Supplementary Table 12. Direct Restrictions and Mandates for Diet

Restrictions on Advertising to Children

Author, y	Design	Population	Duration	Intervention/Evaluation	Major Findings
IOM Committee on Food Marketing and the Diets of Children and Youth, 2006[389]	Review	Children and adolescents	Variable	Variable	• There is moderate to strong evidence that television advertising influences food and beverage preferences, purchase requests, beliefs, and dietary intake of children and adolescents. • Current food and beverage marketing practices geared to children and youth are out of balance with recommended healthful diets and contribute to an environment that puts their health at risk.
Powell et al, 2007[390]	Observational, cross-sectional	A sample of 98,306 30-s equivalent food-product ads seen by US television viewers age 2-11 y and 12-17 y	2003-2004	Food products and their related nutritional contents were examined in aggregate and by 5 separate categories that included cereals, sweets, snacks, drinks, and other food products. Ads viewed were weighted by television ratings data to provide actual exposure measures of the nutritional content of food advertising seen by children and adolescents.	• 97.8% and 89.4% of advertised foods seen by viewers age 2-11 y and 12-17 y, respectively, were high in fat, sugar, or sodium. • Nearly half of all calories among the advertised products came from sugar. • 97.6% of cereal ads seen by children age 2-11 y were for high-sugar cereals. • Among children, no substantial differences were found in the nutritional content of ads seen by blacks vs whites. • Among adolescents, a slightly higher proportion of food ads were for high-sugar products, overall and across all food-product categories, seen by blacks vs whites.
Gantz et al, 2007[391]	Observational, cross-sectional	All TV programs displayed in 1 wk in top 10 networks for 3 age groups (2-7 y, 8-12 y, and	2005	The Kaiser Family Foundation used samples of >1600 h of all genres of programming viewed by children and combined a detailed analysis of advertising content with viewing data from a large national sample of children to determine how many ads young people	• Children age 8-12 y were watching the most food ads on TV, an average of 21 ads per day or >7600 ads per year, followed by adolescents age 13-17 y (17 food ads per day), and children age 2-7 y (12 food ads per day).

		13-17 y), totaling 1638 h		actually see, given the mix of programming they watch.	• Most ads were for candy and snacks (34%), sugared cereals (28%), and fast foods (10%); none of the 8854 ads reviewed marketed fruits and vegetables.
Chou et al 2008[392]	Observational, longitudinal	N=14,852 children, a nationally representative sample of the US population age 12-16 y	1996-1999	The 1979 Child–Young Adult National Longitudinal Survey of Youth and the 1997 National Longitudinal Survey of Youth were used to estimate the effects of fast-food restaurant advertising on children and adolescents being overweight. The advertising measure used was the number of hours of spot television fast-food restaurant advertising messages seen per week.	• The findings estimated that a ban on television fast-food restaurant ads would reduce the number of overweight children age 3-11 y by 18% and the number of overweight adolescents age 12-18 y by 14%.
Veerman et al, 2009[393]	Simulation study	Children age 6-12 y in NHANES 2003-2004, a nationally representative US survey	2003-2004	Body measurement data from NHANES and literature related to television advertising and dietary consumption levels were used to construct a mathematical simulation model to estimate the potential effects of reducing the exposure of US children age 6-12 y to TV food advertising on the prevalence of overweight and obesity.	• Reducing exposure to zero would decrease average BMI by 0.38 kg/m^2 and lower prevalence of obesity by 14.6% (from an absolute prevalence of 17.8% to 15.2%).
Restrictions on Specific Dietary Factors					
Author, y	**Design**	**Population**	**Duration**	**Intervention/Evaluation**	**Major Findings**
Leth et al, 2006[395]	Quasi-experimental (pre- vs postintervention)	Major foods in Denmark before and after legislation banning *trans* fat	2003-2005	In March 2003, Denmark passed a regulation to impose a maximum of 2% industrially produced *trans* fatty acid in oils and fats destined for human consumption. The law was applied at the source, not in the final product, covered all oils and fats used in foodstuffs on the Danish market or exported from Denmark, and limited products claiming to be "free from *trans* fat" to <1 g *trans* fat per 100 g in oil or fat used for production. This study evaluated the *trans* fat content of the 253 and 148 sample foods before (2003) and after (2005) implementation of the law.	• The number of samples that contained >2% TFA was significantly reduced, and most of these products contained only between 2% and 6% TFA. • Danish regulation helped reduce the amount of industrially produced TFA used in foods to a very low level.. • Producers successfully developed new methods of production without increasing prices or reducing the variety of products on the market.
Angell et al 2009[23]	Quasi-experimental (pre- vs postintervention)	All licensed food establishments, including	2006-2008	In 2006, the New York City Department of Health and Mental Hygiene proposed an amendment to the city's health code to restrict use of artificial *trans* fat in fry oils,	• Primary analyses of outcomes of this regulation show that restaurant use of artificial *trans* fat for frying, baking, or cooking or in spreads has

		restaurants, in New York City		spreads, and all other ingredients and products in all licensed food establishments, including restaurants, school cafeterias, catering businesses, senior centers, and offerings from street-food vendors. The FDA threshold (up to 0.5 g of *trans* fat per serving) was adopted as the threshold for labeling the products containing any *trans* fat. This restriction went into full effect in November 2008.	decreased from 50% to <2%. • After 2 y, dozens of national chains had removed artificial *trans* fat and 13 jurisdictions, including California, had adopted similar laws.
Pekka et al, 2002[59] Puska and Stahl, 2010[60]	Quasi-experimental (pre-vs postintervention)	Finland	1980s to present.	A multicomponent national intervention to improve dietary habits was instituted after 1977, which included media and education, substantial focus on voluntary agreements with industry, modifications to taxation and subsidy policies for several foods, and government-supported programs to increase local production and consumption of berries (see other relevant Tables for more details on these interventions). In addition, national legislative restrictions were implemented on the maximum percentage of milk fat in whole milk and low-fat milk (1980s, 1990s) and maximum salt content of certain foods (1990s).	• In 1978, 44% of men and 35% of women used whole milk, whereas in 1998 the respective proportions were only 9% and 4%, respectively. Low-fat milk became the standard milk used in schools and catering. • As measured by urine sodium excretion, mean daily salt intakes declined from about 14 to 15 g in men (unknown in women) to about 11 g in men and 7 g in women. • These and other dietary changes were associated with substantial declines in population cholesterol levels, including 18% declines in North Karelia between 1972 and 1997 and similar declines in other monitored areas. • Diastolic blood pressure decreased by 5% in men and 13% in women. • Age-standardized CHD mortality among adults age 35-64 y decreased by 73% in North Karelia and by 65% in the whole country between 1971 and 1995. • About 75% of this decline could be explained by improvements in population risk factors rather than changes in medical treatments.
Uusitalo et al, 1996[396]	Quasi-experimental (pre- vs postintervention) using serial cross-sectional surveys	N=5080 and 5162 subjects in 1987 and 1992 in Mauritius, including a subset of 2059 subjects age 30-	1987-1992	In 1987, the Ministry of Health initiated a multicomponent intervention program to modify multiple lifestyle-related risk factors. One component was a regulatory policy to change the composition of general cooking oil, limiting the	• From 1987 to 1992, the estimated mean reduction in intake of saturated fat related to changes in intake of cooking oil was 3.5% of energy in men and 3.6% in women, and estimated mean increase in intake of

		64 y with assessment of diet in 1992		content of palm oil and mandating its replacement with soybean oil. Five years after this regulatory intervention, in 1992, a follow-up survey and a 24-h recall were performed to assess whether changes in the composition of cooking oil had influenced population blood cholesterol levels. Phospholipid fatty acid concentrations were also measured.	polyunsaturated fat was 5.5% of energy in men and 5.6% in women. • From 1987 to 1992, mean total blood cholesterol levels fell by 0.79 mmol/L in men and 0.82 mmol/L in women (P<0.001 each). Changes in saturated and polyunsaturated fat consumption due to changes in cooking oil explained 48% of this decrease in men and 49% of the decrease in women.
Mandates for Specific Dietary Factors					
Author, y	**Design**	**Population**	**Duration**	**Intervention/Evaluation**	**Major Findings**
Pekka et al, 2002[59]	Quasi-experimental (pre- vs postintervention)	Finland	Late 1970s to 1980s	The Berry and Vegetable Project aimed to increase the feasibility of growing berries in Finland. The Ministry of Agriculture and the Ministry of Commerce financed a major collaborative project between berry farmers, industry, various commercial sectors, and health authorities to develop and grow berries in Finland. In addition to media and education campaigns, the project supported sales campaigns, development of new berry products, and related relevant activities.	• Over the period of the project, many Finnish farmers switched from dairy to berry production. • At a national level, berry production and consumption rose gradually from initially very low levels. • These changes, together with other changes in food supply, were associated with substantial reductions in population CVD risk factors and rates of CVD events.
Puska and Stahl, 2010[60]	Quasi-experimental (pre- vs postintervention)	Finland	2000 to present	A media- and education-focused community intervention in North Karelia to improve dietary habits was subsequently extended to the national level after 1977, with additional substantial focus on other policy strategies. In the 2000s, additional government budget policies were developed to support domestic vegetable consumption and other health-related food innovations.	• The specific impact of budget policies that were developed to support domestic vegetable consumption and health-related food innovations has not been reported.
Uusitalo et al, 1996[396]	Quasi-experimental (pre- vs postintervention) using serial cross-sectional surveys	N=5080 and 5162 subjects in 1987 and 1992 in Mauritius, including a subset of 2059	1987-1992	This intervention is described in this Table above, in “Restrictions on Specific Dietary Factors.” The intervention included both a restriction on palm oil in cooking oil and a mandate to increase use of soybean oil	• From 1987 to 1992, the estimated mean reduction in intake of saturated fat related to changes in intake of cooking oil was 3.5% of energy in men and 3.6% in women, and the

		subjects age 30-64 y with assessment of diet in 1992		as its replacement.	estimated mean increase in intake of polyunsaturated fat was 5.5% of energy in men and 5.6% in women. • From 1987 to 1992, mean total blood cholesterol levels fell by 0.79 mmol/L in men and 0.82 mmol/L in women (P<0.001 each). The changes in saturated and polyunsaturated fat consumption due to changes in cooking oil explained 48% of this decrease in men and 49% of the decrease in women.

IOM indicates Institute of Medicine; NHANES, National Health and Nutrition Examination Survey; BMI, body mass index; TFA, *trans* fatty acid; FDA, US Food and Drug Administration; CHD, coronary heart disease; and CVD, cardiovascular disease.

Note: Reference numbers (eg, Powell et al, 2007[390]) appearing in this supplementary table correspond with those listed in the reference section of the statement. For the purposes of this supplementary table, these meta-analyses or systematic reviews (see "Author, y" column) are considered the primary citation. Additional studies mentioned in the primary citation may be included in the "Intervention/Exposure" and "Findings" columns. The additional studies can be accessed through the primary citation.