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# THE PREVENTATIVE MEASURE

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Triannual Newsletter of the National Capital Area Environmental Health Association



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## President's Message

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Happy Holidays!

Season's greetings and I hope this newsletter finds you and your family in good health, practicing layers of protection from this pandemic. I want to thank all who were nominated and voted in our Board member elections this past month. I am excited to announce the following results and to offer congratulations to all!



Amanda Coletti graciously accepted and was successfully nominated to become our new VP of Programs and Professional Advancement from her current position of VA Representative. Marcella Sikon an Environmental Health Supervisor with Alexandria Health Department will be our new VA Representative. Amanda Barto an Environmental Health Specialist with Alexandria Health Department will be our new DC Representative. Jennifer Lineback an Environmental Health Technical Specialist with Alexandria Health Department will be our new Treasurer. Kendra Washington was re-elected to serve as our Secretary.

They will all be sworn into these positions at our upcoming Winter Educational Conference, through Zoom, on January 31, 2022, by our NEHA Region 8 VP, CDR James Speckhart. We will have presentations from the USDA-Food Safety and Inspection Services, Southeast Rural Community Assistance Project, Inc. (SERCAP), Facilitated Learning for Universal Sanitation and Hygiene (FLUSH), and Fairfax County Wastewater Management. This is the first time SERCAP has presented to our organization and I'm excited for us to learn and possibly help in their mission of bringing clean drinking water, environmentally sound wastewater facilities, affordable housing, community development, and environmental justice solutions to individuals living throughout the Southeast.

If you haven't already, log into our website, [www.ncaeha.org](http://www.ncaeha.org), and update your membership to attend our virtual conferences. I hope to see you all virtually January 31st!

Have a Happy New Year!

*Julia Balsley*

Julia Balsley, NCAEHA President

# Restaurant Date-Marking Practices Concerning Ready-to-Eat Food Requiring Time and Temperature Control for Safety

Laura Green Brown, Shideh Delrahim Ebrahim-Zadeh, E. Rickamer Hoover, Lauren DiPrete, Bailey Matis, Brendalee Viveiros, Douglas J. Irving, Deanna Copeland, David Nicholas, Nicole Hedeem, Joyce Tuttle, Laurie Williams, Girvin Liggans, and Adam Kramer  
Published Online: 29 Oct 2021 <https://doi.org/10.1089/fpd.2021.0003>

## ABSTRACT

Certain foods are more vulnerable to foodborne pathogen growth and formation of toxins than others. Lack of time and temperature control for these foods can result in the growth of pathogens, such as *Listeria monocytogenes*, and lead to foodborne outbreaks. The Food and Drug Administration's (FDA) Food Code classifies these foods as time/temperature control for safety (TCS) foods and details safe cooking, holding, and storing temperatures for these foods. The FDA Food Code also includes a date-marking provision for ready-to-eat TCS foods that are held for >24 h. The provision states that these foods should not be held in refrigeration for >7 days and should be marked with the date or day by which the food should be "consumed on the premises, sold, or discarded." To learn more about restaurants' date-marking practices, the Centers for Disease Control and Prevention's Environmental Health Specialists Network (EHS-Net) conducted observations and manager interviews in 359 restaurants in 8 EHS-Net jurisdictions. Managers reported that they date marked ready-to-eat TCS foods more often than data collectors observed this practice (91% vs. 77%). Observation data showed almost a quarter of study restaurants did not date-mark ready-to-eat TCS foods. In addition, restaurants with an internal date-marking policy date marked 5.04 times more often than restaurants without such a policy and chain restaurants date marked 1.24 times more often than independently owned restaurants. These findings suggest that regulators and the retail food industry may improve food safety and lower the burden of foodborne illness in the United States if they target interventions to independent restaurants and encourage strong date-marking policies.

## Introduction

Certain foods are more vulnerable to foodborne pathogen growth and toxin formation than others; examples include raw and cooked animal products and cut tomatoes and leafy greens (U.S. FDA, 2017a). The Food and Drug Administration's (FDA) Food Code, a science-based set of provisions that addresses the safety of food provided in retail establishments, classifies these foods as requiring "time and temperature control for safety" (TCS) during preparation and storage (U.S. FDA, 2017b). The Food Code details safe cooking, holding, and storage temperatures for these foods and sets limits on the time these foods can spend outside of these temperatures (U.S. FDA, 2017c). Time and temperature control help prevent pathogen growth, the formation of toxins, and subsequent foodborne illness for those who eat these foods. Lack of time and temperature control for these foods can lead to foodborne outbreaks (Angelo et al., 2017). For example, improper cold

holding of TCS food contributed to 311 U.S. restaurant outbreaks from 1998 to 2013 (Angelo et al., 2017). The FDA Food Code also includes provisions to protect ready-to-eat TCS foods that are held in refrigeration for >24 h (U.S. FDA, 2017a). One provision states that these foods may be held in refrigeration at 41°F (5°C) for no more than 7 days. These 7 days include the day of preparation or, for commercially processed food, the day of opening. These foods should also be marked with the date or day by which the food should be "consumed on the premises, sold, or discarded" (i.e., discard date). This practice is designed to control the growth of *Listeria monocytogenes* because it can survive and grow in refrigerated temperatures (U.S. FDA, 2017b). *L. monocytogenes* causes the third largest number of deaths attributable to foodborne pathogens annually (Centers for Disease Control and Prevention [CDC], 2018).

The Food Code allows for flexibility in date-marking practices; the day of preparation or opening (i.e., preparation

date) can be used instead of the discard date. In addition, a variety of date-marking systems (calendar dates, days of the week, and color-coded marks) can be used, provided the system is disclosed during regulatory inspections (U.S. FDA, 2017b).

This practice of using a system to mark how long food should be kept (i.e., date marking) plays an important role in maintaining the safety of ready-to-eat TCS foods. Previous research indicates that improperly date-marked food is a common inspection violation in restaurants (Petran et al., 2012; U.S. FDA, 2018; Liggans et al., 2019) and that restaurants in jurisdictions that require date marking were more likely to date mark (Liggans et al., 2019). To better characterize gaps in restaurants' date-marking practices and identify additional factors associated with proper date marking, the CDC's Environmental Health Specialists Network (EHS-Net) conducted this study.

## Materials and Methods

### Restaurant sample

EHS-Net, a collaborative network of CDC, FDA, the U.S. Department of Agriculture's Food Safety and Inspection Service, and state and local health departments, collected the data reported here as part of a larger study on restaurant food safety. A CDC cooperative agreement funded eight health departments in California, Harris County (TX), Minnesota, New York, New York City (NY), Rhode Island, Southern Nevada (NV), and Tennessee (i.e., jurisdictions) to participate in EHS-Net and the study. The study sample consisted of randomly selected restaurants in each of the eight EHS-Net jurisdictions. Specifically, in each jurisdiction, EHS-Net staff chose a geographical area, based on reasonable travel distance from their office (mean = 88.1 min, range = 30 min–4 h), in which to recruit restaurants and collect data. One jurisdiction was urban, and the other seven were a combination of urban, suburban, and rural. Staff in each jurisdiction sent the list of restaurants in their selected area to CDC, which selected a random sample of restaurants for each jurisdiction. Staff requested study participation and scheduled data collection visits by sequentially telephoning restaurants on these lists. Only restaurants in which the managers could be interviewed in English were included in the study. However, in four restaurants, data collectors learned upon arrival that the manager preferred to be interviewed in Spanish; the data collector spoke Spanish and accommodated the request.



### Data collection

EHS-Net staff, all experienced in restaurant food safety, collected study data from March 2018 to March 2019. At each restaurant, they interviewed a manager (someone with authority over the restaurant), asked food workers (someone who prepares food in the restaurant) to complete a survey, and conducted an observation of food preparation and storage practices in the kitchen area. EHS-Net federal and jurisdictional staff developed the interview, survey, and observation forms and jurisdictional staff pilot-tested them (CDC, 2019). This article presents data on restaurant characteristics and date-marking practices collected from the manager interview and kitchen observation. Data from the worker survey will be reported at a later date.

Data on the following restaurant characteristics were collected through the manager interview: restaurant ownership (chain [chain restaurants share the same name and operations with other restaurants] vs. independent), restaurant service (full service vs. limited service [customer orders at counter]), whether the restaurant has a certified food protection manager (yes vs. no; yes = the manager passed an American National Standards Institute accredited program such as ServSafe, National Registry of Food Safety Professionals, etc.), number of daily transactions, number of employees, whether the restaurant has a policy for date marking of ready-to-eat TCS foods (yes vs. no), and whether employees are trained on these policies (all employees vs. some or none). Data on the following date-marking practices were also collected through the interview: whether the restaurant date marked ready-to-eat TCS foods, and if so, the type of date marking used (discard or preparation), the number of days the restaurant keeps date marked food items, whether the number of days food was kept included the day of preparation, and the date-marking method used (e.g., date, day-dot).

In the observation, data collectors examined food items in refrigeration; if any were ready-to-eat TCS foods, they chose one of them for date marking data collection. They noted if the ready-to-eat TCS food item was date marked, and if so, the type of date marking used (discard or preparation) and the number of days (including the date of preparation) the food was marked to be kept. This article also includes data provided by data collectors on whether the restaurants' jurisdiction required date marking.

We did not collect data that could identify individual restaurants, managers, or workers. Each EHS-Net jurisdiction's institutional review board cleared the study protocol.

### Analysis

We dichotomized continuous characteristics (e.g., number of employees) based upon approximate median splits and calculated frequency data for restaurant characteristics (Table 1) and date-marking practices (Tables 2 and 3). Next, we used McNemar's tests and interrater reliability (i.e., kappa statistic) to assess the level of agreement between the observational and interview data for each date-marking practice. Finally, to examine associations between restaurant characteristics and date-marking practices, we conducted multiple regressions using a modified Poisson regression approach (Zou, 2004). We conducted two regressions, one each for the interview and observation measures of whether date marking was practiced. These parallel regressions allowed us to identify differences in findings by data collection method. We included the same set of restaurant characteristics as explanatory variables in both regressions. The adjusted prevalence ratios (PRs), confidence intervals (CIs), and levels of significance are given in Tables 4 and 5. We presented the results in terms of PR, computationally the same as risk ratios, as we were interested in comparing the prevalence of an outcome in a group, relative to a second group, within a defined time period. We used SAS version 9.4 to analyze the data (SAS Institute, Inc., Cary, NC).

## Results

### Response rate

Among the 1496 restaurants contacted for participation in the study, 1043 met the study eligibility criteria, and 359 (34.4%) of those agreed to participate.

### Restaurant characteristics

According to the interview data, 58.5% of the study restaurants were independently owned; the rest were chains (41.5%) (Table 1). The majority of restaurants (59.3%) provided limited service; the rest were full service (40.7%). Interview data also indicated that most restaurants had a certified food protection manager (83.8%). The median number of daily transactions was 140 (N = 299; quartile 1 = 60; quartile 3 = 300; min = 2; max = 12,000), and the median number of kitchen staff was 11 (N = 342; quartile 1 = 7; quartile 3 = 22; min = 1; max = 280). Most managers said their restaurants had a date-marking policy (91.6%); of those with a policy, most managers said they trained their workers on the policy (95.8%). According to the data collectors, five of the eight jurisdictions had a provision that required date marking of ready-to-eat TCS food. Over a third (39.3%; 141 of 359) of restaurants were in the three jurisdictions that did not require date marking.

### Date-marking practices, interview data

According to manager interview data, 88.2% of study restaurants date-marked ready-to-eat TCS foods; in 11.8% of restaurants, managers said they did not or were not sure if they date marked this food (Table 2). Almost half (51.6%) of managers said they primarily date marked with the preparation date, 14.4% said they primarily used the discard date, and 33.4% marked both the preparation and discard date. Most managers (89.7%) said they kept the food for 7 days or less, 2.3% said they kept the food for longer than 7 days, and 8.0% said they were not sure how long they kept the food. Most (91.9%) managers said the number of days they kept the food included the day the food was prepared or opened. Few managers (4.8%) said the number of days

they kept the food did not include this day; 3.2% were not sure if the day of preparation was included in the day count. Managers reported several date-marking systems: 58.9% wrote the date on the food container, 31.9% used day-dots (stickers with days of the week on them) to mark the date, and 18.2% used some other date-mark method.

### Date-marking practices, observation data

In 77.2% of restaurants, data collectors observed at least one date-marked ready-to-eat TCS food; in 22.8% of restaurants, data collectors observed a food that should have been date marked but was not (Table 3). In the restaurants in which the observed ready-to-eat TCS food was date marked, 7.8% primarily had the discard date, 63.0% primarily had the preparation date, and 29.2% had both dates. In 95.9% of restaurants, the date mark indicated that the food was kept for 7 days or less. In 4.1% of restaurants, the date mark indicated the food was kept for >7 days.

### Differences in date-marking practices by data collection method

The percentage of restaurants that date marked was significantly higher as measured by interview than by observation (91% vs. 77%,  $p < 0.001$ , kappa = 0.43). The percentage of restaurants that primarily used the preparation date compared with the discard date was significantly lower as measured by interview than by observation (86% vs. 92%,  $p = 0.002$ , kappa = 0.57). The percentage of the restaurants in which the food was to be kept for no more than 7 days was not significantly different between the two data collection methods (98% vs. 97%,  $p = 0.250$ , kappa = 0.66).

### Date marking measured by interview and restaurant characteristics

Multiple regressions identified three restaurant characteristics associated with restaurants' date marking, as reported by managers (Table 4). Managers in chain restaurants said they date marked 1.07 times more often than managers in independently owned

restaurants (PR = 1.07; 95% CI: 1.00–1.15;  $p = 0.038$ ). Managers that said their restaurant had an internal policy for date marking said they date marked 1.60 times more often than managers in restaurants without a policy (PR = 1.60; 95% CI: 1.12–2.29;  $p = 0.009$ ). Managers in restaurants in jurisdictions that required date marking said they date marked 1.13 times more often than managers in restaurants in jurisdictions that did not require date marking (PR = 1.13; 95% CI: 1.05–1.22;  $p = 0.002$ ).

### Date marking measured by observation and restaurant characteristics

Multivariable regressions identified two restaurant characteristics associated with date marking as measured by observation (Table 5). Chain restaurants date marked 1.24 times more often than independently owned restaurants (PR = 1.24; 95% CI: 1.07–1.43;  $p = 0.004$ ). Restaurants in which managers said they had an internal policy for date marking marked five times more than restaurants in which managers said there was no internal policy (PR = 5.04; 95% CI: 1.77–14.30;  $p = 0.002$ ).

### Conclusion

This study found that almost a quarter of restaurants did not date mark ready-to-eat TCS foods. This finding highlights the need for regulators and the food industry to focus on increasing the practice of date marking. We found variability in the use of preparation and discard dates, suggesting that during inspections, regulators need to verify the date-marking system being used. This study also found that managers reported date marking more often than date marking was practiced, highlighting the importance of observing food safety practices. Finally, we found that restaurants with a date-marking policy and chain restaurants date marked more often than their counterparts. Regulators and the food industry may improve food safety by targeting interventions, such as training delivered during food safety inspections or audits, to independent restaurants and encouraging strong date-marking policies.



# THE YEAR IS ALMOST OVER, TIME TO RENEW YOUR 2022 MEMBERSHIP!



## BENEFITS OF MEMBERSHIP:

- ✓ Be a part of a local association in the DC, MD, and VA area that is focused on environmental health (EH)
- ✓ Network with other local EH professionals in academia, industry, government, private sector, and other areas
- ✓ Advance your career by pursuing a credential or certification with our discounted annual courses like the REHS, CP-FS, CPO, and more
- ✓ Gain more knowledge and/or earn up to 15 Continuing Education hours per year by attending our nearby Educational Conferences
- ✓ Enjoy a good time with your EH colleagues and build new connections at our social events
- ✓ Recognize an EH professional by nominating them for an award or scholarship
- ✓ Pursue local EH employment opportunities with easy accessibility through our announcements
- ✓ Stay updated through our newsletter, website, and social media and announcements on other events, trainings, webinars, and more

Memberships expire on December 31, 2021.  
Regular Membership Renewal: \$20.00  
Student and Silver Membership Renewal: \$5.00

Membership Renewal may be completed online at [www.ncaeha.org](http://www.ncaeha.org)  
by simply logging onto your profile and click the RENEW button!  
Payments are accepted online via credit card.

## Elections and Announcements

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### CONGRATULATIONS!

Please join us in welcoming our new and returning Board Members to serve their 2 year terms beginning February 1, 2022!

*Amanda Colleti - VP of Programs and Professional Advancement*

*Kendra Washington - Secretary*

*Jennifer Lineback - Treasurer*

*Amanda Barto- DC Representative*

*pending - Maryland Representative*

*Marcella Sikon - Virginia Representative*

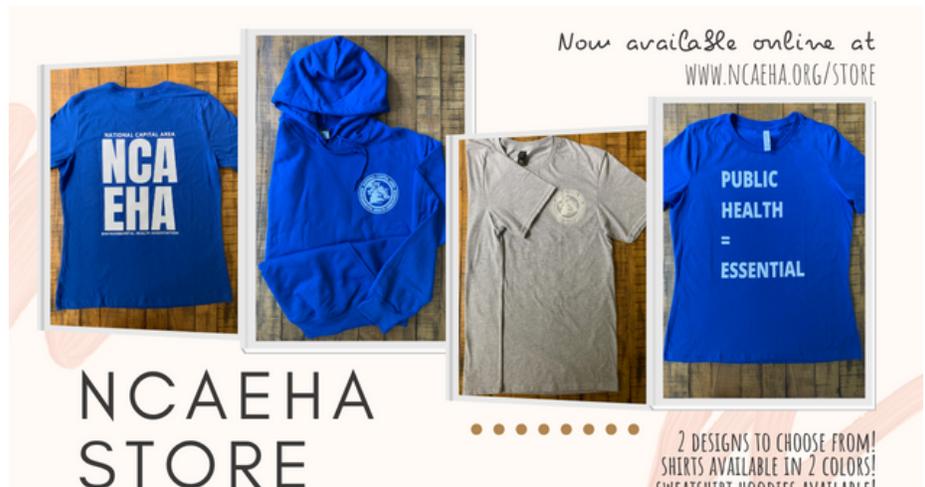
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**NCAEHA**  
**Award and scholarships**  
**2022**

NEHA Certificate of Merit (Individual, Team)  
James M. Wordsworth Scholarship  
Jerrold M. Michael Award  
Dedicated Service Award  
Environmental Health Innovation Award  
Industry Award of the Year  
VA Member of the Year  
DC Member of the Year  
MD Member of the Year

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## 2021 NCAEHA Board Contact List

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# 2022 WINTER VIRTUAL EDUCATIONAL CONFERENCE AGENDA

MONDAY, JANUARY 31, 2022  
9:00am - 2:15pm (via Zoom)

NATIONAL CAPITAL AREA ENVIRONMENTAL HEALTH ASSOCIATION

*Please click on the Zoom link provided in your email to access the Conference.  
4 hours of Continuing Education Credits will be granted for full attendance.*

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<b>9:00AM - 9:10AM</b>	<b>WELCOME / OPENING REMARKS</b> AMANDA COLETTI, <i>NCAEHA VA REPRESENTATIVE</i>
<b>9:10AM - 10:00AM</b>	<b>FAIRFAX COUNTY WASTEWATER MANAGEMENT</b> AUSTYN RIES, <i>OUTREACH SPECIALIST FAIRFAX COUNTY WASTEWATER MANAGEMENT</i>
<b>10:00AM - 10:05AM</b>	<b>BREAK</b>
<b>10:05AM - 10:55AM</b>	<b>PFAS LESSONS FROM THE FIELD &amp; SERCAP SERVICES</b> VIKKI PRETTYMAN, <i>DE/MD STATE MANAGER OF SERCAP, INC.</i>
<b>10:55AM - 11:10AM</b>	<b>BREAK</b>
<b>11:10AM - 12:00PM</b>	<b>MAKING PUBLIC TOILETS SAFER FOR EVERYONE</b> KIMBERLY WORSHAM, <i>MPA, MIWM FOUNDER &amp; PRINCIPAL OF FLUSH</i> & ROBERTA HAMMOND, <i>PHD, RS SANITARIAN, INDEPENDENT CONSULTANT</i>
<b>12:00PM - 1:00PM</b>	<b>LUNCH BREAK</b>
<b>1:00PM - 1:15PM</b>	<b>NEHA UPDATES, INSTALLATION OF NEW BOARD MEMBERS</b> CDR JAMES SPECKHART, <i>MS, USPHS, REGION 8 VP- NEHA</i>
<b>1:15PM - 2:05PM</b>	<b>FOOD SAFETY AND INSPECTION SERVICE - PROTECTING PUBLIC HEALTH AND PREVENTING FOODBORNE ILLNESS</b> STEVIE HRETZ, <i>DEPUTY DIRECTOR, OFFICE OF POLICY AND PROGRAM DEVELOPMENT, FOOD SAFETY AND INSPECTION SERVICE, USDA</i>
<b>2:05PM - 2:15PM</b>	<b>SPECIAL ANNOUNCEMENTS/CLOSING REMARKS</b> JULIA BALSLEY, <i>NCAEHA PRESIDENT</i> AMANDA COLETTI, <i>NCAEHA VA REPRESENTATIVE</i>

*\*Agenda subject to change.*