

Vermont Veterinary Medical Association
Raw Milk Task Force
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The Vermont Veterinary Medical Association (VVMA) is one of many health and safety related bodies that has issued a policy statement recommending the consumption and sale of only pasteurized milk. With legislative initiatives in Vermont continuing to try to expand the legal sale venues of unpasteurized raw milk, the VVMA feels all Vermonters should be fully informed in order to make the choices regarding raw milk that best suit them and all members of their families.

VVMA would like consumers to be fully cognizant of these important facts:

- The definition of raw milk: milk that has not been pasteurized. The fact that milk is nonpasteurized says nothing about the manner in which milk has been produced. The terms “raw milk” and “organic milk” cannot be used interchangeably as they mean two entirely different things.
- The definition of pasteurization: a process of heating milk (or other liquids) to a certain temperature for a set period of time which results in the killing of harmful microorganisms.
- Milk produced by cows, sheep, and goats is readily contaminated by bacteria. The source of the bacteria can be milking equipment, milk storage vessels, water, air, feed, bedding, soil, and manure, as well as the animals themselves, who may appear perfectly healthy.
- These contaminating bacteria fall into three groups: technologically relevant (helpful in cheese-making), spoilage (alter taste and texture of milk), and disease-causing.
- Disease-causing pathogens are significant and include Campylobacter, Salmonella, E.coli, and Listeria among others.
- Prior to the 1938 advent of nation-wide pasteurization of milk, milkborne outbreaks accounted for 25% of all foodborne outbreaks. As of 2011, with essentially nation-wide pasteurization, that rate had dropped to <1% of such outbreaks.
- As of 2013, 33 states allow some form of sale of raw milk: retail, on-farm, and/or cow-shares. While federal regulations prohibit the transportation of raw milk and raw milk products across state lines, such regulation (via the Pasteurized Milk Ordinance – the PMO) does not apply to within-state sales.
- With this increase in availability of raw milk to consumers could potentially come an increased risk, as is borne out by a 2012 CDC study. This study concluded that:
 - Nonpasteurized products caused a disproportionate number of outbreaks - 150 x greater/unit of product consumed
 - Nonpasteurized products caused a disproportionate number of outbreak-associated illnesses
 - Nonpasteurized products disproportionately affected persons < 20 years of age
 - States that restricted sales of nonpasteurized products had fewer outbreaks and illnesses
- Vermont has seen foodborne illness, with three outbreaks of Campylobacter recorded by the Dept. of Health between 2010 and 2013. 21 people were involved, with over half being children. Eight prior outbreaks of Campylobacter as well as one of E coli have been recorded between 1982 and 2008.
- With rabies on the rise in Vermont, the potential for rabies as a foodborne pathogen cannot be ignored. While transmission of rabies in milk has never been proven, such a scenario is impossible to disprove.
- If legal sales of raw milk are extended to include farmers’ markets and other drop-off points, the issues of proper transportation and storage become paramount. When the outside temperature is 83°, the temperature of a car with the windows rolled down 2 inches can climb to 109° in only 15 minutes (National Highway Transportation Safety Administration). Even cool days can be hazardous, as the NHTSA states that “outside

temperatures in the 60s can cause a car temperature to rise well above 110°F.” Generation time, or the time it takes for a bacterial population to double in any growth medium, is heavily influenced by temperature. Bacterial population doubling can occur as quickly as 16 minutes for E. coli at optimal temperatures and, while taking longer for Salmonella, can still occur in 50 minutes. For both these and many other food-borne pathogenic bacteria, the optimal temperatures occur between 41 and 113°F, ranges well within what raw milk might be exposed to. The temperatures cited above by the NHTSA are perfectly suited to stimulate bacterial bloom, indicating that critical storage times for unrefrigerated raw milk are very short indeed. A study in Italy which looked specifically at the relationship between consumption of raw milk and infection with Campylobacter or E. coli concluded that “The raw milk food chain should enforce transport and storage at temperatures of 0 to 4°C [32 to 39°F] to prevent microbial growth and reduce the pathogen levels. As clearly shown by our results, failure to maintain the cold chain carries significant implications for the risk of E. coli O157:H7 infection and HUS [hemolytic uremic syndrome]. When farmers did not maintain correct temperatures throughout the supply chain and when thermal abuse during home transportation and storage were reported, the expected cases of infection were higher.”

- Nutritional benefits of raw milk are not substantively different from those of pasteurized milk. Those nutrients (e.g. Vit B1 and Vit C) which are adversely affected by pasteurization are present in milk at nutritionally insignificant levels. Other nutrients, including protein, fat, minerals, and other vitamins, are essentially unchanged by pasteurization.
- Antimicrobial benefits ascribed to raw milk (e.g. enzymes, proteins, and commensal lactic acid bacteria) are largely limited by refrigeration temperatures and/or are inactivated by digestive processes including gastric pH and pepsin.
- Probiotic bacteria may be found in low levels in raw milk; however, their level is too low to have any physiological benefit for consumers.
- Milk allergy – while pasteurization can alter the allergenic proteins in milk, it has the capacity to render these proteins either more or less allergenic depending on the protein and the individual involved.
- Lactose intolerance – raw milk proponents have claimed that pasteurization destroys lactase, the enzyme which digests lactose. This enzyme, however, is not found in milk. While raw milk does contain lactic acid bacteria which have the potential to hydrolyze lactose, the activity of these bacteria is limited by refrigeration.
- It is recognized that pasteurization can alter the taste of milk, although the “cooked” taste diminishes with storage.

Taking into account all these facts, the VVMA reiterates that the potential for serious illness exists with the consumption of raw milk and associated products. Moreover, this probability exists at a considerably greater degree than for pasteurized dairy products, and, when such sickness strikes, it disproportionately affects young people who may be most susceptible. The VVMA’s policy statement notes: “Only pasteurized milk and pasteurized fresh milk products should be sold for human consumption. Putative benefits of raw milk consumption on human health are either unsupported by scientific evidence, or cannot be separated from the potential hazards associated with raw milk consumption. Therefore, consumption of raw milk cannot be recommended as a preventive or protective human health measure.”

FOR MORE INFORMATION

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