners ought to know about clinical nutrition. The book went out of print almost instantly; my publisher had a midlife crisis, went to music school, and closed his business.

By then, a new dean had come in, and my UCSF job came to an end. Deans get to choose their own staff, but I was the only associate dean without tenure and the only woman. Philip Lee, a former UCSF Chancellor for whom its policy center is now named, advised me to resign but also how to extricate gracefully. Following his advice enabled me to stay on salary long enough to go to public health school, get a nutrition credential, and find another job. Public health school took care of the credentialing but also consolidated my thinking about how nutrition related to larger societal issues. This was valuable training, and it opened doors.

With my science background, a nutrition textbook, fifteen years of teaching experience in basic and clinical nutrition, and my new public health nutrition master's degree, I was ready to get serious about nutrition policy. I went to Washington, DC for a two-year stint as Senior Nutrition Policy Advisory to the Office of Disease Prevention and Health Promotion, with a job to edit (a euphemism, as it turned out, for writing most of) the 700-page 1988 *Surgeon General's Report on Nutrition and Health*, a comprehensive review of the science of diet and chronic disease [12]. The difficulties involved in getting this report prepared, approved, and published were invaluable lessons in the practical realities of nutrition politics.

My better-late-than-never career in food politics

Once that report came out, I needed to find a job. In 1988, I applied for and got a position at NYU to chair and reconfigure its home economics department into something more appropriate for the modern age (its current iteration is the Department of Nutrition and Food Studies). In taking that job, I went from being an eased-out lecturer at UCSF to a full professor with tenure at NYU just two years later, a transition I considered a miracle of good luck. Tenure gave me the confidence to say and write what I thought.

After that 1991 meeting, everything I had done came together. I questioned the role of the food industry in everything I was writing about: dietary advice [13], nutrition policy [14], international food aid [15], diets and health [16], food guides [17], hunger policy [18], dietary supplements [19], obesity [20], school food [21], marketing to children [22], food biotechnology [23], conflicts of interest [24]. By the late 1990s, my department had created academic programs in Food Studies, a new—and now greatly expanded–humanities discipline using food as a lens to examine critical problems in society [25]. Food Studies values books [26]. I collected and rewrote some of my published work and added new material for the book that

became *Food Politics: How the Food Industry Influences Nutrition and Health* in 2002 (later editions appeared in 2007 and 2013) [27]. The manuscript that I originally submitted was so long that University of California Press split it and published the chapters on food safety and food biotechnology a year later as *Safe Food: Bacteria, Biotechnology, and Bioterrorism* [28] (a revised edition in 2010 changed the subtitle to *The Politics of Food Safety*).

After those books, I made up for lost time. I wrote *What to Eat* for the general public in 2006 [29]. My partner, Malden Nesheim, was trained as an animal nutritionist, and I thought it would be fun to work with him on an equivalent book for dogs and cats. It was, and we ended up writing an analysis of the pet food industry in 2010, which the publisher misleadingly insisted on calling *Feed Your Pet Right* [30]. Separately, I wrote spinoff chapters from that book on the melamine-induced pet food recalls of 2006; these appeared in 2008 as *Pet Food Politics* [31]. Mal and I so enjoyed working together that we produced *Why Calories Count* in 2012 [32]. A collaboration with Sara Thaves, whose Cartoon Bank represents many cartoonists, led in 2013 to *Eat, Drink, Vote*, a book of more than 200 cartoons about food politics [33]. *Soda Politics* came out in 2015 [34], and *Unsavory Truth* in 2018 [35]. At the time of this writing, I am working on a short book of essays on food and nutrition politics for University of California Press. These books, articles, and edited volumes [36] continue to lead to speaking, meeting, and writing invitations since my ostensible (I kept my office) retirement from NYU in September 2017.

What does the future hold for food politics?

Much nutrition science in recent years has focused on solutions to problems of malnutrition based on nutrients, not food, and on precision nutrition aimed at addressing the specific health problems of individuals. These scientific concerns are of great interest, but the three most important problems in public health nutrition—undernutrition, overnutrition, and the effects of food production and consumption on climate change—demand a decidedly different approach, one based on food systems. A food system is everything that happens to a food from the time it is produced to the time it is consumed, a process that involves food transportation, storage, retailing, cooking, eating, and, eventually, wasting. I currently teach and lecture about food systems. American nutrition students often lack exposure to topics of enormous international interest, the Sustainable Development Goals, for example, each of which involves nutrition as a key component [37].

In my teaching and professional articles, the columns I wrote for five years for the *San Francisco Chronicle*, and the almost daily blog I have written for the last decade at www.foodpolitics.com, I have long argued for the compelling need to use a food systems approach to promoting the health and environmental benefits of largely—but not necessarily exclusively—plant-based diets, and to link agricultural policy to health policy [38]. Consequently, I was delighted to see the two documents published in *The Lancet* early in 2019: The Eat-Lancet report and the Global Syndemic report, both urging triple-duty food and nutrition policies simultaneously aimed at preventing malnutrition, reducing non-communicable disease risk, and lessening the impact of food production and consumption on climate change [39, 40]. These reports explicitly recognize the economic imperatives of food companies as major barriers to dietary improvements to promote the health of people and the planet. They explicitly recommend government and civil society actions to curb food industry marketing practices. In this context, I see my work as establishing an urgent need for all of us who see ourselves as nutrition scientists and practitioners to recognize–and to resist–food industry influence on our research and opinions. My hope is that my work will encourage food systems thinking as the key to solving the public health nutrition problems of the future. Most of all, I hope it will inspire students and young colleagues to advocate for healthier and more sustainable food

Compliance with ethical standards

Conflict of interest The author declares that she has no conflict of interest.

Publisher's note: Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

References

1. Nestle M, Roberts WK. Separation of ribonucleosides and ribonucleotides by a one-dimensional paper chromatographic system. Anal Biochem. 1968;22:349–51.
2. Nestle M, Roberts WK. An extracellular nuclease from *Serratia marcescens*. I. Purification and some properties of the enzyme. J Biol Chem. 1969;244:5213–8.
3. Nestle M, Roberts WK. An extracellular nuclease from *Serratia marcescens*. II. Specif Enzym J Biol Chem. 1969;244:5219–25.
4. Nestle M, Sussman M. The effect of cyclic-AMP on morphogenesis and enzyme accumulation in *Dictyostelium discoideum*. Devel Biol. 1972;28:545–54.
5. Nestle M. Management of the nutrition curriculum at the University of California, San Francisco. In: Proceedings of the National Workshop on Nutrition Education in Health Professions Schools, September 30 – October 1, 1981, Washington DC. Atlanta: Emory University, 1981:65–69.
6. Nestle M. Nutrition. In: Martin DW, Mayes PA, Rodwell VW, eds. Harper's Review of Biochemistry, 18th edn. Lange Medical Publications 1981:565–84
7. Nestle M. Nutrition instruction for health professions students and practitioners: strategies for the 1980s. JPEN. 1982;6:191–3.
8. Nestle M. An overview of diet and cancer. Geriatr Consult. 1985;4:24–25.
9. Nestle M. Dietary recommendations: what constitutes good nutrition, and for whom. Consult. 1983;23:271–86.
10. Nestle M. Nutritional support. In: Watts D, ed. Handbook of Medical Treatment, 17th edn. Greenbrae CA: Jones Medical Publications, 1983: 257–82.
11. Nestle M, Lee PR, Baron RB. Nutrition policy update. In: Weininger J, Briggs GM, eds. Nutrition Update. 1. New York: John Wiley and Sons; 1983. p. 285–313.
12. Department of Health and Human Services, Public Health Service. The Surgeon General's Report on Nutrition and Health. Publ. No. (PHS) 88-50210. Washington DC: U.S. Government Printing Office, 1988.
13. Nestle M, Porter DV. Evolution of federal dietary guidance policy: from food adequacy to chronic disease prevention. Caduceus. 1990;6:43–67.
14. Nestle M. Food lobbies, the food pyramid, and U.S. nutrition policy. Int J Health Serv. 1993;23:483–96.
15. Nestle M, Dalton S. Food aid and international hunger crises: The United States in Somalia. Agr Hum Values. 1994;11:19–27.
16. Nestle M. Mediterranean diets: historical and research overview. Am J Clin Nutr. 1995;61(suppl):1313s–1320s.
17. Nestle M. Dietary advice for the 1990s: the political history of the food guide pyramid. Caduceus. 1993;9:136–53.
18. Nestle M. Hunger in America: A Matter of Policy. Soc Res. 1999;66:257–82.
19. Nestle M. Dietary supplement advertising: a matter of politics, not science. J Nutr Educ. 1999;31:278–82.
20. Nestle M, Jacobson MF. Halting the obesity epidemic: A public health policy approach. Public Health Rep. 2000;115:12–24.
21. Nestle M. Societal barriers to improved school lunch programs: rationale for recent policy recommendations. Sch Food Serv Res Rev. 1992;16:5–10.
22. Nestle M. Soft drink "pouring rights:" marketing empty calories. Public Health Rep. 2000;115:308–19.
23. Nestle M. Food biotechnology: politics and policy implications. In: Kiple KF, Ornelas-Kiple CK, eds. The Cambridge World History of Food and Nutrition, Vol II:VII.7 Cambridge: Cambridge University Press, 2000:1643–62.
24. Nestle M. Food company sponsorship of nutrition research and professional activities: A conflict of interest? Public Health Nutr. 2001;4:1015–22.
25. Berg J, Nestle M, Bentley A. Food studies. In: Katz SH, Weaver WW, eds. The Scribner Encyclopedia of Food and Culture. 2. New York: Charles Scribner's Sons; 2003. p. 16–18.
26. Nestle M. Writing the Food Studies Movement. Food, Cult, Soc. 2010;13:159–68.
27. Nestle M. Food Politics: How the Food Industry Influences Nutrition and Health. Berkeley: University of California Press; 2002.
28. Nestle M. Safe Food: Bacteria, Biotechnology, and Bioterrorism. Berkeley: University of California Press; 2003.
29. Nestle M. What to Eat. New York: North Point Press/Farrar, Straus and Giroux, 2006.
30. Nestle M, Nesheim MC. Feed Your Pet Right. New York: Free Press/Simon & Schuster, 2010.
31. Nestle M. Pet Food Politics: The Chihuahua in the Coal Mine. Berkeley: University of California Press, 2008.
32. Nestle M, Nesheim MC. Why Calories Count: From Science to Politics. University of California Press, 2012.

33. Nestle M. Eat, Drink, Vote: An Illustrated Guide to Food Politics. Rodale Books, 2013.
34. Nestle M. Soda Politics: Taking on Big Soda (and Winning). Oxford University Press, 2015.
35. Nestle M. Unsavory Truth: How Food Companies Skew the Science of What We Eat, Basic Books, 2018.
36. Williams SN, Nestle M, eds. "Big Food": Critical perspectives on the global growth of the food and beverage industry. Crit Public Health. 2015;25:245-372.
37. Nutrition and the Sustainable Development Goals. Scaling Up Nutrition. Undated. https://scalingupnutrition.org/nutrition/nutrition-and-the-sustainable-development-goals/.
38. Nestle M. The farm bill drove me insane. Politico. March 17, 2016. https://www.politico.com/agenda/story/2016/03/farm-bill-congress-usda-food-policy-000070#ixzz43Acfpepm.
39. Willett W, Rockström J, Loken B, Springmann M, Lang T, Vermeulen S, et al. Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems. Lancet. 2019;393:447–92. https://doi.org/10.1016/S0140-6736(18)31788-4.
40. Swinburn BA, Kraak VI, Allender S, Atkins VJ, Baker PI, Bogard JR, et al. The Global syndemic of obesity, undernutrition, and climate change: The Lancet Commission report. Lancet. 2019;393:791–846. https://doi.org/10.1016/S0140-6736(18)32822-8.