
Special Report



Street Food Vending in Latin America¹

PRIMO ARÁMBULO III,² CLAUDIO R. ALMEIDA,²
JUAN CUÉLLAR S.,³ & ALBINO J. BELOTTO⁴

Despite occasional attempts to repress it, street food vending in Latin America appears to be on the rise—encouraged by growing marginal urban populations, the unemployed status of innumerable potential street vendors, lengthening commutes for workers, public demand for cheap and culturally appropriate food near workplaces, and a shortage or absence of regular establishments serving such food.

Besides placing a hidden burden on public services, the generally unregulated and quasi-clandestine street food industry tends to observe poor hygienic practices and to pose significant public health problems. Within this context, Latin America's cholera epidemics have drawn increasing attention to street food's potential for disease transmission and have created growing support for attempts to resolve these troubles.

What appears needed at this point, rather than futile attempts at abolition, is a new and more positive approach wherein countries change their regulations so as to permit peaceful and constructive adaptation of street food vending to a new style of Latin American social life. This implies legal reorganization directed at structurally developing street food vending and permitting application of measures—especially provision and use of safe water—that will foster good hygiene and safe foods. It also implies creating programs to provide appropriate training for inspectors as well as health education for both vendors and consumers of street food; and it implies promoting and adopting improved methods for preparing and selling such food. There is no reason to suppose these measures will provide an immediate panacea for the street food vending problem; but there is good reason to think they can immensely improve the situation that exists today.

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²Regional Program for Technical Cooperation on Food Protection/Veterinary Public Health Program, Pan American Health Organization/World Health Organization, Washington, D.C., U.S.A.

³Regional Program for Technical Cooperation on Food Protection/Veterinary Public Health Program, PAHO/WHO, Santa Fe de Bogotá, Colombia.

⁴Regional Program for Technical Cooperation on Food Protection/Veterinary Public Health Program, PAHO/WHO, La Paz, Bolivia.

Extensive street vending of foods in Latin America, as in most other areas, arises from multiple causes: deterioration of rural living conditions, migration to the cities, and accelerated urbanization leading to enormous urban congestion, long commuting distances between the workplace and home, and a shortage or absence of establishments that serve reasonably priced food close to the workplace (1, 2). Moreover, migration to the cities has given most Latin American cities an overpopulation of rural dwellers who, while striving for better opportunities, have contributed to the existence of marginal urban areas, underemployment, and unemployment. This has generated one of the present characteristics of the countries of the region: a large informal economy, of which street food vending is a part (1).

At present, street food vendors are gaining increasing recognition as a necessary element of daily urban life, especially in developing countries. Despite their negative impacts on urban renewal, cleanliness, and traffic congestion, they clearly ease the difficult problem of providing inexpensive and tasty food for people close to their workplaces and incidentally help to reduce the street congestion caused by mealtime commuting. Street food vendors also do a flourishing business catering to tourists, multitudes of whom typically find that they offer an attractive low-cost opportunity for sampling local fare.

Street food vending also provides employment. Indeed, this multi-million dollar industry (which may account for up to 30% of all sales within the informal economies of some countries) is an important item in the economies of most Latin American nations. Not only does it appear to give work directly or indirectly to well over one million people, in some cases affording the only way for them to sustain themselves and their families, but

it concurrently generates a substantial volume of monetary transactions stimulating the national economies of the countries involved.

According to studies conducted in some of these countries (1, 3-6), the average wage of a worker in the street food vending sector is higher, sometimes as much as 3 or even 10 times higher, than the prevailing national minimum wage. These earnings appear especially attractive because street food vending is not gender-specific and requires no education. At least 50% of the street food vending establishments in South America appear to be operated by women (percentages found for Colombia and Peru were 59% and 64%, respectively) (1, 2, 4), and most street food vendors appear limited in terms of literacy and formal schooling (1, 7, 8).

Equally noteworthy, while the consumers of street-sold foods come from a wide range of socioeconomic strata, it has been found that their sociocultural profiles are generally quite similar to those of the vendors. Partly as a consequence, their preferences relate not so much to food safety or hygiene as to their personal tastes and the foods' affordability. Indeed, studies carried out by the Pan American Health Organization (PAHO) in certain Latin American cities (Guatemala City, La Paz, Lima, and Santa Fe de Bogotá—2, 8) have indicated that the main incentive for the street vending of foods is the great demand for the types of products sold, a demand arising from specific cultural patterns and idiosyncrasies of the consumers.

All of this presents government authorities with a considerable challenge. In addition to invading public spaces and impairing their aesthetic appearance, street food vendors surreptitiously use public services, detract from urban cleanliness, and compete in an informal, quasi-clandestine manner with regular food services that have to observe all the rules

and are often at a disadvantage in marketing their goods.

However, besides representing a basic response to fundamental needs (which makes them difficult or impossible to eliminate), street food vendors in many places have gained significant political acumen and clout. A variety of urban political movements have accepted street food vendors as militant members for reasons of convenience and, in exchange, contribute to defending some of their rights (1, 4, 9, 10).

As a result, in many parts of the Americas this sector of the informal economy appears to be drifting progressively farther away from effective institutional regulation. The need, therefore, is to reverse this trend and to evolve such regulation in a positive and enlightened manner, one that will promote the orderly operation of street vending and deal effectively with undesirable effects—for instance, by providing basic services in such a way as to reduce or eliminate potential threats to public health.

THE HEALTH ISSUE

Sale of food in the streets is very controversial from a health standpoint, because the poor hygienic practices associated with such food's preparation tend to pose significant health risks. Awareness that street food can serve as a vehicle for disease transmission has been sharpened in recent years by Latin America's cholera epidemic. International organizations such as the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO) have been gathering information and conducting research on street foods (2–4) in order to help governments execute programs to improve the hygienic quality of such foods. In 1990 the XXI FAO Regional Conference held in Santiago, Chile, recommended that

governments strengthen quality control by adopting appropriate low-cost and easy-to-apply technologies (5). Since then the Codex Alimentarius Commission has promoted preparation of Codes of Practices for safe preparation and sale of food in the streets. Draft versions of these codes have been discussed by regional committees and have been submitted to the countries involved for their comments (6, 9).

Health Risks Posed by Different Street Foods

Various characteristics of street foods influence the health risks involved. In general terms, these characteristics include the type of food product; the non-use, use, or overuse of food additives; and the nature and extent of microbial or chemical contamination.

Of course, the diversity of street foods offered throughout Latin America is immense, arising from a wide array of native and foreign ethnic groups and cultural traditions. This very diversity increases the potential risk; and it creates a need to categorize the classes of food sold on the basis of their composition, manner of preparation, storage, and ways in which they are served to consumers. In this vein, a study carried out by PAHO/WHO in Santa Fe de Bogotá, Colombia (2) indicated that when street foods were classified by composition, those having an animal origin, a high protein content, high moisture content, relatively high pH,⁵ and a relatively large number of ingredients (therefore involving more han-

⁵In the food industry, foods are classified as "high acid" (pH <4.5) and "low acid" (pH ≥4.5). Because most bacteria grow better when the pH is fairly close to neutral (7.0) rather than markedly acid, foods with a relatively high pH (close to 7.0) tend to pose a greater potential health risk when storage conditions are inadequate.

dling) were those that presented the highest risks.

High-risk Foods

While it is not possible to precisely assess the health hazard posed by a given item without detailed examination, the above findings provide useful guidance. More generally, street-sold foods with readily observed features tending to place them in the high-risk category include the following:

Ready-to-eat foods such as “ceviche” prepared from raw fish and shellfish, with the addition of raw vegetables, are high-risk products because the raw materials used in their preparation may have been contaminated at the production site, and because both these items and the resulting food products may have been manipulated and held without observing appropriate sanitary procedures.

Fruits sold peeled and cut into pieces and refreshments prepared with water are two other important groups of street-sold foods and beverages at high risk of being contaminated—most commonly at the cut surfaces—through contact with unclean hands, contaminated implements, or the water used to wash and prepare them.

Products made with ice such as ice cream, sherbets, products made with ice shavings, etc. are also considered high-risk items. Besides being produced with syrups that may contain unauthorized dyes, they are commonly made from contaminated ice and are apt to be handled and stored inadequately during the process of transportation and sale.

Products served as main courses and fresh produce used to complement other dishes deserve special attention. In addition to potentially heavy contamination at the source (in many countries crops are irrigated with processed wastewater) (7, 11), such dishes may also be contam-

inated with the very poor quality water used in most vendors’ stalls, and may consequently serve as vehicles for transmitting disease-causing microorganisms, mainly enteropathogenic bacteria.

Items such as meats and sausages, besides being susceptible to contamination and spoilage at the production site, in transit, and during storage, may also be contaminated during on-site preparation, handling, and sale—especially if the final product has multiple ingredients and is divided into small portions with many exposed surfaces. Obviously, the total accrued microbial contamination is likely to increase as the time between an item’s preparation and sale lengthens.

Foods that are cooked by frying (prepared mostly with sausages and other meat products) are also considered high-risk because they are commonly stored at room temperature for considerable periods and are later reheated without reaching the required temperature, thereby becoming a potential source of food poisoning.

Lower-risk Foods

This category includes sandwiches; hot stews; and foods consisting of ground corn, wheat, and other grains that are grilled over fires fueled with coal, wood, or sometimes bottled gas. Even in these cases, however, readily identifiable health risks exist.

For example, sandwiches made with meat or other products are subject to the potential contamination and storage problems cited above for those ingredients. Also, while analysis may often indicate that they are microbiologically safe for consumption, their apparent good quality may occasionally be due to unregulated addition of preservatives such as nitrites that present a potential hazard in terms of chemical contamination.

Meat stews (typically made with beef, pork, chicken, or fish) are usually heated and kept at a high temperature. This reduces the risk of contamination so long as they are not allowed to cool and later reheated inadequately.

Similarly, the heat applied to grilled grain products renders them relatively safe for consumption. However, they may later be contaminated through handling, inadequate storage, or the addition of other items such as raw vegetables. It should also be borne in mind that, because of their composition, these products may be derived from raw materials contaminated with heat-resistant mycotoxins.

Sanitary Problems

The sanitary condition of the typical street vendors' dilapidated stalls, carts, and equipment, and also of the street vendors themselves, poses an obvious health problem. In general the stalls and carts are built at the least possible cost using a minimum of construction technology, and the food products sold are prepared, handled, and processed according to traditional methods with no observance of even minimal sanitary standards. This is a cause of great concern in view of the potential for producing disease among consumers.

Typically, toilet and lavatory facilities are not readily available, which forces the vendors (and sometimes consumers) to use any nearby areas available without washing their hands properly afterwards. Also, wastewater and garbage are sometimes discarded in the streets, contributing to proliferation of insects and rodents.

Beyond that, the poor quality of raw materials and food products is impaired even more because street vending operations generally lack the facilities needed to hold food within adequate temperature ranges for long periods of time. As

a result, existing microorganisms reach concentrations high enough to produce foodborne disease.

While all this leaves much to be desired from the standpoint of general sanitation, it is also true that street vendors rarely have access to safe running water for cooking, washing utensils and cutlery, personal hygiene, or the preparation of drinks, ice, or ice products. As a consequence, the water used is generally considered the most important single source of food contamination.

Surveys conducted in parts of Colombia (1, 2) have found that 98% of the street vendors studied had no access to an adequate supply of safe water, and similar situations appear to prevail in other parts of Colombia and Latin America. Indeed, street vendors typically use the same water over and over throughout the day without changing it even once, thereby permitting substantial amounts of dissolved organic matter and in some cases fecal contamination to provide an ideal culture medium for bacteria.

The Food Handlers

No reliable standardized information is available regarding the numbers of street food vendors in major Latin American cities. The figures in the table on the next page, obtained from a number of different studies, appear to give a rough idea of the numbers and densities of such vendors in six capitals (1-5, 7, 10, 12).

What little information is available on street food vendors indicates that their education is limited and their personal knowledge of hygienic food handling practices is slight to nil, suggesting by inference that hygienic conditions in their homes are apt to be precarious. Since the vendors have commonly spent much of their lives confronting all sorts of hardships, including lack of access to health services, it seems reasonable to suppose

City	Approximate population	Estimated street food vendors	Est. vendors per 1 000 inhabitants
La Paz, Bolivia	1 000 000	36 000	36
Santa Fe de Bogotá, Colombia	4 819 000	19 000	4
Quito, Ecuador	1 200 000	9 600	8
Panama City, Panama	411 000	4 500	11
Lima, Peru	5 659 000	19 000	3
Mexico City, Mexico	20 207 000	320 000	16

that their personal health status is commonly quite poor.

Street Food Vending and Disease Transmission

Microbial contamination is not the only source of health problems associated with street foods. In fact, the increasingly frequent informal use of various additives—sometimes to compensate for a poor food preservation infrastructure, sometimes to cater to consumer tastes—is widely recognized. Extensive use is made of such substances as nitrites and nitrates; unauthorized dyes; preservatives like benzoates, sorbates, and metabisulfites; texture modifiers; sweeteners; and other products. In addition, toxic substances generated by air pollution (such as lead residues from vehicle exhausts), insecticide residues in fruits and vegetables, and toxic compounds originating during food preparation (such as those arising during cooking from inadequate handling of the oils and fats in which many street foods are fried) also pose potential health problems.

Regarding microbial disease transmission, street food vending has been linked to a variety of health problems, most notably cholera. The well-known 1981 cholera epidemic in Pune, India, has been attributed to consumption of sugarcane juice mixed with ice—the ice having been found contaminated with *Vibrio cholerae*. In 1987 an outbreak of cholera attributed to street food was recorded in Singapore;

in 1988, 14 deaths were reported in Malaysia due to consumption of noodles with rice purchased from different street vendors; and that same year 300 persons became ill in Hong Kong after eating street food, in this case a green vegetable called “choi sum” (6).

Unfortunately, no reliable information is available in Latin America on the incidence of foodborne diseases, and only a small number of foodborne disease outbreaks have been investigated. However, some studies (2, 7, 8, 11, 13–16) have established epidemiologic associations between street foods and disease on the basis of the high numbers of pathogenic microorganisms isolated from food samples collected in the streets.

In one instance a study conducted in the Dominican Republic (7) demonstrated the presence of various bacteria in street foods—including *Bacillus cereus*, *Clostridium perfringens*, *Escherichia coli*, and *Staphylococcus aureus*—as well as a tendency for the bacterial count of street foods to undergo a progressive increase during storage and vending.

Similarly, a 1988 microbial study of street foods in Bolivia (1) found the quality and sanitary condition of 73% of the products studied to be inadequate. Pathogenic microorganisms including *Staphylococcus aureus* and members of the genus *Salmonella* were isolated from the study samples.

In addition, the fact that food handlers may be disease carriers heightens the risks associated with street food. For instance, a study in Santa Fe de Bogotá, Colombia

(15), found that over 30% of a group of food handlers examined were carriers of pathogenic microorganisms including *Salmonella typhi*, *Staphylococcus aureus*, *Salmonella enteritidis*, and *Shigella*. This situation was felt to pose a serious risk for consumers, especially since many of the carriers were street vendors or workers in food facilities without sanitary licenses.

Inadequate disposal of wastewater and garbage derived from street food vending also adds to the potential for microbial disease transmission, partly by encouraging the proliferation of insects and rodents linked to enteric disease transmission.

In recent years, Latin American street foods have been implicated in cholera transmission during the epidemic that struck Peru in February 1991 before spreading rapidly to practically all countries of the region. Even though only a small number of samples was analyzed, studies carried out in Peru and Bolivia by PAHO/WHO during the periods when cholera cases were most frequent (3, 8) succeeded in isolating *V. cholerae* from various street foods, thereby indicating that such foods had a potential for cholera transmission.

In the aftermath of the cholera epidemic, numerous studies have sought to recover *V. cholerae* from various foods and to determine its rate of survival or propagation in such foods. Problems relating to methodology and scientific precision have restricted the value of these studies. However, the nature of the cholera threat and the limited information available have very definitely drawn the attention of national authorities to the importance of street foods as a potential source of food-borne disease transmission.

PERSPECTIVES AND FUTURE ACTIONS

The conditions now prevailing in Latin America give no sign that street food

vending might disappear. On the contrary, the ongoing crises faced by most countries suggest the practice will become more prevalent and that governments need to review relevant policies with an eye to confronting this situation in a realistic and effective manner.

It seems evident that many current policies, seeking to ban rather than modify street food vending, have failed because they did not penetrate to the heart of the matter. Therefore, much ground has been lost in trying to stop a trend too powerful to check. What is needed now is a new and more positive approach, wherein countries change their regulations to permit peaceful and constructive adaptation of street food vending to a new style of Latin American social life.

Reorganization

Perhaps the most important activity in this new approach is legal reorganization. Specifically, the governments involved should accept the need to regulate and institutionalize street food vending in a way that will structurally develop it and permit application of measures dedicated to fostering hygienic conditions and ensuring safe food for the consumer.

Such reorganization should be encouraged by initiatives already taken by certain countries—including Singapore in Asia and Honduras in Latin America—to establish sanitary regulations governing street food vending, many of them inspired by work of the Codex Alimentarius Commission. This activity should also be facilitated by labor unions and other organizations created by the vendors themselves that provide developed entities with which to work.

These reorganization efforts, which are currently underway in various countries and subregions of the Americas, have also benefitted from exchanges of information and cooperation among countries seek-

ing experience on the subject. In the future, it appears that ongoing sectorial coordination and an integral approach—one including participation by the competent government authorities, organized vendor labor unions, and consumer groups—are likely to create a favorable base from which to guide street vending along a more beneficial and productive path.

There is reason to be encouraged here, because local governments have succeeded in finding solutions for other types of informal trade in the past, solutions that might well be adapted to the street food problem. There also appear to be good prospects for improving the infrastructure of street food vending, implementing training and information programs for vendors and consumers, and exercising appropriate control over establishments which today, for reasons associated with lack of knowledge and the establishments' wide dispersion and informal nature, remain generally free of the guidance and regulation that they need.

Improvement of Sanitary Conditions

The situation created by the cholera epidemic has focused attention on street food vending as a potential vehicle for transmission of this disease, which appears inclined to become endemic in the region. These circumstances call for concerted intervention directed at preventing cholera transmission through street food vending.

Within this context, recognition of the health problems involved and interest in promoting structural development of street food vending activities should afford governments an opportunity to participate in improving the sanitary status of street food vending through programs seeking, above all, the orderly location of vendors in the cities—programs that will

offer them the facilities needed for a minimum basic cleanup of their establishments, where access to the drinking-water supply and a suitable system of sewage and garbage disposal will make it possible to resolve the leading group of problems that militate against the safety of food sold in the streets.

Training and Education (17)⁶

Another set of measures that will clearly require considerable effort and allocation of substantial funds is the education of public health personnel, street vendors, and consumers. This task presents a serious challenge for the countries and organizations involved.

Training programs should be addressed first of all to inspectors. Besides seeking to improve the inspectors' capabilities by providing them with current methodologies such as that dealing with hazard analysis and critical control points, such programs should be directed at changing the inspectors' mentality, so that they come to regard themselves as advisers promoting a change of attitude in the vendors, with a view to improving the hygienic quality of the vendors' activities, rather than seeing themselves as officials merely exercising repressive functions. This key training for inspectors must be supported by technical instruments such as basic manuals, inspection equipment, and other types of educational support.

Regulations issued in some countries for street food vending firmly establish an obligation for handlers/vendors to receive periodic training in food hygiene, this being an indispensable requirement for their official recognition and for obtaining sanitary authorization to do their work. Such arrangements have been en-

⁶This section is based on an unpublished 1993 document by María Materna (17).

couraged by technical cooperation agencies, particularly PAHO/WHO, that have been seeking to revise practices no longer of use—such as the practice of assigning importance to costly and useless medical and laboratory examinations and issuance of health certificates instead of orienting economic resources so as to obtain a change of vendor attitudes.

One point of special interest in these training programs is that guidance and education of the consumer is a necessary complement to the vendor training process. In effect, such education seeks to sensitize consumers, make them aware that they are responsible for demanding quality, and convert them into principal allies of the regulatory health authorities as well as important agents for changing vendor attitudes.

Mass communication media, particularly radio and television, should be used to inform the community about the need to assess the nutritional value and safety of all street foods and to enlist the community's participation in seeing that necessary hygienic practices are carried out. Educational messages broadcast for this purpose need to take account of the target audience's culture and the narrative forms appropriate for that audience. Such considerations should also shape the messages' themes, format, content, and language so as to promote full understanding and a strong positive response.

Of course, mass media messages alone are not enough. To effectively change vendor behavior and consumer attitudes it is necessary to take a more direct hand in changing the perceived circumstances confronted by the vendors, who are the main "actors" involved. To this end, audio-visual tools such as video cassette recorders (VCRs) used in the context of guided group dynamics have proved very effective.

Training carried out in cooperation with vendor and consumer associations will

greatly facilitate the effort. Also, education in food safety should be incorporated in school health education programs, in the process training teachers and having them serve as "multipliers" so as to take advantage of the privileged link they have with the community.

Doubtless, none of these approaches will make it possible to reach everyone. However, they will help in taking the first step toward a popular and positive regulation of street food vending directed at reducing its role as a foodborne disease hazard.

New Technologies

Another concern of international technical cooperation agencies has been promotion of improved technologies for preparing and selling street food. On the basis of experience gained in various Latin American countries (2, 7, 14, 18), PAHO has pointed out the importance of applying the "hazard analysis and critical control points" (HACCP) principles to street food vending and has also suggested incorporating these principles into the codes of hygienic practices prepared by the Codex Alimentarius Commission in order to stress their importance for orienting and training not only vendors but also the inspectors involved (7, 18).

Certain improvements that have been or could be incorporated into such programs include designs of hygienic stall models equipped with sanitary modules, safe drinking water, wash basins, residual water tanks, and fittings appropriate for food protection. Various improvements in food serving methods for street food vendors have also been successfully tested (5, 6, 10)—including use of plastic bags for packing small quantities of fruit, increased use of disposable serving materials, chlorination of water, and disinfection of certain raw materials such as

vegetables. All of these improvements should be encouraged in all countries.

In addition, epidemiologic surveillance programs directed at foodborne diseases should be strengthened. These programs are valuable aids in orienting health actions when food sold in the streets is identified as a disease vehicle and in gauging the health impact of improvements.

In view of the limitations noted in current street food vending practices, there is no doubt about the very substantial challenge posed by all of this. To meet that challenge, it will be necessary to defuse defensive reactions; propose, adopt, and publicize positive approaches; and motivate all people who respond in a manner indicating they are open to change.

CONCLUSIONS

Street food vending plays an important role in the Latin American economy, employing over one million people and offering cheap and appropriate edibles to consumers seeking food that satisfies their tastes and limited means, consumers whose immediate concern about health hazards is secondary. Hence, there is a palpable need to apply new strategies that will permit currently quasi-legal or illegal street food vending activities to be reorganized and to gain official recognition. This process should lead to adoption of measures designed to improve the hygienic conditions under which street food is sold, so as to ensure an adequate level of safety for the consumer.

These new strategies should emphasize the need to incorporate street food vending into the established political and social order, to improve the street food vending infrastructure, and to educate the vendors, consumers, and government personnel in charge of regulating and

controlling street food sales. More specific recommendations are as follows:

- The solution to the street food vending problem must be predicated on official recognition of street food vending activity and on continuity of any existing efforts to promote regulations that will enable street food vendors to work under hygienic conditions.
- It is necessary to coordinate the efforts of all sectors involved in this area, so as to permit a complete solution that will encompass all relevant aspects of street foods and will ensure that the consumers receive products posing no significant health risk.
- The new norms and regulations should emphasize the need for changes in consumer and street vendor attitudes based on equally necessary changes in their understanding of personal hygiene and food safety. For this reason, it must be remembered that the groundwork for altering the present situation in the desired manner will be provided by training, education, and communication.
- Mass media communications should be convincing to the consumers, leading them to an understanding of the health issues involved and causing them to demand improved quality from street food vendors; such communications should also be designed to stimulate the producers and vendors of street foods to offer safer, better-quality products.
- International organizations should continue cooperating with national and local authorities to develop projects for sanitary control of street foods while fostering technical cooperation among countries.

- The need to call the world's attention to the street food vending problem should be stressed, so that information about the true dimensions of the problem will receive worldwide dissemination.

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