

Outbreaks, Illnesses and Recalls Linked to Raw (Unpasteurized) and Pasteurized Dairy Products, United States*
January 1, 2010 – July 10, 2011

Outbreaks

- 18 raw dairy outbreaks with 188 illnesses, 24 hospitalizations, and no deaths (15 fluid raw milk, 2 aged raw milk cheese)
- 1 pasteurized dairy outbreak with 23 illnesses, 2 hospitalizations, and no deaths
- 1 queso fresco Mexican-style cheese outbreak with 5 illnesses and hospitalizations, no deaths
- 3 sporadic illnesses and hospitalizations from illegal Mexican-style cheese, no deaths

Recalls (no illnesses reported)

- 11 raw dairy (5 fluid raw milk, 6 aged raw milk cheese)
- 6 queso fresco Mexican-style cheese
- 1 chocolate milk due to inadequate pasteurization
- 1 imported Italian cheese made from pasteurized milk

Table

| Year | Month | Location | Pathogen | Number ill | Vehicle* | Type/size of dairy** | Sales (legal/illegal) | Ref |
|-------------|--------------|-----------------|--------------------------------------|-------------------|----------------------------|---|------------------------------|------------|
| 2010 | Jan | NY | <i>Campylobacter</i> | 5 | Outbreak from raw cow milk | Willow Marsh - small, local, pasture-based raw milk dairy | Farm Store (legal) | 1 |
| 2010 | Feb | WA | Shiga-toxin producing <i>E. coli</i> | 6 | Outbreak from raw cow milk | Jackie's Jerseys - small, local grassfed raw milk dairy | Farm and Retail (legal) | 2, 3 |

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| 2010 | Feb | WA | <i>Listeria monocytogenes</i> | 5 | Outbreak from pasteurized Queso fresco cheese | Queseria Bendita – unspecified milk source | Retail (legal) | 4, 5 |
| 2010 | Feb - Mar | WA | <i>Listeria monocytogenes</i> | 0 | Recall of 60-day aged raw milk cheeses | Estrella Family Creamery – small, grassfed cow and goat raw milk dairy | Farm and Retail (legal) | 6, 7 |
| 2010 | Mar | MI/IL/IN | <i>Campylobacter</i> Shiga toxin-producing <i>E. coli</i> also found in raw milk cheeses during the investigation | 12 | Outbreak from raw cow milk | Forest Grove Dairy – small (~75 jerseys), grassfed raw milk dairy | Cow-share (legal, unregulated) and multi-state Buyer's Club (illegal interstate shipment) | 8 |
| 2010 | Mar | PA | <i>Campylobacter</i> 1 adult hospitalized with GBS paralysis | 10 | Outbreak from raw cow milk | Pasture Maid – small, local raw milk dairy | Farm and Retail (legal) | 9 |
| 2010 | Apr | UT | <i>Salmonella</i> Newport 1 hospitalization | 10 | Outbreak from raw cow milk | Redmond Heritage Farms – small, pasture fed (no grain) raw dairy | Farm and Retail (legal) | 10, 11 |
| 2010 | Apr | UT | <i>Campylobacter</i> | 15 | Outbreak from raw cow milk | Ropelato Dairy – medium sized (~160 cow) raw milk dairy | Retail (legal) | 10 |

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| 2010 | Apr | WA | <i>Listeria monocytogenes</i> | 0 | Recall of Pasteurized Queso fresco cheese | Del Bueno – unspecified milk source | Retail (legal) | 12 |
| 2010 | May | WA | <i>E. coli</i> O157:H7 | 2 | Outbreak from raw cow milk | Jackie's Jerseys - small, local grassfed raw milk dairy | Farm and Retail (legal) | 3 |
| 2010 | May | MN | <i>E. coli</i> O157:H7 1 child hospitalized with HUS Outbreak strain found in farm samples Pathogenic <i>E. coli</i> isolated from raw milk cheese | 8 | Outbreak from raw cow milk | Hartmann Dairy Farm – no pesticides, herbicides, antibiotics or genetically modified grains fed to raw milk dairy cows | Farm (legal, unregulated) and Buyer's Club (illegal off-farm sales) | 13 |
| 2010 | May | NV | <i>Campylobacter</i> 1 child hospitalized | 1 | Illness from Mexican-style raw milk cheese | Unknown | Door-to-door sale (illegal) | 14 |
| 2010 | Jun | PA | <i>Listeria monocytogenes</i> | 0 | Recall of raw cow milk | Alvin J. Stoltzfus Raw Dairy Farm, small, local raw milk dairy | Farm and Retail (legal) | 15 |
| 2010 | Jun | DE | <i>Brucella</i> and <i>Listeria monocytogenes</i> 2 adults hospitalized | 2 | Illnesses from raw dairy products | Unknown | Unknown (illegal) | 16 |

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| 2010 | Jun-Jul | CO | <i>Campylobacter</i> and <i>E. coli</i> O157:H7 2 children hospitalized with HUS Outbreak strain found on the dairy | 30 | Outbreak from raw goat milk | Billy Goat Dairy – small (~54 goats) raw milk dairy | Farm, Goat-share (legal) | 17 |
| 2010 | Jul | NY | <i>Listeria monocytogenes</i> and <i>Campylobacter</i> | 0 | Recall of raw cow milk | Breese Hollow Dairy – small, local grassfed jersey cow raw dairy | Farm and retail (legal) | 18 |
| 2010 | Jul | PA | <i>Staphylococcus aureus</i> | 0 | Recall of 60-day aged raw cow milk hard cheddar cheese | Milky Way Dairy – small (~30 cows) Holstein-Friesian raw milk dairy | Farm Store and Retail (legal) | 19 |
| 2010 | Jul | NY | <i>Listeria monocytogenes</i> | 0 | Recall of pasteurized Queso fresco cheese | Azteca Linda Corp. – unspecified milk source | Retail (legal) | 20 |
| 2010 | Aug | PA | <i>Salmonella enterica</i> | 0 | Recall of raw cow milk | Jersey Hollow Farm – small, local raw milk dairy | Retail (legal) | 21 |

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| 2010 | Aug | CA/OR/WA | <i>Salmonella enterica</i> Serotype Braenderup 2 hospitalizations | 23 | Outbreak from pasteurized cow milk and cream Pasteurized juices from same farm also recalled | Sources and pasteurizes milk from certified rBST-free independent dairy farms in southern Oregon | Retail (legal) | 22 |
| 2010 | Aug | RI | <i>Listeria monocytogenes</i> | 0 | Recall of Queso fresco cheese (pasteurized) | Azteca Linda Corp. – unspecified milk source | Retail (legal) | 23 |
| 2010 | Aug | MO | <i>Listeria monocytogenes and Staphylococcus aureus</i> | 0 | Recall of 60- day aged raw cow milk Cheese | Morningland Dairy – medium sized, pasture- based raw milk cheese dairy | Retail (legal) | 24, 25 |
| 2010 | Sep- Oct | WA | <i>Listeria monocytogenes</i> | 0 | Recall of 60- day aged raw cow milk cheeses | Estrella Family Creamery – small, grassfed cow and goat raw milk dairy | Farm and Retail (legal) | 6, 7, 26, 27 |
| 2010 | Oct | MN | <i>Campylobacter</i> and <i>Cryptosporidium parvum</i> | 7 | Outbreak from raw dairy products | Hartmann Dairy Farm – no pesticides, herbicides, antibiotics or genetically modified grains fed to raw milk dairy cows | Farm (legal) and Buyer's Club (illegal off-farm sales) | 13, 28 |

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| 2010 | Nov | AZ, CA, CO, NM, NV | <p><i>E. coli</i> O157:H7</p> <p>15 hospitalizations 1 child with HUS</p> <p>Outbreak strain found in cheese</p> <p>Linked to Costco “Cheese Road Show;” recall expanded to all company cheeses on 11/17/10; no <i>Listeria</i> illnesses reported; <i>Listeria monocytogenes</i> also found in cheese</p> | 38 | Outbreak from 60-day aged cheese raw gouda cheese; other cheeses | Bravo Farms Cheese Factory – medium-sized, hormone and antibiotic free dairy | Retail (legal) | 29, 30 |
| 2010 | Nov | CO | <p><i>E. coli</i> O157:H7</p> | 0 | Recall of imported pasteurized Gorgonzola cheese | Imported from Italy | Retail/Imported (legal) | 31 |
| 2010 | Nov | WA | <p><i>Listeria monocytogenes</i></p> | 0 | Recall of pasteurized Queso and ricotta Mexican-style cheeses | Del Bueno – unspecified milk source | Retail (legal) | 32 |

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| 2010 | Nov | TX | <i>Salmonella</i> 1 adult hospitalization (septicemia) Outbreak strain found in milk | 4 | Outbreak from raw cow milk | Lavon Farms – medium sized (~200 cows) Guernsey and Jersey raw milk dairy | Farm Store (legal) | 33 |
| 2010 | Dec | MN/OR/VT/WA | <i>E. coli</i> O157:H7 1 hospitalization Outbreak strain found in cheeses | 8 | Outbreak from sheep, goat, and cow 60-day aged raw milk cheeses | Sally Jackson Cheeses – small, raw dairy with cows, sheep and goats | Retail (legal) | 34 |
| 2011 | Jan | CA | <i>Listeria monocytogenes</i> <i>Staphylococcus aureus</i> | 0 | Recall of pasteurized Oaxaca string Cheese La Original | Surtex Foods – unspecified milk source | Retail (legal) | 35 |
| 2011 | Feb | WA | Shiga toxin-producing <i>E. coli</i> | 0 | Recall of raw cow milk | The Country Market – small size, pastured (summer) and fed hay (winter) raw milk dairy | Retail (legal) | 36 |

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| 2011 | Mar | TX | None | 0 | Recall of whole chocolate milk due to inadequate pasteurization (positive alkaline phosphatase test) | Oak Farms Dairy – processor that sources from rbST hormone free dairies | Retail (legal) | 37 |
| 2011 | Apr | MA | High coliform counts (15 times allowable level) | 0 | Cease and desist order of raw cow milk | Eastleigh Farm – medium sized (~200 cows), mostly grassfed and pastured raw milk dairy | Farm Store (legal) | 38 |
| 2011 | | NY | <i>Staphylococcus aureus</i> | 0 | Recall of pasteurized queso fresco cheese | Quesos CentroAmericano Corp. | Retail (legal) | 39 |
| 2011 | Jun | WI | <i>Campylobacter jejuni</i> | 18 | Outbreak from raw cow milk | Unnamed Racine County farm – 250 cows, sells to processor | Parent brought bulk tank raw milk to school event | 40 |
| 2011 | Jun | MI | <i>Coxiella burnetii</i> (Q fever) One patient hospitalized with meningitis | 3 | Outbreak from raw cow milk | Unnamed Livingstone County Farm | Herdshare (legal, unregulated) | 41 |

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| 2011 | May-Jun | AK | <i>Campylobacter jejuni</i> | 4 | Outbreak from raw cow milk; <i>Listeria monocytogenes</i> isolated from milk | Byers Farm - ~150 cows in Matanuska-Susitna (Mat-Su) Valley | Herdshare (legal, unregulated) | 42, 43 |
| 2011 | Jul | NC | <i>Campylobacter</i> | 8 | | Tucker Adkins in South Carolina implicated as the source | Retail sales legal in SC | 44 |

GBS = guillain-barre syndrome; HUS = hemolytic uremic syndrome

*Preliminary data; **Descriptions based on farm websites and/or state outbreak reports.

REFERENCES

1. New York State press release: http://www.health.state.ny.us/press/releases/2010/2010-01-29_campylobacter_contamination_in_raw_milk.htm
2. Washington State press release: http://www.doh.wa.gov/Publicat/2010_news/10-087.htm
3. Washington State food recalls: <http://www.doh.wa.gov/ehp/food/recall.htm>
4. Food and Drug Administration press release: <http://www.fda.gov/safety/recalls/ucm201350.htm>
5. Food Poison Journal: <http://www.listeriablog.com/2010/02/articles/listeria-recalls-1/mexicanstyle-cheese-quesco-fresco-by-queseria-bendita-linked-to-listeria-illnesses-in-oregon-and-washington/>
6. Food and Drug Administration press release: <http://www.fda.gov/safety/recalls/ucm200794.htm>
7. Food and Drug Administration press release: <http://www.fda.gov/safety/recalls/ucm203371.htm>
8. Food and Drug Administration press release: <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm206311.htm>
9. Pennsylvania State press release: <http://www.prnewswire.com/news-releases/pennsylvania-agriculture-department-suspends-raw-milk-sales-permit-of-pasture-maid-creamery-in-lawrence-county-90216057.html>
10. Utah State press release: <http://health.utah.gov/pio/nr/2010/051610-SalmonellaRawMilk-NR.pdf>
11. Centers for Disease Control and Prevention Report: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5926a6.htm>
12. Food and Drug Administration press release: <http://www.fda.gov/Safety/Recalls/ucm207627.htm>
13. Minnesota State report: <http://www.health.state.mn.us/foodsafety/alert/ecoli0610.html>
14. Washoe County, Nevada press release: <http://www.co.washoe.nv.us/health/pr/pr.html~year=2010&month=5&article=5702>

15. Pennsylvania State press release: <http://www.prnewswire.com/news-releases/pennsylvania-agriculture-department-warns-consumers-to-discard-raw-milk-from-lancaster-county-farm-96479979.html>
16. Delaware State press release: http://www.dhss.delaware.gov/dhss/pressreleases/2010/brucellosis_and_listeria_cases-0.html
17. Boulder County, Colorado Epidemiology newsletter: <http://www.bouldercounty.org/find/library/help/epiconsep10.pdf>
18. New York State press release: <http://www.agmkt.state.ny.us/AD/alert.asp?ReleaseID=911>
19. Pennsylvania State press release: <http://www.prnewswire.com/news-releases/pennsylvania-department-of-agriculture-warns-consumers-about-eating-aged-hard-cheddar-made-with-raw-milk-from-milky-way-farm-in-bradford-county-97957084.html>
20. Food and Drug Administration press release: <http://www.fda.gov/Safety/Recalls/ucm217902.htm>
21. Pennsylvania State press release: <http://www.prnewswire.com/news-releases/pennsylvania-agriculture-department-warns-consumers-to-discard-raw-milk-from-jersey-hollow-farm-in-berks-county-100138509.html>
22. Oregon Health Authority press release: <http://www.oregon.gov/DHS/news/2010news/2010-0818a.pdf>
23. Rhode Island Department of Health press release: <http://www.ri.gov/press/view/12040>
24. California Department of Agriculture press release: http://www.cdffa.ca.gov/egov/Press_Releases/Press_Release.asp?PRnum=10-046
25. Missouri Attorney General's press release: http://ago.mo.gov/newsreleases/2010/AG_Koster_Seeks_Injunction_Against_Howell_County_Dairy/
26. Food and Drug Administration press release: <http://www.fda.gov/Safety/Recalls/ucm200794.htm>
27. United States Attorney's Office press release: <http://www.justice.gov/usao/waw/press/2010/oct/estrella.html>
28. Minnesota Department of health press release: <http://www.health.state.mn.us/news/pressrel/2010/milk102810.html>
29. Centers for Disease Control and Prevention update: <http://www.cdc.gov/ecoli/2010/cheese0157/>
30. Food and Drug Administration press release: <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm232748.htm>
31. Food and Drug Administration press release: <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm233539.htm>
32. Food and Drug Administration press release: <http://www.fda.gov/Safety/Recalls/ucm234212.htm>
33. Dallas County DHHS press release: <http://www.dallascounty.org/departments/hhs/press/documents/041911RawMilk.pdf>
34. Food and Drug Administration press release: <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm237381.htm>
35. Food and Drug Administration press release: <http://www.fda.gov/Safety/Recalls/ucm239718.htm>
36. Article on state recall: <http://www.foodsafetynews.com/2011/02/e-coli-prompts-recall-of-raw-milk-in-washington/>
37. Food and Drug Administration press release: <http://www.fda.gov/Safety/Recalls/ucm246920.htm>
38. Article on state cease and desist order: http://www.tauntongazette.com/state_news/x816851058/State-orders-halt-to-Eastleigh-Farms-raw-milk-sales?photo=0

39. Food and Drug Administration press release: <http://www.fda.gov/Safety/Recalls/ucm259411.htm>
40. Wisconsin DHS press release: <http://www.realrawmilkfacts.com/wp-content/uploads/Campylobactor-FINAL-11.pdf>
41. Michigan DOH press release: http://www.ewashtenaw.org/government/departments/public_health/news/2011-news-stories/state-and-local-health-departments-investigate-q-fever-cases
42. State of Alaska press release: http://www.realrawmilkfacts.com/wp-content/uploads/Alaska-raw_milk_PR_06272011.pdf
43. State of Alaska final report: <http://www.realrawmilkfacts.com/wp-content/uploads/Alaska-final-report-campy.pdf>
44. Food and Drug Administration press release: <http://www.prnewswire.com/news-releases/foodborne-outbreak-associated-with-raw-milk-from-tucker-adkins-dairy-of-york-sc-125693908.html>