

OUTBREAK IN OHIO:
COST OF THE 2008
NOROVIRUS INCIDENT
IN KENT

A REPORT FROM
POLICY MATTERS OHIO

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AUGUST, 2008

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ACKNOWLEDGEMENTS

Amanda Woodrum offered helpful guidance throughout this research and Amy Hanauer provided substantial guidance and editing. Mike Stanek, Brandon Henneman, and Tim Krueger all provided helpful editing and comments. We would also like to thank Professors James Rebitzer and Elizabeth Erickson for thoughtful comments on an earlier draft of this paper. The conclusions in this paper are those of the author and of Policy Matters, and do not reflect the views of the reviewers.

POLICY MATTERS OHIO, the publisher of this study, is a nonprofit, nonpartisan research institute dedicated to researching an economy that works for Ohio. Policy Matters seeks to broaden debate about economic policy by doing research on issues that matter to working people and their families. With better information, we can achieve more just and efficient economic policy. Areas of inquiry for Policy Matters include work, wages, education, housing, energy, tax and budget policy, and economic development.

EXECUTIVE SUMMARY

An outbreak of norovirus in Kent, Ohio affected 509 individuals; 505 directly from dining at a Chipotle restaurant, and four through secondary contact with diners who were infected. Though it is not possible to say with certainty, interviews with the Commissioner of the Kent Department of Health suggest that it may have been passed on to diners from a worker who reported for work even though he or she had symptoms of norovirus.

Nationally, there are approximately 76 million cases of food-borne illness, resulting in 325,000 hospitalizations and 5,000 deaths per year in the United States.¹ About 50 percent of all food-borne illness outbreaks in six different states were attributed to norovirus in one study; and at least 39 percent of these norovirus cases are associated with restaurant, catering, and food outlet locations.² Because 85 percent of food service workers, roughly 339,745 people in Ohio (more than the entire population of Cincinnati), do not have paid sick days, such workers are encouraged to go to work sick, spreading germs and viruses to coworkers and consumers.^{3, 4}

This report estimates the costs the community incurred as a result of the outbreak. Overall, this report finds that:

- The outbreak of norovirus cost the Kent community between \$130,233 and \$305,337 in lost wages, tuition paid by students for classes not attended, taxpayer education subsidies, lost income tax revenues, and health care costs.
- Paid sick days, as prescribed by the Ohio Healthy Families Act, would cost this Chipotle location between \$12,601 and \$26,087 annually.
- Even when the cost of paid sick days is estimated for all of Chipotle's restaurants nationwide (reported to be 704 in 2007), the cost of paid sick days represents only 1.7 percent of Chipotle's annual sales, and 6.3 percent of its labor costs, at most.
- The costs the community incurred as a result of the norovirus outbreak are at least five times the cost of providing paid sick days at this location.

Paid sick days, and specifically the Ohio Healthy Families Act, are a good way to minimize the degree to which workers contract and spread disease or endanger the health and welfare of others. The bill would also reduce the degree to which workers have to choose between earning

¹ Bhatia, R. (2008). A doctor speaks on the public health reasons behind paid sick days: Why California should pass the Healthy Families, Healthy Workplaces Act. *California Progress Report*. Retrieved June 23, 2008 from http://www.californiaprogressreport.com/2008/04/a_doctor_speaks.html

² Widdowson M-A, Sulka A, Bulens SN, Beard RS, Chaves SS, Hammond R, et al. (2005). Norovirus and food-borne disease, United States, 1991–2000. *Emerging Infectious Diseases*, 11.1. Retrieved June 25, 2008 from <http://www.cdc.gov/ncidod/EID/vol11no01/04-0426.htm>

³ Levin-Epstein. (2007). Paid sick days: Why it matters to families and communities. Audio conference call, March 15, 2007. Retrieved June 25 from http://www.clasp.org/audio/transcript_031507.pdf

⁴ Bureau of Labor Statistics. (2008). Employment, hours, and earnings- State and metro area. Number of workers in food services and drinking places, Ohio, 2007. Retrieved August 11, 2008 from <http://www.bls.gov/data/#employment>

an income and staying healthy. Requiring that workers be able to earn paid sick days will also ensure that businesses who have responsible policies are not bearing part of the cost for businesses with a less responsible approach.

This report outlines one specific incident where paid sick days might have prevented community costs in the form of lost wages, lost value of student-paid tuition, health care costs, and lost public funds from tax revenue. Norovirus outbreaks occur fairly frequently around the country and restaurants are one place where many people can be infected at once. Other viruses like influenza, rotavirus, viral meningitis, and E. coli can also spread in this manner. Allowing sick workers to stay home when infected could prevent some of these outbreaks.

To be clear, we don't conclude that paid sick days are the only way to prevent transmission of viruses through food establishments or even that this policy will succeed in preventing all virus outbreaks. Further, we don't conclude that the threat of virus outbreaks is the only or even the best reason to allow employees to earn paid sick days. Three disclaimers are worth mentioning here:

- There are ways other than paid sick days to reduce spread of viruses – use of gloves and training in hand washing are two obvious ones, which the law requires and many restaurants, including Chipotle, already employ.
- Providing paid sick days would not prevent all virus outbreaks – workers might be contagious when they are not having symptoms, or workers who have already used their paid days might get sick again and come in. Nonetheless, encouraging food workers in particular to stay home when they are ill would substantially reduce the likelihood that customers get sick when eating in a restaurant. The Center for Disease Control and Prevention lists paid sick days as a method of prevention of norovirus.
- Most importantly, prevention of spread of viruses is only one among many reasons to allow workers to earn paid sick days.

As this study shows, failure to provide paid sick days can increase the likelihood of a viral outbreak at a food-serving establishment, and can result in substantial community costs. A substantial body of research shows that paid sick days can enable workers to better balance their lives with their jobs, help parents to better manage work and family, prevent spread of illness in the workplace, and increase employee well being. Overall, for the state or the country as a whole, having paid sick days will result in a modest net financial savings, but that is not the only, or even the main reason to allow paid sick days.

INTRODUCTION

Most people want to be able to eat in a restaurant without fear of contracting a viral, bacterial, parasitic, or chemical food-borne illness. At the same time, most restaurateurs want to find the most cost-effective way to provide healthy, pathogen-free food and maintain a customer's trust that they can repeatedly eat in the restaurant without fear of negative impacts on their health. Through food inspection agencies, and restaurant industry health regulations, the safety of food products has improved over many years, but there are still many issues that need to be dealt with.

Nationally, there are approximately 76 million cases of food-borne illness, resulting in 325,000 hospitalizations and 5,000 deaths per year in the United States.¹ Approximately 50 percent of all food-borne illness outbreaks in six different states were attributed to norovirus; and at least 39 percent of these norovirus cases were associated with restaurant, catering, and food outlet locations.² Because 85 percent of food service workers do not have paid sick days, such workers are encouraged to go to work sick, spreading germs and viruses to coworkers and consumers.³

Recently a virus outbreak affected over 500 people in Kent, Ohio. The virus was passed through an area restaurant, and though the exact origin of the virus is not known, interviews with the Commissioner of the Kent Department of Health suggest that the entire outbreak may have been the result of one or more employees who came to work when ill; passing the illness to customers.

Paid sick days, and specifically the Ohio Healthy Families Act, are one good way to ensure that businesses are doing their part to protect the health and wellness of their communities, by not forcing workers to choose between their jobs and their health, and by not encouraging or pressuring workers to do things that endanger the health and wellness of others. Other policies currently required by law, like requiring use of gloves or tongs when handling ready-to-eat foods and training in proper hand washing, should also remain part of any restaurant's practices. This report examines the costs that the community incurred because a virus was spread through one restaurant, which, like most restaurants, did not allow its employees to earn paid sick days. This report also estimates what it would cost for this business to allow workers to earn paid sick days, as provided by the Ohio Healthy Families Act.

THE OUTBREAK

This report estimates the cost of the recent norovirus outbreak in Kent, Ohio in order to understand the costs of this virus outbreak for the community. The outbreak has been traced back to one location in the Chipotle chain of Mexican food restaurants. Chipotle markets itself as an environmentally-conscious, health-conscious chain—its website describes its commitment to

¹ Bhatia, R. (2008). A doctor speaks on the public health reasons behind paid sick days: Why California should pass the Healthy Families, Healthy Workplaces Act. *California Progress Report*. Retrieved June 23, 2008 from http://www.californiaprogressreport.com/2008/04/a_doctor_speaks.html

² Widdowson M-A, Sulka A, Bulens SN, Beard RS, Chaves SS, Hammond R, et al. (2005). Norovirus and food-borne disease, United States, 1991–2000. *Emerging Infectious Diseases*, 11.1. Retrieved June 25, 2008 from <http://www.cdc.gov/ncidod/EID/vol11no01/04-0426.htm>

³ Levin-Epstein. (2007). Paid sick days: Why it matters to families and communities. Audio conference call, March 15, 2007. Retrieved June 25 from http://www.clasp.org/audio/transcript_031507.pdf

organic ingredients, free-range meats, and avoidance of antibiotics. This particular branch of the chain was located in Kent, close to Kent State University. Between April 14th and 18th 2008, 505 people who ate at the restaurant contracted gastroenteritis caused by norovirus genotype 2. Four other people contracted the disease secondarily for a total of 509 people affected. It is estimated that over half of those affected were Kent State University students, since the restaurant is very close to campus and a blood drive was offering Chipotle discounts to donors.^{4, 5}

Norovirus is a term used to refer to a group of viruses that cause gastroenteritis. It is often referred to colloquially as the stomach flu, although it is not caused by the influenza virus. Symptoms of gastroenteritis include nausea, vomiting, diarrhea, and abdominal cramps. The virus has a typical incubation period of 24 to 48 hours, and symptoms of the virus, on average, last between 24 and 60 hours, but can last much longer. The peak period of contagiousness of the virus is when symptoms are present.⁶ On average, symptoms last one to two days and people remain contagious for at least three days after symptoms subside, but the virus may remain contagious for up to two weeks after symptoms have subsided. The CDC recommends that food service workers not return to work before at least 72 hours have passed since their symptoms subsided, and this is also highly recommended for other workers with extensive public contact.⁷

The virus is transmitted through the fecal-oral route; most often infected employees transmit the virus through touching ready-to-eat foods with their bare hands, after using the bathroom. The virus can also be transmitted through the air, as particles can become airborne when an infected person vomits.^{8, 9} The FDA states that “low infectious doses required to transmit illness, as in the case of the Calicivirus group such as Norovirus, even conscientious hand hygiene may not sufficiently eliminate contamination to prevent illness.”¹⁰ Even in the best case scenario, where an employee is knowledgeable of the FDA defined hand washing procedures (soaping for 20 seconds, rinsing thoroughly, and drying with a paper towel, paying special attention to the area under the finger nails) and follows them, norovirus is so easily transmitted that the virus can quickly be spread to food items and customers, especially when airborne.

It is often difficult to pinpoint the exact cause of an outbreak of food-borne illness. In this case it is especially difficult because meals consumed at Chipotle have a wide variety and combination of ingredients. Norovirus is transmitted through food and infected surfaces. A surface could have been contaminated by a sick worker by exposure to infected bodily fluids. Vomit can result in airborne spread of the virus, and can often cause infection in larger numbers of people. It is also

⁴ Personal communication, John Ferlito, Commissioner, Kent Department of Health, May 18, 2008.

⁵ Smith, C. (2008). Dozens sickened at Kent Chipotle: Restaurant closed, cleaned on Friday. *Record Courier*, April 18, 2008. Retrieved June 12, 2008 from <http://www.recordpub.com/news/article/3657432>

⁶ Clark County Health Department. (2006). What are noroviruses? Retrieved August 7th, 2008 from <http://www.clark.wa.gov/health/documents/norovirus%20fact%20sheet%20english.pdf>.

⁷ Center for Disease Control and Prevention. (2006). Norovirus: Food handlers. Retrieved August 7th, 2008 from <http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus-foodhandlers.htm>

⁸ Center for Disease Control and Prevention. (2006). Norovirus: Q & A. Retrieved June 9, 2008 from <http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus-qa.htm>.

⁹ Center for Disease Control and Prevention. (2006). Norovirus: Technical facts sheet. Retrieved June 9, 2008 from <http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus-factsheet.htm>.

¹⁰ Michaels, B., Keller, C., Blevins, M., Paoli, G., Ruthman, T., Todd, E., and Griffith, C. (2004). Prevention of food worker transmission of foodborne pathogens: Risk assessment and evaluation of effective hygiene intervention strategies. *Food Service Technology*, 4, pg 31-49.

believed to be resistant to some cleaning agents, and could remain on a surface for a number of days if not properly cleaned.¹¹ Food could have been contaminated by a sick employee of the local Chipotle through coming to work sick and using insufficient hand washing practices, or it could have been contaminated during packing. Two employees of this Chipotle reported symptoms preceding the outbreak, strengthening though not completely confirming, the theory that food was contaminated by a sick employee.¹²

As a result of the outbreak, Chipotle voluntarily closed for one day to clean the restaurant and also brought in staff from other restaurants until it could be certain that all staff were healthy and able to work.¹³ The restaurant was found to meet health codes at all recent inspections.

The Ohio Healthy Families Act would provide some protection for Ohio's communities from incidents like this one. This act would require companies with over 25 employees to allow workers to earn seven paid sick days annually. Part-time workers would also be able to earn paid sick time on a pro-rated basis. Activists in Ohio currently have submitted signatures to put this measure on the November ballot, and are awaiting validation from the Secretary of State.¹⁴

Although this particular incident happened at a Chipotle restaurant, something similar could happen at any business or institution that has extensive public contact, particularly one serving food. This report is not meant to target one particular business—Chipotle's sick day practices are consistent with those of many other restaurants and their stated commitment to organic and other environmentally conscious ingredients exceeds that of many other restaurants. Instead, this report simply illustrates one example of how not having paid sick days has affected people, communities, and businesses in Ohio.

Norovirus is actually named for the town of Norwalk, Ohio, where the original strain of the virus caused a 1968 outbreak of gastroenteritis in a school.¹⁵ The Center for Science in the Public Interest's Outbreak Alert Database reports that, between 1997 and 2005, there were 85 confirmed outbreaks of norovirus in the state of Ohio, affecting a total of 2,831 people. Of these outbreaks, 40 stemmed from restaurants or catered events. In total, 63 percent of all people affected by norovirus between 1997 and 2005 can trace their affliction back to a restaurant or catering company. The Center states that this represents only a small number of all food-borne illness outbreaks, since not all outbreaks are recognized or reported. As well, the 2008 outbreak of norovirus discussed in this paper is noticeably larger than outbreaks of norovirus in Ohio for the past nine years. The average number of people affected by these recorded outbreaks is 33.3,

¹¹ Research on this aspect of norovirus was done using a proxy virus, feline calcivirus, For more information about research on norovirus, see the following case study: Center for Disease Control and Prevention. (2007). Norovirus outbreak associated with ill food service workers. Retrieved August 1, 2008 from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5646a2.htm>

¹² Personal communication, John Ferlito, Commissioner, Kent Department of Health, May 18, 2008.

¹³ Wendell, K. (2008). More than 200 patrons fall ill after eating at Chipotle in Kent. *WKYC.com*. Retrieved June 12, 2008 from http://www.wkyc.com/news/news_article.aspx?storyid=87572

¹⁴ Business coalition gears up to campaign against sick day issue; Proponents say signature minimum exceeded. *Gongwer News Service*, 77 (134). Retrieved July 11, 2008 from <http://www.gongwer-oh.com>.

¹⁵ Center for Disease Control and Prevention. (2006). Norovirus: Technical facts sheet. Retrieved June 9, 2008 from <http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus-factsheet.htm>.

whereas there were 509 people affected by this particular outbreak, more than 15 times this average.^{16, 17}

This report looks at the costs of not having paid sick days to the Ohio community during this particular incident. We conclude that requiring paid sick days would help control disease, save money for consumers, taxpayers, and businesses. Having a standard that requires this benefit would be also be helpful to many businesses because it would eliminate the concern that a competitor had lower immediate costs in this area.

AGGREGATED COSTS AND COMPARISON

Overall, this study estimates the outbreak of norovirus cost taxpayers, consumers, and community members is between \$130,233 and \$305,337. These costs come in the form of lost wages, lost tuition paid by students for classes not attended, health care costs, lost taxpayer education subsidies, and lost income tax revenues. The range is calculated using the average amount of time symptoms of gastroenteritis last when caused by norovirus genotype 2 on the low end, and including the minimum amount of time the virus remains contagious after symptoms subside on the high end.

Providing paid sick days at this location would cost Chipotle *at most* an estimated \$26,089 annually. This figure is an estimate of the cost of providing paid sick days to 26 full- and part-time employees, with each employee using each hour of their provided time, the cost of labor of replacing employees who have called in sick, and the cost of managerial labor needed to negotiate staffing changes per sick day called in. However, evidence shows that most employees do not use the maximum number of sick days allowed. Half of all employees who have paid sick days do not use a single day. Of those who do use sick days, on average employees use only 3.9 days. Research estimates that allowing workers to use paid sick days to care for family members could increase this amount by 1.3 days on average.¹⁸ Calculating this cost to reflect the average use of sick days, the cost would be only \$12,601.

Comparing the cost of providing paid sick days to workers at this location with the cost of the norovirus outbreak to the community, the cost of norovirus is at least five times greater than the cost of providing paid sick days.

¹⁶ The Center for Science in the Public Interest. (2008). Outbreak Alert Database. Retrieved June 16, 2008 from <http://www.cspinet.org/foodsafety/outbreak/pathogen.php>

¹⁷ The Center for Science in the Public Interest has compiled a database of food-borne illness outbreaks, the types of food involved in the outbreak, the origin of the outbreak, and other characteristics.

¹⁸ Hanauer, A. (2007). A healthy standard: Paid sick days in Ohio. Policy Matters Ohio. Retrieved June 18, 2008 from <http://www.policymattersohio.org/pdf/AHealthyStandard2007.pdf>

Table 1 outlines the costs of the norovirus outbreak to the community and to Chipotle, in comparison to the cost of complying with the Ohio Healthy Families Act at this location.

Table 1		
Estimated Total Cost of 2008 Norovirus Outbreak to Taxpayers, Consumers, Community, and Chipotle		
	Low-End Estimate	High-End Estimate
Costs to Community		
Lost wages	\$34,168	\$85,421
Lost student productivity	\$35,841	\$89,602
Lost value of tax-subsidized tuition	\$26,267	\$65,667
Healthcare	\$33,957	\$64,647
Lost income tax revenue from affected non-students*	\$4,841	\$6,052
Total	\$130,233	\$305,337
Cost of Paid Sick Days		
Cost of used paid sick days	\$5,744	\$11,159
Cost of replacing staff	\$5,744	\$11,159
Cost of managerial time	\$1,113	\$3,769
Total	\$12,601	\$26,087

Source: Aggregated from other tables within this report.

*Not included in total since these taxes are generally taken out of wages, and are included in the wages figures. This figure is shown to represent lost public revenue.

COSTS TO THE COMMUNITY

Cost of Lost Wages

Table 2 outlines the costs of the norovirus outbreak to other businesses in the Cleveland-Akron-Kent area due to lost worker productivity. The cost of lost wages is estimated to be between \$34,168 and \$85,421. While we know how many people were affected by the norovirus outbreak, we don't know the exact number of students and non-students, whether non-students worked, and how they were employed. This report assumes that 305 people (60 percent) are students at Kent State University, and the remaining 204 out of 509 people are non-students, based on information from the Commissioner of the Kent Department of Health that over half of people affected were students.¹⁹ According to the National Center for Education Statistics, 74.2% of students work while they are pursuing an undergraduate degree.²⁰ Although significant numbers of students do work while attending school, we conservatively assume no costs for lost hours of students' paid work. We further estimate the number of working people affected by taking into account the current unemployment rate in Kent, and the percent of the population of children under 18 years of age, and subtracting these from the number of non-students.^{21, 22}

¹⁹ Personal communication, John Ferlito, Commissioner, Kent Department of Health, May 18, 2008.

²⁰ For more information, see NPSAS: 2004 Undergraduate students. National Center for Education Statistics. U.S. Department of Education. Retrieved July 17, 2008 from <http://nces.ed.gov/>.

²¹ The current unemployment rate is 5.98 percent. Portage County Ohio Office of Economic Development. (2008). Kent labor market information. Retrieved June 11, 2008 from <http://www.portageworkforce.org/pcoed/kentlmi.htm>.

The median hourly wage in the Akron, Ohio metropolitan statistical area is \$14.83 for all workers in 2007, and this figure is used to estimate the cost of labor lost. Using the median hourly wage produces a conservative estimate; this figure is nearly \$4.00 less than the average wage, and is also half the wage of employees in managerial, engineering, and medical occupations.²³ It is reasonable to assume that highly-compensated managers might be less likely to eat at Chipotle, an inexpensive eatery.

The average time a person experiences the symptoms of norovirus is 24 to 48 hours; additionally, the minimum amount of time a person remains contagious with norovirus is 72 hours. The CDC recommends that a person with this highly contagious virus should not have extensive public contact during the time they're experiencing symptoms (one to two days), and for at least 72 hours after their symptoms have subsided. We conservatively estimate that, on the low end, the average person may have missed a minimum of two days because of infection.²⁴ This ends up being 16 hours of work. The amount of time a worker is sick is estimated on the high end by taking the maximum average number of hours a person experiences the symptoms of norovirus, 48 hours, in addition to the minimum amount of time a person remains contagious with norovirus. On the high end, this ends up being 120 hours, or five days; totaling 40 work hours. People can experience symptoms of norovirus for much longer than two days, and can also remain contagious with norovirus for up to two weeks, but we have assumed the shorter period of contagiousness.^{25, 26, 27} If we had assumed that all of those sickened took the maximum number of days off, the cost to the community would have been significantly higher.

²² U.S. Census Bureau. (2008). Number of population under 18 years of age, Akron MSA. American community survey, 2006. Retrieved June 11, 2008 from <http://factfinder.census.gov/>.

²³ Bureau of Labor Statistics. (2007). All occupations, median hourly wage. May 2007 Metropolitan and nonmetropolitan area occupational employment and wage estimates, Akron OH. Retrieved June 11, 2008 from http://www.bls.gov/oes/current/oes_10420.htm#b35-0000.

²⁴ Center for Disease Control and Prevention. (2006). Norovirus: Food handlers. Retrieved August 7th, 2008 from <http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus-foodhandlers.htm>

²⁵ Center for Disease Control and Prevention. (2005). Foodborne illness. Information from National Center for Zoonotic, Vector-Borne, and Enteric Diseases. Retrieved June 9, 2008 from http://www.cdc.gov/ncidod/dbmd/diseaseinfo/foodborneinfections_g.htm#howmanycases

²⁶ Center for Disease Control and Prevention. (2006). Norovirus: Technical facts sheet. Retrieved June 9, 2008 from <http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus-factsheet.htm>.

²⁷ Center for Disease Control and Prevention. (2008). Norovirus: Q & A. Retrieved June 9, 2008 from <http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus-qa.htm>.

Table 2

Estimated Workforce Costs of 2008 Norovirus Outbreak	
Number of non-students affected by virus outbreak (estimate)	204
Unemployed	(12)
Children	(48)
Number of workers affected by virus outbreak	144
Median hourly earnings of worker in Akron, OH MSA	\$14.83
Number of hours of work lost due to illness- lower end estimate	16
Number of hours of work lost due to illness- higher end estimate	40
Total cost, low-end estimate	\$34,168
Total cost, high-end estimate	\$85,421

Sources:

Personal communication, John Ferlito, Commissioner, Kent Department of Health May 18, 2008; Portage County Ohio Office of Economic Development; U.S. Census Bureau; Bureau of Labor Statistics; Center for Disease Control and Prevention.

This cost does not include lost wages from students who work while attending school, the lost value of days of public or private school that were not used by sick children, or the costs for parents who had to pay for child care or miss work because their children were sick.

Cost of Tuition and Tax-Subsidized Tuition

Table 3 outlines the cost of the norovirus outbreak to students at Kent State University. The Chipotle restaurant is very close to the school's campus. News reports, as well as Kent's health commissioner, state that it is likely that more than half of those affected were students, especially since a blood drive taking place on campus provided students with coupons to the restaurant.²⁸

As previously mentioned, we estimate that 305 of the 509 people affected are students at Kent State University. As mentioned in the workforce section, although significant numbers of students work while attending school, we conservatively leave out any costs associated with lost paid work time for students. Tuition at Kent State for the 2007-2008 academic year is \$8,430 for in-state, full time students, and \$15,862 for out-of-state students. This cost covers between 12 and 18 credits.²⁹ We estimated the cost of a student taking a 15-credit class load, translating to 15 hours of class per week, averaging three hours of class per day.

The amount of class time a student misses is estimated similarly to the amount of time a worker misses. On the low end we assume a student missed two days, or six credit hours of class time averaged at three hours missed per day. On the high end, we assume a student missed five days, or 15 hours of class time averaged at three hours per missed day.

²⁸ Personal communication, John Ferlito, Commissioner, Kent Department of Health, May 18, 2008.

²⁹ Kent State University. (2008). Academic expenses: 2007-2008. Retrieved June 12, 2008 from <http://www.admission.kent.edu/Fees.asp>.

Approximately 13 percent of all students are from a state outside of Ohio.³⁰ An in-state student taking two semesters of 15-credit class loads pays approximately \$18.73 per credit hour. If he or she misses six hours of class, s/he is losing \$112. An out-of-state student taking two semesters of 15-credit class loads pays approximately \$35.25 per credit hour, and would be losing \$212 if s/he missed six hours of class. With such a high number of students affected, the total estimated amount of paid tuition lost is between \$35,841 and \$89,602.

Table 3

Estimated Cost of 2008 Norovirus Outbreak to Kent Students		
	In-state students	Out-of-state students
Number of students affected by outbreak (estimate)	265	40
Year tuition	\$8,430	\$15,862
Average hours of class in one year	450	450
Cost of 1 hour of undergraduate class at Kent State University	\$18.73	\$25.25
Average number of school hours missed due to illness- low-end estimate	6	
Average number of school hours missed due to illness- high-end estimate	15	
Cost of tuition lost, low-end estimate	\$29,781	\$6,060
Cost of tuition lost, high-end estimate	\$74,452	\$15,150
Total cost, low-end Estimate	\$35,841	
Total cost, high-end Estimate	\$89,602	

Sources:

Personal communication, John Ferlito, Commissioner, Kent Department of Health May 18, 2008; Kent State University; College Board; Center for Disease Control and Prevention.

This estimate does not take into account the number of part-time students affected. Also, this estimate only looks at lost tuition from lost class time, and does not investigate the costs of any lost capacity to study, or the lost value of lab fees and other material costs students incur. As mentioned, it does not consider students who work while in school, and it does not consider the capacity of student athletes to deal with school, performance, and illness.

Since Kent State University in Ohio is a public university, taxpayer dollars were also lost when Kent students missed class due to norovirus. **Table 4** outlines lost tax dollars spent on tuition subsidy.

There is a difference of \$7,432 between in- and out-of-state tuition that is assumed to be made up of funding from the State of Ohio. A student missing between six and 15 credit hours translates conceptually to a loss of between \$26,267 and \$65,667 in subsidized taxpayer dollars. This

³⁰ College Board. (2008). Kent State University. Retrieved June 11, 2008 from <http://collegesearch.collegeboard.com/search/CollegeDetail.jsp?collegeId=3243>

figure takes into account percentage of students that are not from Ohio, and pay out-of-state tuition.

Table 4

Lost Tuition Subsidized by Taxpayers	
Number of in-state students affected by outbreak	265
Out-of-state tuition	\$15,862
In-state tuition	\$(8,430)
Taxpayer subsidy	\$7,432
Average hours of class in one year	450
Amount of tuition subsidy per hour of class	\$16.52
Average number of school hours missed due to illness, low-end estimate	6
Average number of school hours missed due to illness, high-end estimate	15
Total cost, low-end estimate	\$26,267
Total cost, high-end estimate	\$65,667

Sources:

Kent State University; College Board; Center for Disease Control and Prevention.

Healthcare Costs

Table 5 estimates the cost of health care to those affected by norovirus. Though the virus affected at least 509 people, only 99 people reported receiving medical attention; 46 at Robinson

Table 5

Estimated Health Care Costs of Norovirus Outbreak	
2007 Dollars	
Number of people seeking care	99
Median cost of emergency room visit	\$343
Average cost of emergency room visit	\$653
Total cost of health care (median)	\$33,957
Total cost of health care (average)	\$64,647

Sources:

Personal communication, John Ferlito, Commissioner, Kent Department of Health May 18, 2008; Machlin, 2006; Inflation calculator.

Memorial Hospital in Ravenna, and 53 at Kent State's student health center.³¹ The cost of health care was estimated using the median and average cost of an emergency room visit, as reported by the Agency for Health Care Research and Quality.³² These figures were reported in 2003 dollars, and are adjusted to 2007 dollars. The median cost of an emergency room visit, in 2007 dollars, is \$343, while the average cost is \$653. With 99 people reported seeking medical attention, the total cost of health care for this

outbreak is between \$33,957 and \$64,647. Using the median cost of an emergency room visit represents the best case scenario for people seeking health care, where one visit results in a correct diagnosis and treatment, and no other follow-up tests or visits are necessary.

Other figures would produce higher estimated costs. The Medicare Provider Analysis and Review provides higher average costs of treating gastroenteritis, showing that gastroenteritis has cost Medicare providers between \$883 and \$917 per day treated, with patients being treated for

³¹ Personal communication, John Ferlito, Commissioner, Kent Department of Health, May 18, 2008.

³² Machlin, S.R. (2006). Statistical Brief 111: Expenses for a hospital emergency room visit, 2003. Agency for Health Care Research and Quality, Medical Expenditure Panel Survey. Retrieved May 18, 2008 from http://www.meps.ahrq.gov/mepsweb/data_files/publications/st111/stat111.pdf

an average of between 2.9 and 4.5 days.³³ Again, using the median cost of an emergency room visit does not take into account more difficult cases, where the doctors needed to run multiple tests before they could correctly diagnose the patient, which may become costly. One affected individual reported medical bills of \$4,200 because of misdiagnosis and repeated costly tests.³⁴

More Cost to Taxpayers

The outbreak of norovirus has taxpayer costs beyond the education subsidies outlined in **Table 4**. In addition to these costs, the community lost tax dollars for important infrastructure and community expenses. **Table 6** outlines lost community dollars due to lost income tax revenue.

As previously discussed, the norovirus outbreak resulted in an estimated 204 non-students who became ill. To estimate the amount of income tax lost due to missing workers, we again subtracted the number of unemployed people affected among these 204 non-students, and the number of children affected.^{35, 36} In addition, we estimate the number of employees who do have paid sick days, and will therefore pay into the income tax system, despite missing work.³⁷ Table 6 shows that the Kent, Ohio, and U.S. communities lost between \$2,421 and \$6,052 in funds to support needed community programs.^{38, 39, 40}

As a result of the virus outbreak, Chipotle voluntarily closed its doors for one day to clean and disinfect the restaurant, and redirect staff from other restaurants until it could be certain that no staff member would be spreading infection.⁴¹ The above table does not include tax dollars lost due to the restaurant's one day without operation. This estimate looks at one restaurant in one year, but as the Center for Science in the Public Interest's Outbreak Alert Database reports, even with underreporting, there is an average of nine reported outbreaks of norovirus in Ohio per year

³³ Department of Health and Human Services. (2008). Medicare Provider Analysis and Review, 1991-2006. Retrieved June 12, 2008 from

http://www.cms.hhs.gov/IdentifiableDataFiles/05_MedicareProviderAnalysisandReviewFile.asp

³⁴ Personal communication, Chris Haslage, affected individual, June 18, 2008.

³⁵ Portage County Ohio Office of Economic Development. (2008). Kent labor market information. Retrieved June 11, 2008 from <http://www.portageworkforce.org/pcoed/kentlmi.htm>.

³⁶ U.S. Census Bureau. (2008). Number of population under 18 years of age, Akron MSA. American community survey, 2006. Retrieved June 11, 2008 from <http://factfinder.census.gov/>.

³⁷ Hanauer, A. (2007). A healthy standard: Paid sick days in Ohio. Policy Matters Ohio. Retrieved June 18, 2008 from <http://www.policymattersohio.org/pdf/AHealthyStandard2007.pdf>

³⁸ Ohio 2008 tax rates from Ohio Revised Code, ch. 5747.02, § A5.

³⁹ Kent, Ohio 2008 tax rates from: Ohio Department of Taxation Online Services. (2008). The Finder: Municipal Income Tax. Retrieved June 18, 2008 from <https://thefinder.test.tax.ohio.gov/StreamlineSalesTaxWeb/AddressLookup/LookupByAddress.aspx?taxType=Municipal>.

⁴⁰ Federal income tax rates from: Internal Revenue Service. (2008). 2008 Form 1040-ES. Retrieved June 18, 2008 from <http://www.irs.gov/pub/irs-pdf/f1040es.pdf>.

⁴¹ Smith, C. (2008). Dozens sickened at Kent Chipotle: Restaurant closed, cleaned on Friday. *Record Courier*, April 18, 2008. Retrieved June 12, 2008 from <http://www.recordpub.com/news/article/3657432>.

for the past nine years, and these costs can add up.⁴² Employee earnings are estimated using information from the Bureau of Labor Statistics; taxes are calculated based on these earnings.⁴³

Table 6

Lost Income Tax from Affected Workers			
		Low End Estimate	High End Estimate
Number of non-students affected by outbreak	204		
Unemployed	(12)		
Children	(48)		
Workers with paid sick days	(84)		
Number of workers without paid sick days affected by outbreak	60		
Median hourly wage	\$14.83		
Annual salary (for determining tax bracket)	\$30,846.40		
Hours of work lost		16	40
Lost income tax			
Kent			
Annual tax	\$616.93		
Lost city funds per affected worker		\$4.75	\$11.86
Ohio			
Annual tax	\$402.28		
Lost state funds per affected worker		\$3.09	\$7.74
Federal			
Annual tax	\$4,225.71		
Lost federal funds per affected worker		\$32.51	\$81.26
Total		\$2,421	\$6,052

Sources:

Personal communication, John Ferlito, Commissioner, Kent Department of Health May 18, 2008; Portage County Ohio Office of Economic Development; U.S. Census Bureau; Bureau of Labor Statistics; Center for Disease Control and Prevention; Hanauer, 2007; Ohio Revised Code; Federal Tax Form, 2008 1040 ES; Ohio Tax Finder.

COST OF PAID SICK DAYS

As the estimated costs of lost wages, student productivity, tax-payer education subsidies, health care costs, and lost general revenue funds show, a business that does not provide paid sick days to its workers creates unnecessary costs to the community. This report does not attempt to include “costs” that are less economic in nature (like the discomfort or pain associated with being sick, the anxiety associated with having a sick child, or the disappointment of missing an important event due to sickness). These costs are detrimental to the community in which these businesses are located, and these costs are unnecessary, because paid sick days are affordable.

Table 7 estimates the cost of paid sick days to a Chipotle restaurant, as would be required by the Ohio Healthy Families Act. This estimate includes the cost of providing an additional seven paid

⁴² The Center for Science in the Public Interest. (2008). Outbreak Alert Database. Retrieved June 16, 2008 from <http://www.cspinet.org/foodsafety/outbreak/pathogen.php>

⁴³ Bureau of Labor Statistics. (2007). May 2007 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, Akron OH. All Occupations, Median Hourly Wage. Retrieved June 11, 2008 from http://www.bls.gov/oes/current/oes_10420.htm#b35-0000

days per year to full-time employees, and paid time off to part time employees on a pro-rated basis equivalent to full-time employees.

At most, the total estimated cost of this Chipotle establishment providing paid sick days to employees is \$26,087. This includes the cost of each staff member using all of their provided time off, paying staff to cover for each paid day off of another staff member, and one hour of managerial time for each shift missed.⁴⁴ This estimate assumes that no staff members currently have paid sick time, that each would use every sick day permitted, and that each missed shift will be covered by another staff member, all of which, research shows, are unlikely.^{45, 46} In other words, we have pointedly over-estimated the costs for this one particular example, illustrating that even under the assumptions that do least to bolster sick days, Chipotle still would have benefitted from offering paid sick days to the workers at this location. Employee positions are estimated using Chipotle’s 2007 Annual Report, which states that the restaurant strives to maintain between 23 and 29 employees at each restaurant.⁴⁷ Our cost of paid sick days estimate uses the median number of employees, 26. Employee earnings are estimated using information from the Bureau of Labor Statistics.⁴⁸

Table 7

Cost of Paid Days to a Chipotle Restaurant				
Average Employees Working in Restaurant (Number)	Estimated Annual Earnings	Earnings per Hour	Earnings Cost of Paid Sick Days	Number of employees
Restaurant manager (1)	\$43,070	\$20.71	\$1,159.58	--
Assistant manager (1)	\$26,480	\$12.73	\$712.92	--
Hourly service manager (1)	\$26,480	\$12.73	\$712.92	--
Hourly kitchen manager (2)	\$26,480	\$12.73	\$712.92	\$1,425.85
Full time crew members (8)	\$15,870	\$7.63	\$427.27	\$3,418.15
Part time crew members (13)	\$7,935	\$7.63	\$286.89	\$3,729.54
Total expense of paid sick days				\$11,158.97
Cost of replacing each employee each sick day				\$11,158.97
Managerial time				\$3,769.22
Total				\$26,087
Average cost per employee				\$1,003

Sources:

Chipotle Annual Report, 2008; Bureau of Labor Statistics; Ohio Healthy Families Act.

⁴⁴ Based on information from Chipotle’s Annual Report, and information from restaurants, we estimate that staff works 6.5 hour shifts. To further ensure our estimates are conservative, we estimate that each 6.5 hours shift is not counted as “one sick day,” but instead as 6.5 sick hours. This allows workers more than the state “seven days” of time, and is not likely to be an allowable interpretation of the law. Nonetheless, this allows us to overestimate the amount of managerial time needed, and again produce an unlikely, but still very affordable, scenario.

⁴⁵ Hanauer, A. (2007). A healthy standard: Paid sick days in Ohio. Policy Matters Ohio. Retrieved June 18, 2008 from <http://www.policymattersohio.org/pdf/AHealthyStandard2007.pdf>

⁴⁶ McConnell, C.R. (2005). Paid Sick Days Fading. National Federation of Independent Business. Retrieved June 11, 2008 from http://www.nfib.com/object/IO_23900.html.

⁴⁷ Ells, S. (2008). Chipotle Mexican Grill: 2007 annual report. Retrieved May 15, 2008 from <http://phx.corporate-ir.net/phoenix.zhtml?c=194775&p=irol-reportsAnnual>

⁴⁸ Bureau of Labor Statistics. (2007). May 2007 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, Akron OH. All Occupations, Median Hourly Wage. Retrieved June 11, 2008 from http://www.bls.gov/oes/current/oes_10420.htm#b35-0000

The actual cost of paid sick days is likely to be much lower. **Table 8** below outlines the cost of paid sick days estimating the number of sick days employees would actually use, which in most cases is much less than the full amount. Half of all workers who have paid sick days use none of their sick days in a given year. Those who use their days average 3.9 missed days per year. We estimate that workers would use an additional 1.3 days if a policy allowed for paid sick days to be used to care for their family. Table 8 estimates that half of all workers would use 1.3 paid sick days, and the other half would use 5.2, unless restricted by part time status.⁴⁹ The cost of paid sick days to Chipotle, factoring in actual estimated usage, is \$12,601.

Table 8

Paid Sick Days Cost With Estimated Usage						
Average Employees Working in Restaurant (Number)	Estimated Annual Earnings	Earnings per Hour	Estimated Cost of Paid Sick Days- 1.3 Days Used	Estimated Cost of Paid Sick Days- 5.2 Days Used	Total	
Restaurant manager (1)	\$43,070	\$20.71	--	\$699.89	\$699.89	
Assistant manager (1)	\$26,480	\$12.73	--	\$430.30	\$430.30	
Hourly service manager (1)	\$26,480	\$12.73	\$109.48	--	\$109.48	
Hourly kitchen managers (2)	\$26,480	\$12.73	\$109.48	\$430.30	\$539.78	
Full time crew members (8)	\$15,870	\$7.63	\$262.47	\$1,031.55	\$1,294.02	
Part time crew members (13)	\$7,935	\$7.63	\$393.71	\$1,805.26	\$2,198.97	
Total expense of paid sick days					\$5,744.00	
Cost of replacing each employee each sick day					\$5,744.00	
Managerial time					\$1,113.15	
Total					\$12,601	
Average cost per employee					\$485	

Sources:

Chipotle Annual Report, 2008; Bureau of Labor Statistics; Ohio Healthy Families Act.

Obviously, Chipotle could not predict beforehand which restaurants would have viral outbreaks and only implement paid sick days at those establishments. If Chipotle put in place paid sick days, it would do so at all of its locations. However, the cost of allowing workers to earn paid sick days is also affordable when considered as a percentage of Chipotle's annual sales costs, or labor costs. Even when considering implementing paid sick days at every Chipotle location in the United States in 2007, the cost of paid sick days only makes up 1.7 percent of total annual sales. Providing paid sick days would constitute at most 6.3 percent of Chipotle's labor costs.

Table 9 shows the maximum estimated cost of paid sick days as a percentage of the incurred community costs, Chipotle's annual sales costs, and Chipotle's annual labor costs. Again, this is assuming every employee uses every possible sick day, which will not be the case.

⁴⁹ Hanauer, A. (2007). A healthy standard: Paid sick days in Ohio. Policy Matters Ohio. Retrieved June 18, 2008 from <http://www.policymattersohio.org/pdf/AHealthyStandard2007.pdf>

Table 9

Cost of Paid Sick Days: Comparison to sales and labor costs				
	Amount	Paid Sick Days Cost	Stores in 2007	Paid Sick Days as Percent
Annual sales	\$1,085,782,000	\$26,087.00	704	1.7%
Annual labor costs	\$289,417,000	--	--	6.3%
Community costs- low	\$130,233	--	--	20.0%
Community costs- high	\$305,337	--	--	8.5%

Sources:

Chipotle Annual Report, 2008

CONCLUSIONS

Providing paid sick days is likely to reduce the spread of disease through school and the workplace and will help workers better balance their lives with their work. General analysis of the costs and benefits, conducted by the National Partnership for Women and Families, also shows that it is cost effective for the state of Ohio as a whole – that more is saved from reduced spread of disease than is paid for increased labor costs. This analysis of one outbreak of norovirus stemming from a restaurant in Kent, Ohio shows that, if spread of disease can be reduced, providing paid sick days is extremely cost effective in cases of mass viral infection. A standard requirement of allowing workers to earn paid sick days will also help to level the playing field between businesses who are trying to do the right thing and those who have more punitive policies. As this report shows, paid sick days can also be a cost-effective method of protecting against some viral outbreaks and maintaining a food service establishment's reputation. Although diseases will still spread through the workplace even with a paid sick day policy, the Center for Disease Control and Prevention lists paid sick days as a method of prevention of norovirus.

In this instance, norovirus affected a large number of people in the community. The virus can have devastating affects for senior citizens in a nursing home and young children, who are often the most vulnerable members of a community.⁵⁰ Fortunately, the virus in this instance did not reach this population. Had it done so, the cost to the community would have been much higher.⁵¹

Many restaurants throughout Ohio have experienced norovirus outbreaks and other food-borne illness outbreaks, despite the fact that they comply with policies requiring use of gloves or tongs when touching ready-to-eat food and that they comply with hand washing training. Chipotle's practice of not providing paid sick days is consistent with the practice at most restaurants in Ohio and the United States. The Ohio Healthy Families Act is one effective way to ensure that all restaurants in Ohio reduce practices that harm the health of communities.

The cities of San Francisco and Washington, D.C. have passed paid sick day measures. After one year of the law in San Francisco, businesses report that workers have used much less sick

⁵⁰ Calderon-Margalit, R., Sheffer, R., Halperin, T., Orr, N., Cohen, D., and Shohat, T. (2004). A large-scale gastroenteritis outbreak associated with Norovirus in nursing homes. *Epidemiology and Infection*, 133(1), p. 35-40.

⁵¹ Personal communication, Kent Department of Health representative, July 21, 2008.

time than they expected and as a result their expenses have also been less than they imagined. One small business owner with only ten employees states “I think we overreacted, even myself, I thought it was going to be worse.”⁵² The effects of sick days legislation on public health in San Francisco have yet to be examined.

Having paid sick days will not prevent all outbreaks of illness from viruses spread at restaurants. And preventing such outbreaks is not the only reason to allow workers to earn paid sick days. But the recent norovirus outbreak in Kent, Ohio shows how one community might have averted substantial costs if all Ohio employees at medium and large employers had the right to earn paid sick days.

⁵² Levitt, S. (2008). San Francisco tries new sick leave policy. *NPR, Morning Edition, February 25*. Retrieved June 25, 2008 from <http://www.npr.org/templates/story/story.php?storyId=19333947>

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