VENDING SANITATION AND SAFETY—A CURRENT REPORT

DAVID E. HARTLEY

National Automatic Merchandising Association
7 South Dearborn Street
Chicago, Illinois 60603

ABSTRACT

While the automatic vending of food and beverages—and non-food merchandise—has been a part of the American scene since the late 1860's, problems of public health and safety did not enter the picture until the end of World War II when the first hot beverage vending machine went on location.

In 1947, the vending industry and health officials first came together to discuss the development of uniform national standards for vending machines and vending operators. In 1957, after necessary research and preparation, The Public Health Service published The Vending of Food and Beverages—A Recommended Ordinance and Code. In the same year, the industry launched a full-time public health and safety program, guided by a nationally-constituted Health-Industry Council.

The progress in sanitation and safety made as a result of cooperative industry and agency efforts over the past 12 years is discussed in terms of vending legislation, internal and external training, machine standardization and testing, and research.

Concluding, a review of current problems in such matters as microwave safety, copper poisoning safeguards, temperature controls, icemaker design, and commissary layout is made, together with a “crystal ball” look at the future.

Twelve years ago the author discussed the then new Public Health Service Vending Code and the vending industry’s plans to initiate a full-time program of machine standardization, testing, education, legislation, and research based on Code requirements.

It seems most appropriate now to present a progress report on each of these activities together with a review of current problems and a “crystal ball” look at vending’s future.

PROGRESS REPORT

Public health service vending code

At the time of its adoption in July, 1957, the Vending Code was totally new to machine manufacturers, machine operators, and agency officials. While it was offered as the best thinking of over 500 industry and public health participants in its creation, no one thought that it could prove to be perfect. But in retrospect, the 1957 Code was very nearly that.

By 1965, there were sufficient changes in the industry and experiences in applying the Code to warrant a revision in something over 50 Code requirements, most of them very minor in impact.

Judging from its continuing—even increasing—acceptance by industry and health agencies, the 1965 Code must be considered still adequate as a machine design guideline and for purposes of controlling vending field operations.

NAMA’s health-industry council

Founded in 1957, the Automatic Merchandising Health-Industry Council (AMHIC) has met annually or more often to advise the National Automatic Merchandising Association (NAMA) on its programs of machine standardization, legislative cooperation, training, safety, and research.

Representing the major public health associations, observers from the U.S. Public Health Service (PHS) and the military departments, NAMA’s evaluation agencies (universities), and an industry group, the AMHIC organization in 1969 has a number of active committees to recommend to NAMA standards and actions relating to such matters as icemaker design, temperature controls testing, carbonation backflow prevention, field sanitation procedures, and standards for renovated machines.

Vending standards

Acknowledging that the Vending Code is not a complete “standard” for use in actual testing and machine approval, AMHIC developed in 1959 a Vending Machine Evaluation Manual for the guidance of manufacturers and machine evaluators.

The Manual is now at 50 pages and has a cross-referenced, 25-page Checklist used by the NAMA machine evaluation agencies during machine testing.

In 1968, an industry task committee worked with the National Sanitation Foundation to amend its 1958 Vending Criteria C-1 and develop the new NSF Standard No. 25. The new Standard and the NAMA Manual are now equivalent in their coverage and content.

Legislation

A mark of the need for the Vending Code and its acceptance is the fact that, since 1957, 26 states and the District of Columbia have adopted it uniformly—by law, regulation, or administrative action. Over 120 cities and counties have also adopted the Code, principally in states which, at the time, had not made a state-level enactment.

The Code also is a medical regulation of the Army, Air Force, and Navy and is in the process of
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enactment in 3 additional states during the 1969-70 legislative period. A gratifying aspect is that state vending groups have actively participated in practically all state enactments and many local ones.

Education and training

To familiarize health officials with various aspects of vending machines and vending operations, over 300 seminars and program appearances—from an hour to 2 days—have been made available by NAMA to agencies and sanitation groups since 1957. In the same period, NAMA has presented over 250 clinics, workshops, and lectures on sanitation for its operator members and their employees—meetings ranging from popular routeman workshops to owner clinics on commissary safeguards.

The vending industry generally recognizes sanitation training of employees as its own responsibility. To this end, NAMA training booklets on such subjects as machine sanitation procedures, commissary sanitation, and microwave safety have been provided to operators on a free basis for many years. New booklets on labeling and commissary layout are now under way. (A listing of free health and safety publications is available on request from NAMA, 7 South Dearborn Street, Chicago, Ill. 60603.)

Research

With the rapid growth of the industry in the perishable food field and increased equipment sophistication, many research studies have been carried out in recent years to ensure that new techniques in machine design are consistent with public health needs. At Michigan State, Clemson, and Ohio University, research projects have dealt with potentially hazardous food machine performance—one project sponsored by PHS and two by the industry.

Other studies have involved carbonation backflow in copper tubing, copper formation in brass pumps, and cooling rates of sandwiches under different ambient temperatures performed at the Indiana University Department of Public Health. A current 7-month project has studied vending machine icemaker design, construction, and new methods of in-place cleaning.

RECENT DEVELOPMENTS

If we were to line up several typical 1957 and 1968 machine models—particularly those for cup soft drinks and hot beverages, the changes and improvements would be readily visible (See Fig. 1 and 2). For example:

(a) Machines designed to brew one cup of coffee at a time (14 sec or less) have been developed—offering optional chocolate, tea, and soup and buttons for extra cream and sugar. These newer models have far less product-contact area and are all designed with flush buttons for rinsing each product system with 200 F water.

(b) In about 1962, icemakers made their appearance in cup soft drink machines. At the same time, water connections between the machine system and the external water supply were equipped with air gaps to prevent back-siphonage into the supply system.

(c) A vast majority of hot beverage vending machines made since 1963 have been equipped with non-pressurized water heaters and incoming water supply air gaps, thus providing an added measure of safety both against explosions and back siphonage.

(d) Since 1957, every American-made post-mix cup soft drink machine has been equipped with
double checkvalves or venting devices to preclude copper poisoning. In 1969, the industry has voluntarily completed the phase-out of machines which rely exclusively on checkvalves to prevent CO₂ backflow into copper pre-cooler tubing. Some manufacturers have gone to all-stainless-steel water systems throughout the machine while others have elected to design in positive venting valves.

(e) Bulk milk vending machines have been totally phased out, as also have coffee venders which use refrigerated liquid cream. Both decisions were based largely on sanitation considerations.

(f) Heated machines to vend prepared sandwiches and casseroles are being used less frequently than in the past, because of the short shelflife obtained in a 155-165 F environment. These products are now held, largely, at under 45 F and heated by microwave ovens at the time of sale. Because of the increase in microwave oven usage, NAMA has published a Microwave Oven Safety Bulletin and is working with Radiological Health officials to develop effective monitoring programs.

Many other improvements could be reported, ranging from first-in first-out confection venders to the new NAMA Evaluation Program for “Remanufactured Vending Machines”. It is sufficient here to acknowledge that the industry is still growing and diversifying—and that the NAMA Public Health Activity is designed to keep vending machine safety and sanitation features abreast of the other operational advances.

REMAINING PROBLEMS

It would not be accurate to imply that all vending sanitation problems have been solved, either with equipment or with operating personnel. Here are some continuing projects which the industry and its health advisors now have under way:

Carbonation. backflow prevention

An educational program has already been initiated to promote double checkvalve conversion or more frequent examination and servicing of checkvalves on older machine models which are not vented. The program includes publication of a new Manual for Post-Mix Machine Sanitation Practices plus operator notices and program presentations.

Health code cut-off controls

As a problem, a committee of AMHIC is working with machine and control manufacturers to improve accessibility of controls for field testing and development of a rapid field test for each machine model to determine operability of the control and its ability to interrupt vending when temperatures are not within the safe zone.

Icemakers

In many parts of the country, vending operators experience extreme problems of bacterial growth in icemakers. A 7-month research project undertaken by NAMA (just completed) covers many aspects of icemaker design and servicing. The results of the study—and further studies that are indicated—should provide many answers to the present cleaning problem in the “bad water” areas of the country.

Commissary standards

The Federal “Wholesome Meat Act” and “Wholesome Poultry Products Act” place many vending-type commissaries under the Federal Meat Inspection Program or under equivalent state programs by early 1970. It is already apparent that the plant layout and installation views of meat inspection officials are not entirely consistent with the commissary layout and operational guidelines which have long been administered by health-type agencies. At present, it appears that vending and restaurant commissaries which prepare meat food products or poultry products for sale or service away from the commissary will come under both the health and the agriculture authority in many states. The vending industry has worked, and will continue to work, with these agencies toward the end that requirements and interpretations will not conflict from state to state or agency to agency.

Labeling

The vending industry’s rapid growth in the area of pastry, sandwich, salad, dessert, and entree preparation leads directly to problems of labeling which formerly rested with the purveyor who supplied these packaged products to the vending operator. At the present time, NAMA is assembling a “Labeling Guide for the Vending Operator” which will be submitted both to FDA and USDA for concurrence.

THE FUTURE

There is no doubt that the vending industry will continue to show sales volume increases in the next few years well above the gross national product average. Further, much of this continuing growth will be in the food service area—vended, combination, and manual.

The industry has conducted its own internal public health and safety programs for 22 years with the goal of creating the least possible burden to health and safety officials. Current long-range plans envision a continuation of this approach which, thus far, has paid tangible dividends to both the vending industry and the consumer public.