

Evaluation of Tennessee Health Department Response to Legislation Calling for Looser Regulations of Unpasteurized Milk Sales

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Abstract

In spite of universal laws requiring pasteurization, special interest groups in Tennessee and several states have been able to get exceptions to sale raw milk through unique arrangements such as cow share, creating "certified" dairies of various sorts or allowing "sales" through one-on-one arrangements on the farm or at farmers markets, etc

Over the past 20 years there continue to be many outbreaks large and small of disease occurring through these "gaps" in pasteurized milk ordinances in the U.S. including Tennessee, as well as an increasing problem with imported products primarily for and through ethnic populations.

The concept of allowing raw milk sales in Tennessee seems to keep rearing its head in new geographical areas on a consistent basis. Such a bill was introduced to the Tennessee legislature in 2006, and the expectation is that similar efforts will be made in the coming legislative seasons. The bill violated other statutes by prohibiting the Department of Health from discussing any aspects of a raw milk-associated outbreak with anyone outside the Department or the media until the findings are confirmed by two independent labs.

The purpose of this project is to provide an overview of the response of the Tennessee Department of Health to the bill submitted to the House Representatives to amend the current statute for Dairy Law (TCA, Title 53, Chapter 3) relative to raw milk production and sale. This project will also evaluate the different categories of how raw milk is being sold or marketed by different states and discuss the outbreaks or clusters linked to consumption of raw milk.

The study team is myself, Tim Jones, MD, Deputy State Epidemiologist and Director of the Food Net program in Tennessee and John R. Dunn, DVM, PhD, Medical Epidemiologist, Tennessee Department of Health. This project will allow me to work with two of the top leaders in public health in CDC and Tennessee Department of Health who are experts in the issues related to the raw milk legislation. This project is an opportunity for me to become aware of the procedures in issuing legislation or health laws dealing with national public health problems. It is a chance to enrich my skills in research, sharing concerns, and exchange of the information with partners from outside like USDA and FDA regarding this topic in the future.

Introduction

Tennessee prohibits sale of raw milk by any mean and no exceptions allowed. And in spite of universal laws requiring pasteurization, special interest groups have been able to get exceptions through unique arrangements such as a) "owning or leasing parts of a cow or goat" so that the requirement that "owners" could drink raw milk from their own animal, b) creating "certified" dairies of various sorts so that increased regulation, testing, inspections, etc. would supposedly eliminate infection risk, and c) allowing

"sales" through one-on-one arrangements such as "exchange of goods" on the farm or at farmers markets, etc.

Over the past 20 years there continues to be many outbreaks large and small of disease occurring through these "gaps" in pasteurized milk ordinances in the U.S. Milk being such an excellent media for pathogen growth, the list of organisms associated with unpasteurized milk is long. The organisms either originate in the milk from mastitis of the udder or secretion into the milk, or from contamination from dirt, skin and feces during milking and handling.

In cows the most common pathogen transmitted are various *Salmonella* species followed closely by *Campylobacter jejuni* and toxogenic *E. coli* including *E. Coli* 0157:H7. Other fairly common pathogens include *Yersinia enterocolitica*, *Brucellosis abortus*, *Mycobacterium tuberculosis* and *bovis*, *Staphylococcus aureus*, and *Streptococcus* species. The common *Salmonella* species have been Newport, Dublin, Infantis, Enteritidis, Typhimurium and more recently *S. typhimurium* DT104 (a serious multi resistant species) Many of these organisms are especially dangerous and potentially fatal to infants, the elderly, pregnant women and those who are immunocompromised.

In goats, outbreaks have been traced to most all of the above, especially *Salmonella* sp., *Listeria* and *Campylobacter* but also to *Brucellosis mellitensis*, various *Mycobacterium* sp., *Coxiella burnetii* (Q Fever), *Corynebacterium ovis*, *Toxoplasma gondii*. Although federal programs have largely eradicated brucellosis and tuberculosis in cattle in U.S., there are no similar control programs for goats.

There have been nationwide alerts concerning clusters of *Brucellosis* and *Tuberculosis* cases in the U.S. traced to goat cheese made from unpasteurized milk. Much of the cheese was brought in from Mexico, but some was from U.S. sources. With the large increase of ethnic populations in TN (and in many states) from the southern hemisphere as well as the Middle East, we have been quite concerned about the increase in disease potential from native foods brought in to meet the demand and bypassing our regulatory protections for the public.

There is also a huge increase in recent years in goat herds in TN both as an alternate income source for prior tobacco farmers and part-time farmers to meet demands for both goat milk and goat meat. As a result, we have seen an increase in *Coxiella* or Q fever cases with some progressing to heart valve disease. With there already being pressures for "natural products" and alternative food sources, there is a fear that any loosening of proven public health controls will greatly increase zoonotic disease problems.

Project Description, Objectives, and methodology

The purpose of this project was to provide an overview of the response of the Tennessee Department of Health to the bill submitted to the House Representatives to amend the current statute for Dairy Law (TCA, Title 53, Chapter 3) relative to raw milk production

and sale. A description of the department analysis of the raw milk bill was posted. This project also evaluated the different categories of how raw milk is being sold or marketed by different states and dictated the outbreaks or clusters linked to consumption of raw milk using the Raw Milk Survey that was coordinated by the Dairy Division of the National Association of State Department of Agriculture, November 2004, and the Mortality and Morbidity Weekly Reports (MMWR) of CDC. Similar efforts in other states to identify additional material that may support future Health Department responses to this important issue are planned to be surveyed in the future.

Results

The SB3260 (Burchett) / HB3515 (Casada) that have been submitted to Tennessee General Assembly in late 2006 are identical to bills from previous sessions like HB1623, SB1984. Yet the concept of allowing raw milk sales seems to keep rearing its head in new geographical areas on a consistent basis. Such bills authorize producers of unpasteurized dairy products to sell under certain circumstances as follow:

- Producers wishing to sell unpasteurized dairy products for the retail market must comply with all Grade A standard as set forth in present law, except for the pasteurization and bottling and capping provisions. Producers wishing to sell such products for non-retail sales, off the farm or delivered directly to the consumer, would be exempt from the present law dairy provisions and subject to the provisions of this bill;
- All producers must complete a state-approved raw milk safety course;
- Producers who maintain any ruminant mammal, including cattle, goats, sheep, or buffalo, and who sell directly to consumers would be exempt from the present law provisions governing food, eggs, and dairy products. No permits or fees would be required to become a non-retail producer;
- Non-retail producers must have their fresh raw unpasteurized milk samples tested once a month by a state inspector for bacteria analysis and the presence of human pathogens. If there is a positive result after a retest, then the producer of unpasteurized dairy products would immediately cease sale and distribution of such products until the producer and the state receive three consecutive negative results from the lab;
- All animals must be tested annually for tuberculosis and brucellosis;
- Producers must maintain records of customer complaints;
- Raw milk must be drawn and collected in a sanitary manner. The raw milk must be chilled to below 40 degrees Fahrenheit within one hour of the time it is drawn, and a standard dairy milk filter or equivalent must be used to filter raw milk. Unpasteurized dairy products must be continuously chilled at or below 40 degrees Fahrenheit until final delivery to a consumer. All milking and milk handling areas would be inspected by the department of agriculture on a semi-annual basis;
- All retail and non-retail unpasteurized dairy products must be labeled with: a standard label warning with the language "Raw Product-Government Safety Warning: Raw

products may contain disease-causing microorganisms. Persons at highest risk from these organisms include newborns and infants, the elderly, pregnant women, persons taking antibiotics and antacids, and those having chronic illness or other conditions that weaken their immunity"; the date of production; the producer's name and contact information; a label indicating the contents of the product; and the weight or amount of the product contents;

- Raw milk must be bottled or packaged on the farm where produced;
- Non-retail unpasteurized dairy products may be sold or offered for public consumption on the farm premises, or delivered to the consumer, being maintained either frozen or at, or below, the required 40 degrees Fahrenheit holding temperature, to farmers' markets or other such places as the producers and consumers may mutually agree or arrange to utilize;
- Any producer of unpasteurized dairy products may sell or offer for public consumption unlimited amounts of unpasteurized dairy products if the requirements of this bill are satisfied by each item for sale. Any producer of unpasteurized dairy products may advertise or promote the sale of unpasteurized dairy products without limitation if the provisions of Tennessee Food, Drug, and Cosmetic Act and this bill are satisfied by each product advertised;
- If a confirmed illness or pathogen is traced to a particular producer of unpasteurized dairy products, then that producer must correct the problem and then that producer's operations, including the production, distribution and sale of unpasteurized dairy products, may continue;
- A producer would be responsible for the health and safety of the products offered for sale or distribution; but if the unpasteurized dairy product is labeled as required in this bill, then the consumer would be considered to have been notified of the risks associated with the consumption of unpasteurized dairy products; and
- A violation of this bill, including rules adopted in accordance with this bill, would be a Class C misdemeanor. It would be the duty of the district attorney general of the judicial district in which the commissioner reports a violation of this bill to investigate and prosecute charges when appropriate.

Tennessee was the 8th state in the nation to be selected by CDC in 1996 (and currently one of only 10 states) to be a center for in-depth studies of food borne diseases, their causes and prevention. On the light of this, the Communicable and Environmental Disease Services Section of Tennessee Department of Health has prepared analysis of the raw milk bill opposing its passage. The department legislative coordinator had set a session on January 2007 to introduce the department analysis for the bill. Here is a description of the impact and effect of this bill:

(a) Changes to existing Law:

This bill amends Tennessee Code Annotated, Title 53, Chapter 3, relative to the production and sale of unpasteurized dairy products. The bill's purpose is to allow

unpasteurized milk to be sold in Tennessee at retail markets or by delivery to consumers or at farms (non-retail markets). It would eliminate requirements in the existing Tennessee dairy code designed to protect the public's health through elimination of foodborne diseases associated with raw milk. The bill dictates how the Department of Health may respond when outbreaks that are caused by consuming raw milk or milk products occur in Tennessee.

(b) Amendment of existing programs, policies, etc.

This bill would allow a product that has been repeatedly shown to pose health hazards to consumers to be sold in Tennessee. There are numerous infectious disease outbreaks described in the literature that were caused by drinking unpasteurized milk or eating unpasteurized milk products. The U.S. Centers for Disease Control and Prevention (CDC), in a letter dated May 6, 2005, describe significant illness and death that have occurred due to consumption of raw milk and milk products. The CDC letter states that raw milk and milk products represent a significant and ongoing public health concern. The monitoring of milk quality proposed in this bill is not adequate to insure that harmful bacteria are absent from raw milk and thus protect the public. The bill violates other statutes by prohibiting the Department of Health from discussing any aspects of a raw milk-associated outbreak with anyone outside the Department or the media until the findings are confirmed by two independent labs. The existing Rules of the Tennessee Department of Health, Health Services Administration, Communicable and Environmental Disease Services (1200-14-1-.15 GENERAL MEASURES FOR THE EFFECTIVE CONTROL OF DISEASE OUTBREAKS) state that it is the duty of Health Department Officials to confer with persons outside of the Health Department, collect specimens, obtain all names and information necessary to identify and contact persons at risk, conduct a complete and thorough investigation, and establish appropriate control measures including closure of implicated establishments. Passage of this bill would prevent the Tennessee Department of Health from carrying out these duties in the investigation of outbreaks that occur following consumption of raw milk or milk products. Additionally, this would prohibit the Department from letting persons at risk from contaminated raw milk and milk products know that they are at risk until it is too late to prevent further illness. This is a very dangerous bill and must be opposed by the Department. The Department of Agriculture will also oppose it.

Next steps:

The TDH succeeded not to let this bill passed last session and fortunately the issue was not raised in 2007. However, the department is still vigilant and standing fast to fight against such bills that usually initiated by special interest groups from time to time. The department has always a full insight of the following activities:

1. An overview of the different categories of how raw milk is being sold or marketed by different states (see Appendix 1: The 2004 NASDA Survey)
2. Monitoring the outbreaks or clusters linked to consumption of raw milk (See Appendix 2: the MMWR)

3. listing and survey similar efforts in other states to identify additional material that may support future Health Department responses to this important issue. This will be achieved by continuous communication with state veterinarians, epidemiologists, and other partners at CDC, FDA and USDA.

TDH is also aware that more effective consumer education is needed to further reduce raw milk-associated diseases. The planning will educate people of high risk like residents of rural areas, ethnic groups, and farmers. The education will focus on the following issues:

1. Pasteurization of milk is one of the major public health milestones in the prevention of disease decades ago, especially concerning brucellosis and tuberculosis.
2. Back in those days, our medical diagnostic capabilities were not very sophisticated and we now know that many other pathogens were making people ill through raw milk as well; but the identity of the cause of illness either was not known or was attributed to something familiar at the time.
3. There have been many improvements in pasteurization techniques through the years regarding time and temperature controls so as to minimize any effect on the nutritional aspects of what is still one of nature's most perfect foods.
4. Pasteurization of milk and milk products is now standard in all developed nations in the world and in fact is a good measurement of the medical and public health advancement of a country.

Conclusion

The bills asking for creating gaps for raw milk sale in Tennessee are in opposition to the existing rules and regulations and would allow for severe health hazards to the public. Additionally, the proposed bill is in conflict with Tennessee Department of Health rules promulgated from the Tennessee Code Annotated which outline the duties of public health officials to investigate disease outbreaks.

Leadership Development Opportunities

I came from more of a medical background but I always strive to public health issues that I have been working in for 10 years. As an epidemiologist and surveillance officer in the FoodNet program of the Tennessee Department of Health, I found this project gave me the chance to know about the legislations concerned with health issues. I have not involved in such area before and never thought I need to know it. Now I knew how the bill takes its way to become a law and how important for public health officials to be able to testify for or against a bill that could affect the human health. There was no session in the state house to discuss the raw milk bill this year, however I had the chance to attend

two sessions discussing other health related bills. I learned how comprehensive and proficient should be a public health personnel to express to the politics the scientific evidence for what he or she votes for. It is a challenge that might create more capabilities and skills for leadership.

This project also allowed me to work with two of the top leaders in public health in CDC and Tennessee Department of Health who are experts in the issues related to the raw milk legislation. As I always believe, mentoring is essential to acquire experiences and take guidance in the path of leadership. I had more than one occasion to discuss the project with them and prepare myself for future participation in enforcement the department response to this bill. I could explore the idea of the project in a poster displayed in our Statewide Emerging Infection program Scientific Annual Day, Nashville, Tennessee last month and got a lot of questions from the attendees.

Although this project did have more research, communication, and exchange of ideas with partners from other states, FDA and USDA, and less practical actions, yet it confirms that preparedness is every day task of the public health to confront the threats that trigger the nation health and safety on the local and national levels.

Appendix 1

**DAIRY DIVISION of NATIONAL ASSOCIATION of STATE DEPARTMENTS of AGRICULTURE
RAW MILK SURVEY
NOVEMBER, 2004**

- 1) Does your State permit the sale of bottled or packaged raw milk and/or raw cream at the farm where produced?
- 2) Does your State permit the sale of bottled or packaged raw milk and/or raw cream at farm markets or other retail outlets?
- 3) Does your State allow consumers to participate in a "Cow Share" program?
- 4) Has there ever been a confirmed foodborne outbreak that was traceable to the consumption of raw milk or raw cream?
If so, what year(s)?
- 5) Is there any pending legislation to end the sale of bottled or packaged raw milk and/or raw cream in your State?
- 6) Is there any pending legislation to legalize the sale of bottled or packaged raw milk and/or raw cream in your State?

Question 1		Question 2		Question 3		Question 4		Question 5			Question 6							
Y	N	Y	N	Y	N	Y	N	Y	N	NA	Y	N	NA					
1	AZ	AL	1	AZ	AL	1	AK	AL	1	AZ	AL	1	NE	AL	AZ	1		
2	CA	AK	2	CA	AK	2	CA	AZ	2	CO	AK	2	CA	AK	2	AK	CA	2
3	CT	AR	3	CT	AR	3	CO	AR	3	CT	AR	3	CO	AR	3	AR	CT	3
4	DE	CO	4	DE	CO	4	ID	CT	4	GA	CA	4	CT	FL	4	CO	DE	4
5	ID	FL	5	ID	FL	5	IL	DE	5	IA	DE	5	DE	GA	5	FL	ID	5
6	KS	GA	6	ME	GA	6	IN	FL	6	IL	FL	6	ID	HI	6	GA	KS	6
7	MA	HI	7	NH	HI	7	NM	GA	7	IN	HI	7	KS	IL	7	HI	MA	7
8	ME	IL	8	NM	IA	8	NY	HI	8	KS	ID	8	MA	IN	8	IA	ME	8
9	MN	IN	9	PA	IL	9	SC	IA	9	KY	LA	9	ME	IA	9	IL	MN	9
10	MO	IA	10	SC	IN	10	VA	IN	10	KS	ME	10	MN	KY	10	IN	MO	10
11	NE	KY	11	WA	KS	11		KY	11	MI	MD	11	MO	LA	11	KY	NH	11
12	NH	LA	12		KY	12		LA	12	MN	MS	12	NE	MD	12	LA	NM	12
13	NM	MD	13		LA	13		MA	13	MO	NH	13	NH	MI	13	MD	NY	13
14	NY	MI	14		MA	14		ME	14	MT	NJ	14	NM	MS	14	MI	OK	14
15	OK	MS	15		MD	15		MD	15	NE	OK	15	NY	MT	15	MS	PA	15
16	PA	MT	16		MI	16		MI	16	NV	PR	16	OK	NV	16	MT	SC	16
17	SC	NV	17		MN	17		MN	17	NM	RI	17	PA	NJ	17	NV	SD	17
18	SD	NJ	18		MS	18		MS	18	NY	SC	18	SC	NC	18	NJ	TX	18
19	TX	NC	19		MO	19		MO	19	NC	TN	19	SD	ND	19	NC	VT	19
20	UT	ND	20		MT	20		MT	20	ND	TX	20	TX	OH	20	ND	WA	20
21	VT	OH	21		NC	21		NE	21	OH	VA	21	UT	OR	21	OH		21
22	WA	OR	22		ND	22		NV	22	OR	WV	22	VT	PR	22	OR		22
23		PR	23		NE	23		NH	23	PA		23	WA	RI	23	PR		23
24		RI	24		NJ	24		NJ	24	SD		24		TN	24	RI		24
25		TN	25		NV	25		NC	25	UT		25		VA	25	TN		25
26		VA	26		NY	26		ND	26	VT		26		WV	26	UT		26
27		WI	27		OH	27		OH	27	WA		27		WI	27	VA		27
28		WV	28		OK	28		OK	28	WI		28		WV	28	WV		28
29		WY	29		OR	29		OR	29	WY		29		WI	29	WI		29
30			30		PR	30		PA	30			30		WY	30	WY		30
31			31		RI	31		PR	31			31			31			31
32			32		SD	32		RI	32			32			32			32
33			33		TN	33		SD	33			33			33			33
34			34		TX	34		TN	34			34			34			34
35			35		UT	35		TX	35			35			35			35
36			36		VA	36		UT	36			36			36			36
37			37		VT	37		VT	37			37			37			37
38			38		WI	38		WA	38			38			38			38
39			39		WV	39		WV	39			39			39			39
40			40		WY	40		WI	40			40			40			40
41			41			41		WY	41			41			41			41

Points of Interest - Sale of Raw Milk for human consumption

1) Twelve states permit the sale of raw milk at the farm, retail outlets and through cow-share agreements; six have recorded foodborne outbreaks traceable to raw milk consumption.

2) Ten states permit the sale of raw milk only at the farm; eight have recorded foodborne outbreaks traceable to raw milk consumption.

3) Five states permit cow-share agreements as the only legal means to obtain raw milk; three have recorded foodborne outbreaks traceable to raw milk consumption.

4) Twelve additional states that do not permit the sale of raw milk for human consumption by any means have recorded foodborne outbreaks traceable to raw milk.

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Appendix 2

Outbreaks of human illness associated with consuming raw milk and raw milk products in the U.S.

1. Multistate Outbreak of *Salmonella* Serotype Typhimurium Infections Associated with Drinking Unpasteurized Milk --- Illinois, Indiana, Ohio, and Tennessee, 2002—2003. MMWR, July 4, 2003 / 52(26);613-615, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5226a3.htm>.
2. Outbreak of Listeriosis Associated With Homemade Mexican-Style Cheese --- North Carolina, October 2000--January 2001. MMWR, July 06, 2001 / 50(26);560-2, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5026a3.htm>
3. Outbreak of *Escherichia coli* O157:H7 Infection Associated With Eating Fresh Cheese Curds --- Wisconsin, June 1998. MMWR, October 13, 2000 / 49(40);911-3, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4940a3.htm>
4. Mass Treatment of Humans Who Drank Unpasteurized Milk from Rabid Cows -- Massachusetts, 1996-1998. MMWR, March 26, 1999 / 48(11);228-229, <http://www.cdc.gov/mmwr/preview/mmwrhtml/00056759.htm>
5. The epidemiology of raw milk-associated foodborne disease outbreaks reported in the United States, 1973 through 1992, Headrick ML, Korangy S, Bean NH, et al. Am J Public Health. 1998; 88:1219-1221.
6. Two Outbreaks of Multidrug-Resistant *Salmonella* Serotype Typhimurium DT104 Infections Linked to Raw-Milk Cheese in Northern California. Cody, S. et al. JAMA 1999;281:1805-1810.
7. Investigation of Multidrug-Resistant *Salmonella* Serotype Typhimurium DT104 Infections Linked to Raw-Milk Cheese in Washington State. Villar, R. et al. JAMA, 1999;281:1811-1816.
8. Epidemiologic Notes and Reports Bovine Tuberculosis – Pennsylvania. MMWR, March 30, 1990 / 39(12);201-203, <http://www.cdc.gov/mmwr/preview/mmwrhtml/00001581.htm>
9. Epidemiologic Notes and Reports Update -- Listeriosis and Pasteurized Milk. MMWR, December 16, 1988 / 37(49);764-766, <http://www.cdc.gov/mmwr/preview/mmwrhtml/00001316.htm> .
10. Epidemiologic Notes and Reports *Campylobacter* Outbreak Associated with Raw Milk Provided on a Dairy Tour – California. MMWR, May 16, 1986 / 35(19);311-2, <http://www.cdc.gov/mmwr/preview/mmwrhtml/00000734.htm>
11. Unpasteurized milk. The hazards of a health fetish. Potter, ME, et al. JAMA, 1984 Oct 19;252(15):2048-52.
12. Epidemiologic Notes and Reports *Campylobacter* Outbreak Associated with Certified Raw Milk Products – California. MMWR, October 05, 1984 / 33(39);562, <http://www.cdc.gov/mmwr/preview/mmwrhtml/00000412.htm> .

13. Epidemiologic Notes and Reports Chronic Diarrhea Associated with Raw Milk Consumption – Minnesota. MMWR, September 21, 1984 / 33(37);521-2,527-8, <http://www.cdc.gov/mmwr/preview/mmwrhtml/00000406.htm>
14. Salmonellosis from Inadequately Pasteurized Milk – Kentucky,. MMWR, September 14, 1984 / 33(36);505-6, <http://www.cdc.gov/mmwr/preview/mmwrhtml/00000400.htm>
15. Salmonella dublin and Raw Milk Consumption – California. MMWR, April 13, 1984 / 33(14);196-8, <http://www.cdc.gov/mmwr/preview/mmwrhtml/00000318.htm>
16. Campylobacteriosis Associated with Raw Milk Consumption – Pennsylvania. MMWR, July 08, 1983 / 32(26);337-8,344, <http://www.cdc.gov/mmwr/preview/mmwrhtml/00000104.htm>