

CDR Raw Milk Fact Sheet



Overall summary/key points

- Consumption of raw fluid milk poses a food safety risk due to routine contamination of milk with pathogens that are commonplace in the farm environment. The consumers most at risk of illness are children, pregnant women and immunocompromised individuals.
- Outbreaks and recalls associated with raw fluid milk continue and have increased in prevalence with more states allowing raw fluid milk sales
- Improved training for raw milk producers does not eliminate risks from these products.
- Infrequent testing of raw milk is not an effective approach to identify sporadic contamination of milk, and there are many practical difficulties with testing for pathogens as a means to ensure safety of the product.
- Even if there are low initial levels of pathogens in raw milk, temperature abuse and an extended time from milking to human consumption can allow their numbers to

- Claimed benefits of raw milk consumption related to allergies and asthma are likely instead to be a correlation with traditional farming communities, which retain high levels of raw fluid milk consumption. As an example of a traditional farming group, Amish women and their young infants have high levels of contact with animals and barns but have very low levels of allergies/asthma.

Recalls and outbreaks

Consumption of raw fluid milk remains a controversial topic here in the US. As more states have legalized the sale of raw fluid milk, we have seen more outbreaks associated with this product. The CDR routinely tracks recalls and outbreaks associated with all dairy products [Dairy Recall Tracker](#). Listed below are those recent recalls/outbreaks from 2022 and 2023 related to consumption of raw milk. It is important to note that these raw milk recalls are mostly initiated when State regulatory groups, like a Department of Agriculture, conduct their infrequent testing of these milks and detect the presence of pathogens. It is unknown how many more recalls would have been initiated with more frequent, e.g., daily or weekly, testing of raw milk. As can be seen in this table, there can be significant lag (>7 days) between the routine testing done by the raw milk producers and the date at which pathogenic contamination was confirmed. A significant amount of contaminated product could have been drank by unsuspecting consumers before a problem was discovered. It is also important to note that recalls are reactive, the problem of pathogenic contamination has already occurred, products have been sold and the public has already consumed the contaminated milk. With milk being a fresh product, most products are consumed and not available for further testing once an outbreak occurs. A major pathogen of concern in the dairy industry is *Listeria monocytogenes*, which can grow at refrigeration temperatures. For immunocompromised individuals, as well as children and pregnant women, *Listeria monocytogenes* has a low infective dose and in sensitive individuals can cause sepsis and has high mortality rates. This organism can take up to 30 days to incubate in an individual. So, if an individual becomes ill, they likely won't report it unless they are very sick or need to be hospitalized, and they likely

common cause of the serious neurological disease, Guillain-Barré syndrome. *E.coli* 0157:H7 is another important pathogen, since it has a low infective dose, and produces a Shiga toxin. In sensitive individuals, such as children, *E.coli* 0157:H7 infections can cause potentially life-threatening complications, such as, hemolytic uremic syndrome (HUS). *E.coli*, *Listeria* and *Salmonella* all live in the intestines of cows and thus high levels of these pathogens are found throughout the farm environment from their feces. The CDC website has detailed surveys of raw milk outbreak surveys until 2018. Some of the more recent outbreaks are listed below. [CDC Outbreak Studies | 2022 and 2023](#)

Raw Milk Recalls and Outbreaks

The Raw Milk Institute is a nonprofit organization established in California that promotes approaches, testing, training and standards for what they call a system for low-risk raw milk production to be used for raw fluid milk products used for human consumption. Unfortunately, the significant difficulties in preventing pathogenic contamination of raw milk can be demonstrated in the many recalls and outbreaks experienced by the Organic Pastures Dairy Company (who recently changed their name to Raw Farm LLC). The long history of outbreaks and recalls by this single raw milk producer were recently featured by the Food Safety news website (see list below). The founder and CEO of Raw Farm LLC is also the CEO of the Raw Milk Institute. Unfortunately, this company had 11 recalls and outbreaks related to raw milk products since 2006 including 3 recalls and outbreaks in 2023 alone. In the latest outbreak 19 patients were sickened and 3 children were hospitalized. These ongoing outbreaks, even in companies using the Raw Milk Institute's guidance, reinforces to us that it is a misguided idea to replace a technology (pasteurization) that is 100% proven to destroy all pathogens with a collection of practices that do not eliminate the risk from pathogens. In the latest outbreak (October 2023), patients were aged as young as 1 year old. This is deeply concerning since infants are a high-risk population and very susceptible to illness from a pathogenic contamination. Consumption of raw fluid milk by infants should be avoided.

Raw Milk – A Sickening Elixir

- Pathogen testing can take several days for sampling and analysis, yet most raw milk may already be consumed since it is a short shelf-life product.
- Difficulties in having sufficient sampling since contamination of milk may be sporadic, and bacterial loads can vary from day to day (i.e., sampling and testing every day provides more confidence to a claim of safety).
- Bacteria/spores are often associated with the fat phase and are not evenly distributed in milk.
- It is possible that the number of organisms (pathogens) present is too low to be detected by the test method but the numbers may be sufficient to cause illness if the effective dose is low (which is the case for several key pathogens).
- There might have been very low initial numbers of a pathogen, which were below the limits of the test method at the time of sampling (especially if a small volume of milk was used), but the pathogen might grow if milk was stored improperly.
- It is impossible to test for every single different type of human pathogen and emerging or unusual pathogens are a significant concern.

Testing milks for a couple of pathogens for a few weeks prior to onboarding a raw milk producer only tells us whether there were pathogens in those couple of samples (which were only a fraction tested of the total milk produced/consumed in those couple of weeks). It is a flawed approach; it does not reflect the reality that most raw milk contamination is a sporadic issue (pathogens might not be present in every sample, or every day). It is likely that most contamination occurs due to improper cleaning and sanitation of the teats prior to milking. Pathogens can also cause infections in the udder of the cow (so cleaning would not remove this issue), which may be undetected by the farmer unless the infection becomes systemic. Thus, the farmer may milk a cow with sub-clinical mastitis and contaminate their bulk milk supply. Using occasional coliforms testing as an indicator of pathogens being present in milk is also not a robust approach, important pathogens like *Listeria* are not coliforms and can only be detected with very specific growth media/testing. Testing is in its nature a reactive approach, unless every batch is tested for all key pathogens and no milk is consumed until all



burnetti, which are not usually tested for in raw milk on a routine basis. **Organic Pastures Dairy LLC/ Raw Farm LLC Recalls and outbreaks 2006 to 2023**

Claims of benefits with raw milk consumption

CDR Director Professor John Lucey published a **peer-reviewed article and examined the claims about benefits for consuming raw milk.**

His review debunked many popular claims about raw milk including:

Can raw milk be used for cheese?

The FDA allows raw milk to be used for cheesemaking but that depends on the cheese variety and would need to be indicated in the standard of identity of that cheese type. An allowance requires the cheese be aged for 60 days prior to sale/consumption. Generally the cheeses that can be made from raw milk have low pH values, high levels of lactic acid, lower moisture levels, and high numbers of starter cultures. Higher moisture, softer, and higher pH cheese types must be made from pasteurized milk, due to the increased risk of pathogen growth during aging. Post-pasteurization contamination is also a concern in these riskier cheeses, so sanitation, use of low aging/storage temperatures and overall GMP procedures are critical safety procedures.



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