

Title: Urbanization and the Nutrition Transition

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More details/abstract: Diets are changing with rising incomes and urbanization— people are consuming more animal-source foods, sugar, fats and oils, refined grains, and processed foods. This “nutrition transition” is causing increases in overweight and obesity and diet-related diseases such as diabetes and heart disease. Urban residents are making the nutrition transition fastest— but it is occurring in rural areas too. Urban food environments—with supermarkets, food vendors, and restaurants—facilitate access to unhealthy diets, although they can also improve access to nutritious foods for people who can afford them. For the urban poor, the most easily available and affordable diets are often unhealthy.

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CHAPTER 4

CHANGING DIETS

Urbanization and the Nutrition Transition

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KEY MESSAGES

- Diets are changing with rising incomes and urbanization—people are consuming more animal-source foods, sugar, fats and oils, refined grains, and processed foods.
- This “nutrition transition” is causing increases in overweight and obesity and diet-related diseases such as diabetes and heart disease.
- Urban residents are making the nutrition transition fastest—but it is occurring in rural areas too.
- Urban food environments—with supermarkets, food vendors, and restaurants—facilitate access to unhealthy diets, although they can also improve access to nutritious foods for people who can afford them.
- For the urban poor, the most easily available and affordable diets are often unhealthy.

POLICY AND RESEARCH NEEDS

- What are people eating and how is the urban food environment shaping their food choices?
- Which national and municipal level policies—such as food-labeling requirements to provide consumers with more information, taxes on less healthy foods, school meal programs, and affordable “popular” restaurants—have improved nutrition for urban residents?
- How can food retailers and food services make a greater contribution toward creating an enabling environment for good nutrition?
- What positive experiences with policies to address the nutrition transition can point policy makers in a promising direction?



Diets are changing everywhere. Widespread trends include a decrease in consumption of coarse grains, staple cereals, and pulses; an increase in consumption of animal foods, sugar, salt, fats and oils, refined grains, and processed foods; and depending on where you look, either an increase or decrease in consumption of fruits and vegetables.¹ These changes are occurring at different rates in different regions and populations, but the most rapid change is taking place in the developing world. For example, sugar, salt, and particularly fat consumption from processed foods has plateaued in high-income countries, but is rapidly increasing in middle-income countries.² The Global Panel on Agriculture and Food Systems for Nutrition concluded that “over time, people are consuming more recommended components of high-quality diets. However, despite dietary improvements, the net result is still a prevalence of low-quality diets in most countries.”³ Poor-quality diets—lacking in essential nutrients and with an excess of harmful components—are now estimated to be the number-one risk factor in the global burden of disease.⁴

Dietary changes and their nutrition impacts—together known as the “nutrition transition”⁵—are strongly linked with increasing burdens of

overweight and obesity⁶ and diet-related noncommunicable diseases, such as diabetes and heart disease. The World Health Organization estimates that 1.9 billion people are now overweight or obese, and 1 in 12 people throughout the world has diabetes.⁷ These diseases are proving very costly: noncommunicable diseases are expected to cost the global economy as much as US\$47 trillion in lost earnings and health bills over the coming two decades, representing 75 percent of global gross domestic product in 2010, with the potential to push millions of people below the poverty line.⁸

Drivers of these dietary changes work at many scales, and involve changes in supply and demand in the food system that are mutually reinforcing. The policies and processes of globalization; the growth of the large-scale food industry, including supermarkets and expansion of mass marketing; and increasing income and changing employment pressures that lead to changes in eating and activity behaviors are all significantly implicated in changing dietary patterns and associated health conditions.⁹ All of these factors are closely linked with the processes of urbanization, as changing environments and preferences interact to influence diets and nutrition. We explore the data available on urban diets, nutrition,

and related health outcomes, and then look in more detail at some of the drivers of urban diet and nutritional change and the implications for policy and research.

DIFFERENCES BETWEEN RURAL AND URBAN AREAS

DIET

How are diets changing as a result of urbanization? Early work on the nutrition transition showed that the shift toward greater availability of fats and sugars and reductions in reliance on starchy carbohydrates as dietary staples was occurring faster in cities than in rural areas.¹⁰ Urban populations tend to consume more calories, yet a lower proportion of these calories comes from cereals or carbohydrates and more comes from fat.¹¹ Urban populations consume more meat and other protein, or consume different animal protein sources than rural counterparts, but less dairy.¹² They also consume more fruits and vegetables overall, though consumption of these food groups differs greatly between richer and poorer urban populations.¹³ And finally, urban dwellers consume more non-basic foods, including sugary snacks among children, food away from home, and processed foods.¹⁴

WEIGHT

The global prevalence of overweight and obesity rose rapidly in both adults and children in recent years. The number of overweight children rocketed worldwide, from 28 million in 1990 to 43 million in 2011.¹⁵ And if current trends among adults continue, global obesity prevalence is expected to reach 18 percent in men and surpass 21 percent in women by 2025.¹⁶ Further details on these trends in overweight and obesity are provided in Chapter 3.

Dietary changes are a major driver of these disturbing weight trends. Although urban and rural divisions are far from the only factor explaining subnational differences, associations exist between city residence and overweight.¹⁷ Large multicountry studies find a particularly strong link between urban residence and overweight among adult women in countries at all levels of economic development; women living in urban areas are more likely—by about 7-12 percentage points—to be overweight than are rural women, even after controlling for education.¹⁸ National-level studies have

shown that the problem of overweight among both men and women is overwhelmingly higher in urban than rural areas, and the prevalence of overweight increases in urban areas over time.¹⁹ A similar picture exists for children, as shown by two recent studies: in one, overweight prevalence among children was found to be higher in urban than in rural areas in 55 of 80 low- and middle-income countries; in the other study, a similar share (43 out of 55 countries) showed a higher risk of overweight among urban children.²⁰

Weight gain is related not only to diet but also to low levels of physical activity. In 2003, a multicountry analysis showed that one out of five adults around the world was physically inactive, with physical inactivity more prevalent among wealthier and more urbanized countries, and among women and elderly individuals.²¹ Adults living in cities tend to expend less energy at work (more sedentary jobs), in domestic chores (more readily available water and electricity), and in getting around (greater use of motorized transport). With regard to leisure, however, urban areas may offer either more opportunities for increased physical activity (such as sports and gyms) or fewer (more access to television, computers, and video games). Overall, not enough is known about the aggregate effects of the shift from rural to urban life on physical activity.²²

DIET-RELATED DISEASES

Along with dietary changes and an increase in overweight, diet-related diseases are also on the rise in low- and middle-income countries, and are clearly linked with urban residence. A study of 173 countries found that a country's level of urbanization is significantly associated with diabetes prevalence, through the mediator of increased sugar access.²³ In most countries of West Africa, obesity, hypertension, and diabetes have all increased and are generally higher in urban areas across all socioeconomic groups.²⁴ Studies in India show that urbanization is associated with high blood pressure in men and with cardiovascular disease and higher cholesterol in other populations studied.²⁵ In China, people who migrate to cities are found to have higher blood pressure.²⁶ In Benin, city residence is associated with more adverse cholesterol profiles, and in Sri Lanka with diabetes in men and women.²⁷ Notably, noncommunicable, nutrition-related diseases have emerged in Africa south of the Sahara at a faster

rate and at a lower economic level than in industrialized countries.²⁸ Overall, adult overweight, obesity, and raised blood glucose increased in every region of the world between 2010 and 2014, and heart disease is the leading cause of mortality worldwide, with three-quarters of deaths occurring in low- and middle-income countries.²⁹

DRIVERS OF THE NUTRITION TRANSITION IN CITIES

What aspects of urban living promote food choices that lead to these largely detrimental changes in nutrition and health outcomes? A combination of drivers is likely, underpinned by the need for cash to access food and changes to “food environments.” Income influences what foods people buy in cash economies, while urban food environments circumscribe how income can be spent on food and shape people’s food preferences, attitudes, and therefore food choices more broadly.³⁰ Likewise, income and environments affect people’s time and ability to exercise. The term “obesogenic environment” is used to describe an environment within the home, workplace, or society that promotes weight gain.³¹

INCOME TO PURCHASE FOODS ASSOCIATED WITH THE NUTRITION TRANSITION

Most food in urban areas is purchased, so people’s ability to generate income is key to their diet and nutrition. Urban residents tend to differ from their rural counterparts with regard to levels (and form) of income, as well as in their social and cultural attributes.³² Many studies assessing differences in diets and health outcomes across populations find interactions between urbanization and income.³³ Urban-rural differences in body mass index, for instance, have been found to narrow when community and individual socioeconomic status are controlled for.³⁴ In other words, the association between higher body mass and urban residence may well be driven by city dwellers with higher socioeconomic status—although there are also large numbers of urban poor.

Income growth enables households to access more food, but this can be either nutrient-dense food that contributes to a high-quality diet or calorie-dense, salty or sugary food that can undermine diet quality.³⁵ Many of the negative

dietary changes are occurring in both higher- and lower-income groups. A study in an urban slum in India, for instance, found that 66 percent of households consume packaged snacks high in fat, with two-thirds consuming these daily.³⁶ In urban Malawi, the food insecure are more likely to consume ready-made and processed foods from street vendors.³⁷ In comparison, the price of nutrient-dense foods such as fruits, vegetables, and animal foods is often significantly higher than that of calorie-dense foods, making cost a barrier to the urban poor.³⁸

Thus both healthy and unhealthy choices are increasing for the rich, but largely unhealthy choices are accessible for the poor.³⁹ With the number of urban poor growing in many countries, more people are increasingly pushed toward unhealthy dietary choices as a result of the nexus of urbanization, food prices, and globalized markets.⁴⁰

PHYSICAL ACCESS TO FOODS ASSOCIATED WITH THE NUTRITION TRANSITION

While income is critical in shaping economic access to food, physical access to food shapes what is available to buy. In the urban food landscape, the modern retail sector—including convenience stores, supermarkets, and hypermarkets—is growing rapidly, generally first in large cities and towns and then small towns.⁴¹ As a result, urban populations have access to different types of food outlets. Modern food retail climbed from around 5 percent of market share in 1990 to 60 percent by the end of that decade in some developing countries with more global market linkages; it has grown in all other regions since the 1990s, though less rapidly.⁴² For example, in Thailand, 85 percent of the population had access to a supermarket as of 2014, up from 47 percent a decade earlier.⁴³ Residents in more urbanized areas of China are more likely to have supermarkets and fresh markets within 30 minutes’ drive, as well as fast-food restaurants and other indoor restaurants.⁴⁴ While fresh “wet” markets are under pressure as a result of modern retail growth, they still remain a critically important source of food for the urban poor, especially in Asia and Africa (see Chapter 6).⁴⁵

The foods stocked by modern retail outlets are important to dietary change. These outlets initially tend to specialize in selling processed food and then, in the case of supermarkets, turn also to semi-processed foods and fresh

produce.⁴⁶ Globally, nearly 60 percent of processed food is distributed through supermarkets; in upper-middle-income countries, modern retail dominates processed food distribution, while in lower-middle-income and low-income countries, traditional retail outlets are the main source of processed foods and soft drinks.⁴⁷ Recent country-level studies found evidence that in Kenya supermarket use is associated with increased purchase of processed foods at the expense of unprocessed foods, and that in Thailand frequent shopping at supermarkets is associated with consumption of six “problem foods” (soft drinks, snack foods, processed meats, western-style bakery items, instant foods, and deep-fried foods).⁴⁸

The share of fresh foods available in supermarkets, by country income level, was relatively constant over the past 15 years, which suggests that the expansion of supermarkets had little impact on retail patterns for these commodities.⁴⁹ Traditional fresh market shopping has been associated with increased vegetable intake in Thailand, while on the other hand, a small study of schoolchildren in China found the density of wet markets, rather than that of supermarkets, to be associated with children’s higher consumption of calories, carbohydrates, protein, and fat.⁵⁰ In São Paulo, Brazil, living in a neighborhood with access to fresh produce—whether from a supermarket or fresh food market—is associated with higher consumption of fruits and vegetables. Access within cities is also relevant: again in São Paulo, supermarkets are more likely to be found in wealthier neighborhoods while fast-food restaurants are more likely to be located in less wealthy neighborhoods. This suggests that the links between diets and shopping venues are complex and likely context-specific, and require further investigation.

Food eaten away from home such as that purchased from street vendors, modern fast-food chains, and restaurants—often high in fat, salt, and sugar—is also an increasingly important food source in urban diets.⁵¹ An estimated 20 to 25 percent of household food expenditure in low- and middle-income countries is on food prepared outside the home, and some segments of urban populations in these countries depend entirely on street food.⁵² Many country studies have found that people of all ages frequently consume meals away from home, including street food and fast food, from several times per week to multiple times per day.⁵³

ENVIRONMENTS AFFECTING FOOD CHOICE

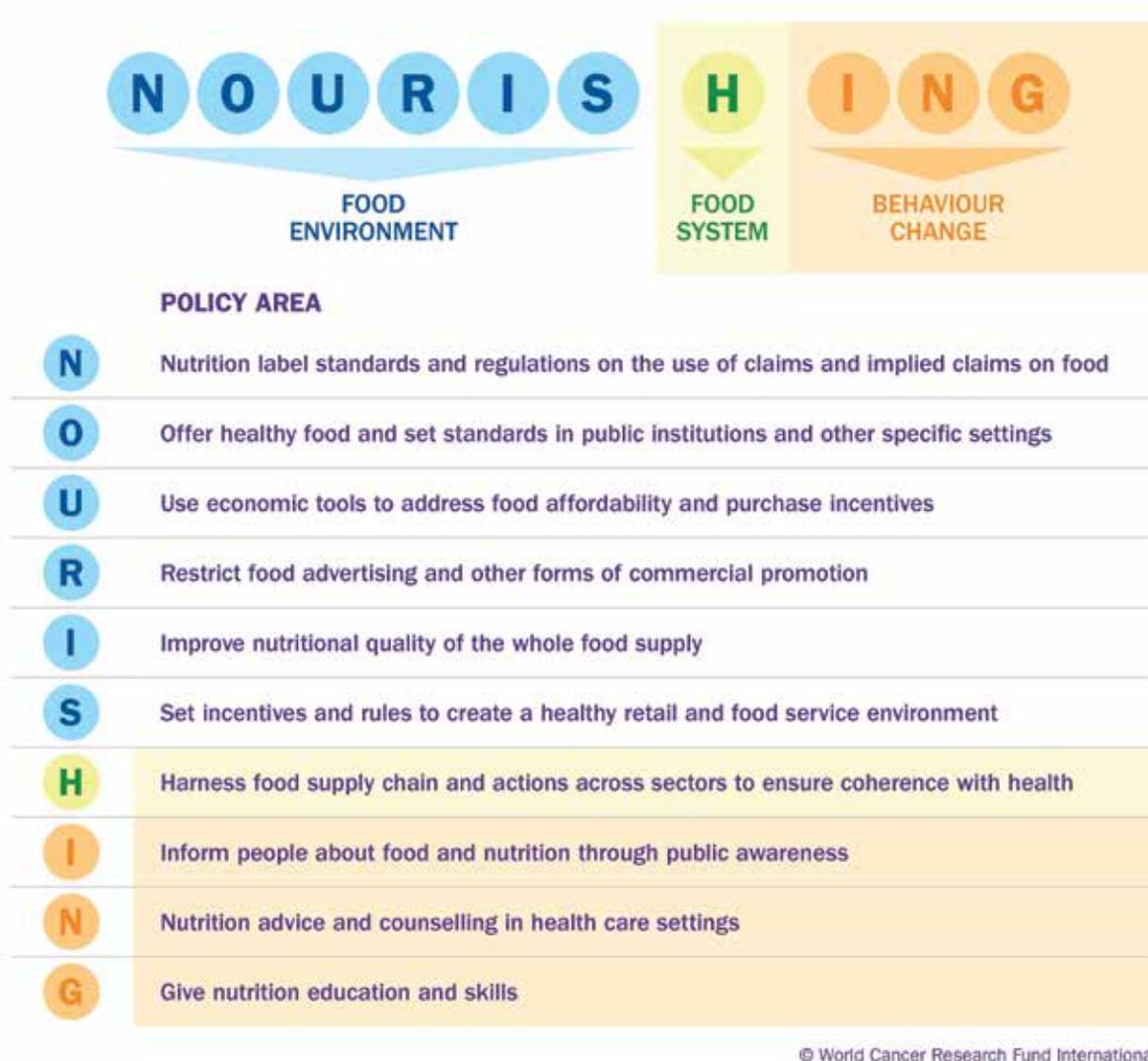
Food choices are affected not only by affordability and availability of foods but also by other aspects of the food environment, including the desirability and convenience of particular foods.⁵⁴ Marketing significantly influences the desire to purchase certain foods. Companies selling value-added snacks, fast foods, and sugary drinks invest substantially in making their products available as widely as possible, including near schools and other places where people gather.⁵⁵ Arguably, marketing has a stronger influence in urban areas where media outlets and large retail stores are more accessible; urban residence, for example, has been found to be associated with fast-food preferences and consumption norms.⁵⁶ Households in cities tend to have high rates of television ownership, and evidence from a wide range of countries, including Argentina, China, Mexico, Peru, and Sri Lanka, shows that commercials for sugary snacks, confectionery, and drinks—especially those targeting children—are frequent.⁵⁷

POLICY OPTIONS

What are the policy options available to address this problem? If changing diets are the result of changes in behavior, food environments, and the food systems that underpin them, then improving diets requires policies that can address these drivers. Potential policy actions in each of these three areas—food environments, food systems, and behavior change—are brought together by the NOURISHING Framework ([Figure 1](#)), which sets out 10 core actions.

Policies at the national level to change food environments are particularly relevant to cities. Governments around the world have implemented approaches to improve food environments in six main areas highlighted in the NOURISHING Framework.⁵⁸ One such approach is nutrition labeling for packaged foods. Chile, for example, introduced new “warning” labels on packaged foods high in fats, sugars, and salt in 2016, and Ecuador has a system of spotlight labels, with red indicating high levels of fats, sugars, and salt. Economic incentives provide another option—a growing number of middle-income countries (including Mexico and some Caribbean and Pacific island nations) have taxed certain foods, particularly sugary drinks and, less commonly, confectionery and fats. Another promising approach is through schools,

FIGURE 1 The NOURISHING policy framework



Source: This material has been reproduced from the World Cancer Research Fund International NOURISHING Framework and Policy Database, www.wcrf.org/NOURISHING.

which provide a setting in which changes that target both behavior and food environments can be linked. Some middle-income countries—Brazil is the largest example—regulate foods available in schools, including through mandatory or voluntary guidelines for school meals and, less commonly, by restricting other foods available for purchase, such as in vending machines. A small number of countries, including Mexico, the Republic of Korea, and Taiwan, China, implemented specific restrictions on unhealthy food marketing to children. Promoting “reformulation” of processed foods to

reduce levels of salt and trans fats through law or government-industry engagement is an approach taken in several upper-middle-income countries, including Argentina and South Africa. Far less has been done at the retail end to shift food environments toward encouraging healthier food choices. This gap is surprising given the key role played by food-provisioning environments in shaping physical access to foods, as reviewed above. Food retailing is thus an area ripe for policy innovation and entrepreneurship to orient it toward healthier diets in cities.

Action in all these policy areas has been minimal in low- and lower-middle-income countries, even those where the nutrition transition is most rapid. An analysis of the implementation of five policy actions specific to soft drinks (taxation of sugar-sweetened beverages; mandatory restrictions and official voluntary guidelines on sugar-sweetened beverages in schools; restrictions or warnings on advertising of sugar-sweetened beverages; public awareness campaigns on or including sugar-sweetened beverages; mandatory or official voluntary guidelines on front-of-package labeling) found that these measures had been applied in no low-income countries and in only one lower-middle-income country.⁵⁹ Nevertheless, 33 percent of the countries included in the analysis were upper-middle-income countries, showing that progress is being made beyond high-income countries and providing a model for lower-income countries to follow.

It is well established that while changes to food environments are critical to shaping healthier choices and preferences, they are likely to be more successful if reinforced by behavior change communication. Programs in schools that take this type of multilevel approach—for example, the ACTIVITAL program in urban Ecuador (Box 1)—have been found to be successful in improving diets and reducing overweight.

Policy actions can also be taken at the municipal level. Over the last decade, there has been a significant growth in response to urban food problems by municipal governments, several of which have potential to address the nutrition transition.

In 2015, over 100 countries signed the Milan Urban Food Policy Pact, which calls for actions to “address non-communicable diseases associated with poor diets and obesity, giving specific attention where appropriate to reducing intake of sugar, salt, trans fats, meat and dairy products and increasing consumption of fruits and vegetables and non-processed foods.”⁶⁰ Examples of city-level action to date include Medellín, Colombia, and Belo Horizonte and Curitiba in Brazil, which all introduced lower-cost “popular” restaurants to increase access to healthier food; Quito, Ecuador, and Nairobi, Kenya, with urban agriculture programs; and Dakar, Senegal, with microgardens.⁶¹ While research evidence is inadequate to show if there is a direct cause-and-effect relationship, some positive signs are emerging. Obesity prevalence among children has started to decline in Curitiba, for example.⁶² Obesity rates are also declining among children in a handful of cities and states in high-income countries, including Amsterdam, which has a municipal-level program to decrease overweight, and a range of cities and states in the United States that have taken concerted actions to address the problem.⁶³

Actions can also be taken to improve physical activity in cities; a systematic review of factors in the built environment that shape physical activity and obesity risk found that five “smart growth factors” (diverse housing types, mixed land use, housing density, compact development patterns, and open space) were associated with increased levels of physical activity, primarily walking.⁶⁴

BOX 1 A SCHOOL-BASED ANTI-OBESITY PROGRAM IN URBAN ECUADOR

ACTIVITAL was a participatory, school-based program aimed at improving dietary and physical activity behaviors among Ecuadorian adolescents in the urban area of Cuenca, Ecuador, over three years (2009–2012).¹ Twin approaches were used—an individual classroom-based strategy comprising an interactive toolkit to assist teaching on healthy eating and healthy physical activity, and an environmental strategy that included participatory workshops with parents and food-shop staff (on topics such as healthy eating, activity, and portion sizes), along with social events such as the preparation of healthy breakfasts, motivational talks by famous local athletes, and the development of walking trails for the schools. These strategies were implemented in 10 intervention schools, while the normal curriculum was maintained in 10 other schools. Primary outcomes of the program were the nutritional value of dietary intake, physical activity, physical fitness, and screen time. Body mass index, waist circumference, and blood pressure were among the secondary outcomes. Results showed that the intervention decreased added sugar and processed snack food intake, waist circumference, and blood pressure across all socioeconomic groups, while slowing the deterioration in fruit and vegetable intake and in physical activity.²

A key question is how to generate political commitment for these types of actions. Experience suggests there will be significant pushback on policies designed to reduce consumption from the businesses producing the foods being consumed in excess.⁶⁵ Experiences from high-income countries—where the majority of obesity-prevention policies have been implemented—can provide insights. New York City, for example, successfully implemented a series of reforms to its food environment, which evidence suggests was due to a range of factors including a high-level champion, empowerment for bold action among city staff, use of data to drive policy proposals, and coalitions across government.⁶⁶

RESEARCH NEEDS

Urban environments are becoming increasingly obesogenic, and not enough is known about approaches for transforming such environments into *enabling environments* for improved nutrition. Past research has identified three key components of enabling environments for nutrition, relating to: (1) knowledge, data, evidence, and their effective framing and communication; (2) political commitment, effective governance, and sound policy; and (3) leadership, capacity, and financing.⁶⁷ Enabling environments operate from the individual to the national level, and they encompass social, policy, institutional, and spatial conditions.⁶⁸

With regard to knowledge, first, more and better information is needed on people's diets, appropriately disaggregated. This means disaggregating urban data by socioeconomic status, given the extreme income inequalities in many urban contexts. Few national governments collect the data required to inform decision makers about what people actually eat, and the United Nations has no functioning global dietary database.⁶⁹ Second, better information is needed on drivers of unhealthy diets—for example, how and to what extent shopping venues and marketing affect dietary choices. In terms of action, more must be learned about potential policy options under different urban scenarios, and monitoring and evaluation systems developed to track

their effects and impacts. This applies to both diet and activity, and to their environmental and behavioral drivers. Research should go beyond the public sector to shine a light on the role of the private sector in cities. Promising approaches to generating incentives for effective partnerships to improve the accessibility and affordability of healthy diets should be investigated, as well as the role of private companies in driving the current nutrition transition. Much is context-specific, so it will be important to progressively build a library of evidence in different contexts that also focuses on the replicability, scalability, and sustainability of programs.

The power of looking at cities is that while no country has yet managed to reverse a rising obesity trend, individual municipalities are now gaining traction with different approaches.⁷⁰ A range of policy options are being implemented in different countries and cities from which lessons can be learned. Urgent attention is needed to evaluate the impact of these policies on diets. Given that knowledge derives from experience as well as from research evidence, “stories of change” need to be rigorously documented as they emerge to highlight the processes and pathways of change.⁷¹ Experiential learning about the ways in which decision makers effectively navigate barriers and constraints to address the nutrition transition will be a crucial complement to evidence from effectiveness studies.

The nutrition transition is well established, particularly in urban areas of low- and middle-income countries, with clear differences in diets, nutrition, and health outcomes for urban residents compared to their rural counterparts. These changes are shaped by socioeconomic status and by the food environments and broader urban environments within which people make their everyday decisions. Multiple policy options are becoming better defined and are being more rigorously tested. But to head off the worst of the nutrition transition in countries increasingly affected by the forces of urbanization, more information is needed on what people in cities are eating and how they are influenced in making their decisions, as well as what policies work, where, and for whom.