10-10-2011

Proposal P1007 –Primary Production & Processing Requirements for Raw Milk Products

To whom it may concern,

I am writing to express my reasons for wanting the legalization of raw milk Australia wide.

The health benefits that I have experienced from drinking raw milk and eating raw milk cheeses have been outstanding to say the least, some of which are stronger bones and muscles, increased stamina, youthful skin and greatly improved digestion.

As a baby and a young child I drank lots of raw milk from my parents cows and had very robust health. But my parents had to sell our cows. After that, we were fortunate enough to access raw milk from various farms.

From the time I was eight years old, my father became a milkman and sold raw milk up in Cairns. When I was thirteen I was my father's (off-sider) milk girl. We would go to a little dairy farm where the healthy cows grazed on lush green grass, fill up our milk vats and sell raw milk all over our zone of three suburbs of Cairns until I was fifteen.

Throughout the whole of those seven years we never once got a complaint or heard of anyone getting sick from any of those three suburbs in Cairns from this very clean and delicious milk.

In the early 1960s, when I was fifteen the laws changed and we were no longer allowed to sell or even consume raw milk and had to begin selling pasteurized milk.

Every now and then I would vomit the pasteurized milk up. Later in my life my body became sensitive to pasteurized milk, as well as certain other foods, with physical reactions, which included extremely itchy rashes on various areas of my body, a bloated, very painfully flatulent abdomen and very mild chronic fatigue.

Roughly eleven years ago I was able to obtain raw milk again from clean healthy, humanely treated organic cows and goats and I was very relieved when I had no sensitive reactions to this milk. Furthermore, my health improved greatly.

I simply cannot digest pasteurized milk. Even if I could, my bones would begin to lose their strength again like they were beginning to before I was able to access raw milk again. This is because when milk is pasteurized, the calcium becomes hardened and is unable to be utilized by the human body. I feel very strongly that I, and other community members have a right to purchase and consume whatever foods we choose. (See attachment number 2. *Fresh Unprocessed...)*

There are risks of bacterial infection and illnesses from many foods, particularly deli meats, sushi and oysters, that are far greater than the exceptionally minimal risks of raw milk, especially clean milk from healthy organic, GMO free, pasture fed cows.

There are very high risks in selling, purchasing and drinking alcohol, not only to the consumer but also to other people who are affected by the drinker. Yet it is legal to sell alcohol in Australia.

It has been demonstrated that cigarette smoking and passive smoking causes cancer. Yet it is still legal in Australia.

Accessing raw milk and raw milk cheeses legally Australia wide will mean for me, in my early sixties and post menopausal, security of maintaining strong bones and robust health.

If I cannot get raw milk or raw milk cheese my health will decline.

In the past when there was inadequate refrigeration, and long distances to transport milk, it could go sour.
Today, with vastly improved sanitation and refrigeration, conditions are enormously improved for raw milk especially from organic pasture fed animals.

I often make my own kefir, a high quality type of yogurt from a natural culture, and raw milk. This kefir yogurt has been an exceptionally nutritious probiotic super food that has done wonders at recolonizing my intestinal flora with friendly bacteria. The results I have experienced are a greatly increased immune system and digestive system, which in turn has greatly increased my ability to absorb and utilize nutrients. Therefore, my health is much more robust than it was eleven years ago.
In fact, I believe that raw milk is actually safer than pasteurized milk, because raw milk has highly beneficial bacteria that kill bad bacteria.

But when milk is pasteurized all the beneficial bacteria are killed along with any bad bacteria that may be present in the milk.

The problem is, however, if any bad bacteria find their way back into pasteurized milk there will be no good bacteria to kill the bad bacteria.
(See attached supporting documents: Number 2. *Fresh Unprocessed...*, Number 3. *Why Raw....)*

For the thousands of years, humans have consumed raw milk, raw dairy products, and specialty raw milk cheeses are sought after by, and aid the health of many European, Eastern European, Middle-Eastern and Indian cultures.

Summary

I do not wish to take away the legal right of the big commercial dairy industry to pasteurize their milk.

I do demand, however, that I, along with other informed consumers who recognize the safety and health benefits of live raw milk from the small specialty milk producers, have the right to purchase raw milk, particularly if we believe it is important for our wellbeing.

I also strongly believe that it is very unfair to compare the minimal risks of responsibly produced raw milk and raw dairy products with many other foods that are of much greater risk of causing illness.

There are marginally few people who consume raw milk and raw milk products from the small specialty milk producers, who should to have the right to do so.

Kind regards

Lani Berry

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Real Milk ARTICLES

Those Pathogens, What You Should Know

By Ted Beals, MD

Remarks delivered at the Third International Raw Milk Symposium, May 7, 2011, Bloomington, Minnesota. See also Dr. Beals PowerPoint presentation from this event.

I wish to begin by saying that the real discussion of food, including raw milk, should focus on the undeniable values and benefits for our development and sustained health. Sally Fallon Morell has talked about those in her presentation, and my role here is to focus on the risk aspects, which are controversial.

Most of us here are convinced that *what* we eat, and *why* we choose to eat what we eat is our responsibility, not the responsibility of government. Yet the government is at war against raw milk, one of the key healthy foods that we choose to consume and give to our children.

The government's battlefield is the concept of risk—raw milk is inherently risky, argue government officials, and should not be consumed by anyone, at any time, for any reason. Some of our opponents in this battle understand the importance of nutrition and realize the incredible power held by those that control food. Others go to work every day sincerely believing that they are personally responsible for protecting the public from the risks associate with eating. Many regulators, inspectors, lawyers and far too many legislators tend to forget about the benefits and focus on the things that might make people sick, and they call those things "bad bugs."

But *everything* has risk. The decision to consume any food involves estimating the risks of eating that food, as well as the benefits. Eating is not just an interesting thing we do, like riding in airplanes; rather, it is an absolute necessity. And many of us believe that our wellbeing is a direct consequence of the food choices we make.

Today I will present the actual scientific facts stripped of the *hysteria* and devoid of unsubstantiated dogma. I will do so in a way that all of you will understand; what I am presenting is not my opinion; it is the actual scientific information.

Bacteria Are Ubiquitous

The world is filled with bacteria. They are on our skin and in our digestive system. They are everywhere. Bacteria are absolutely essential to our development, our ongoing nutrition and our health. Bacteria are not determined to make us sick, they are just looking for a place to grow and divide. Here are some key facts about bacteria:

1. Bacteria outnumber people.
2. They were here long before us.

3. They will be here long after us.
4. They dominate the diverse bio-culture of the world.
5. Our existence is integrated with that of bacteria.

All the bacteria in our world today have succeeded over a long period of history to find nice places to grow and divide. When we came along, a small number of them found that humans have some nice places wherein to grow and divide.

The bacteria that live inside and on human beings either just co-exist with us, or we have actually learned to use their presence to our advantage.

A surprisingly small number of those bacteria may cause side effects (collateral damage) when they grow and multiply.

In the whole world, there are hundreds of thousands of different kinds of bacteria, and a million trillion trillion individual bacteria. Of those bacteria that live on and inside human beings, there are hundreds of different kinds. In fact, there are more bacteria on and in our bodies than we have cells of our own.

The vast majority of these bacteria—hundreds of kinds—are beneficial. And how many kinds of bacteria might make people sick? The answer is surprising: only a couple of dozen. And only some of these actually cause illness.

The official naming system for bacteria gives the genus and species. For example with *Listeria monocytogenes*, *Listeria* is the genus and *monocytogenes* is the species. However there is abundant diversity within these officially named categories in the form of subtypes. There are different categories of subtypes: serotypes, genotypes, strains, forms, serovars, virotypes, varieties and isolates. For example, the highly publicized form of *Escherichia coli* (remember nearly all forms are benign) is *Escherichia coli O157:H7*. This expanded name says: the genus is *Escherichia*, the species is *coli*, and within the category of *O* subtypes of the species coli it is number *157*, and within the category of *H* subtypes it is number *7*.

All bacteria named with genus and species have subtypes!

The Myth of the Risk Mongers

A critical myth perpetuated by the risk mongers is that all of the subtypes in a named (genus and species) of bacteria are the same. This is how the myth works. If there is disease in some animal or man and the laboratory identifies the cause as a certain genus and species, then that makes it a "pathogen" and any and all bacteria of that genus and species cause disease. They want judges, legislators, journalists and the public to believe that the genus and species is a bad bug and must be killed. Thus, goes their logic, since one subtype of *E. coli* can make people very sick, then all subtypes of *E. coli* are pathogens and cannot be tolerated.

Yet, thousands of researchers, hundreds of books and thousands of published articles in scientific journals, all recognize the scientific fact that just because a particular subtype of a bacteria species is pathogenic does not mean that the whole species is pathogenic.

The risk mongers understand that their horror stories crumble in the face of truth, scientific facts and reality. So they keep repeating this myth to journalists, legislators and judges. Every time they say anything about possible illness, they repeat this myth.

Some even imply that all bacteria are bad.

The Big Four

Let's now take a brief look at each of the four dreaded "pathogens" that cause most foodborne illness—*Campylobacter jejuni*, Shiga Toxin producing *E. coli* (*E. coli O157:H7*), *Listeria monocytogenes* and *Salmonella spp.* (spp. Indicates that we are talking about the whole genus of *Salmonella*, not just one species.)

For each one, we need to know the following:

1. Where do they like to grow?
2. What is the most common source?
3. What is the most common reservoir?
4. Factors that increase potential risk to raw milk drinkers;
5. Factors that decrease potential risk to raw milk drinkers;
6. Overall human public health impact from each pathogen;
7. The specific public health impact from each pathogen associated with drinking milk raw.

Campylobacter Jejuni

The most common pathogen currently associated with raw milk outbreaks is *Campylobacter jejuni*. The virulent forms of *Campylobacter jejuni* can cause serious diarrhea in humans.

Campylobacter jejuni grows only inside living animal cells. The most common source is the intestinal tract of poultry. Infected chickens are not sick, but they are carriers of the organism in their feces and on meat contaminated with feces. The most common reservoir is water contaminated from poultry manure. People with diarrhea caused by *Campylobacter jejuni* shed extremely high concentrations of the virulent bacteria in their stools.

Ironically, the potential risk is increased with raw milk that is too fresh. Over time, the antimicrobial components of raw milk will kill *Campylobacter jejuni*, so—any potential risk diminishes as the milk ages under refrigeration. Longer storage time and exposure of the milk to air decrease the risk to raw milk drinkers. Likewise keeping infected poultry and people that carry campylobacter away from milk handling areas will reduce the risk.

Campylobacter is the second most common cause of all human foodborne illness. The illness usually goes away without treatment after a bout of unpleasant diarrhea, but there can be severe complications in rare cases.

As for the specific public health impact of drinking raw milk, the Centers of Disease Control (CDC) estimates an annual average of more than eight hundred thousand (845,024) people in the U.S. have domestically acquired diarrhea caused by food contaminated with *Campylobacter spp.*[1] an annual average of 34 *Campylobacter jejuni* illnesses have been attributed to drinking raw milk.[2]

Shiga Toxin-Producing *E. Coli* (*E. Coli O157:H7*)

This pathogen grows in the intestinal tract of warm blooded animals. The most common source is fecal matter of infected humans. The most common reservoir is cows that are shedding colonized virulent subtypes.

Factors that increase the risk to raw milk drinkers include dairy animals contaminated with feces from high-shedding animals and milk handlers shedding during and after infection.

Factors that decrease the risk to humans include closed herds, managing dairy herds to minimize the spread of bacteria spread from colonized animals, and keeping people that are shedding away from milk processing and herds.

The overall human public health impact of *E coli O157:H7* is small but highly publicized because of a rare side effect called hemolytic uremic syndrome (HUS).

As for the specific public health impact of drinking raw milk, CDC estimates an annual average of more than sixty-three thousand (63,153) people in the U.S. had domestically acquired diarrhea caused by food contaminated with *E.coli O157:H7*:[1] an annual average of five were attributed to drinking raw milk.[2]

Listeria Monocytogenes

Listeria monocytogenes (often abbreviated to *L. mono.*) is the most serious and deadly of the contemporary foodborne pathogens. Yet it is also ubiquitous in our environment. Scientists actually know a lot about the virulence factors that are necessary before specific virulent subtypes of *Listeria monocytogenes* are able to cause disease.

Listeria monocytogenes can alternate between two growing modes: it grows within animal cells or it can switch to growing in decomposing plant materials. Listeriosis is a significant health problem in domestic animals. The most common sources are poorly managed silage; amniotic fluid, placenta and fetal tissues from abortions resulting from infection in cows; and meat processing plants and their equipment.

The most common reservoir is the environment, particularly if cool, wet and undisturbed. *Listeria monocytogenes* is present as well in our homes and on our bodies.

The public ingests listeria on a regular basis without becoming ill. You must ingest huge numbers of a virulent strain of *Listeria monocytogenes* to cause gastroenteritis.

Those who wish to ban all milk that is not pasteurized use the horrors (human listeriosis) of systemic disease caused by *Listeria monocytogenes* to support their cause. They consistently broadcast the high mortality rates from *L. mono* and focus on the susceptibility of pregnant women, fetuses, newborns and the elderly. However, *Listeria monocytogenes* has never been a significant public health risk from drinking fresh raw milk. Because of the long processing times and storage conditions, there have been rare outbreaks in which cheeses have been associated with listeriosis cases. This is a risk with cheeses prepared from both raw and pasteurized milk.

The most serious public health risk due to *Listeria monocytogenes*, comes from contaminated ready-to eat processed foods, particularly meats.

CDC estimates an annual average of fifteen hundred (1,591) people in the U.S. develop systemic infection caused by food contaminated with *Listeria monocytogenes*;[1] there

have been no cases attributed to drinking raw milk in the last twelve years.[2]

Salmonella Spp

Our final pathogen is *Salmonella spp*. It likes to grow inside animal cells as well as in food and feed with high protein content, especially when stored warm.

The most common source is infected humans and animals, as well as contaminated animal feeds and re-warmed foods. The most common reservoir is contaminated water.

Inadequate refrigeration of raw milk increases the risk to consumers; eliminating sources of salmonella decreases the risk.

As for the overall human public health impact, salmonella is the most common foodborne illness. CDC estimates an average of more than one million (1,027,561) people in the U.S. had domestically acquired diarrhea caused by food contaminated with salmonella[1]—an annual average of three of these cases were attributed to drinking raw milk.[2]

Relative Risk of Drinking Raw Milk.

First a personal note. I have performed the calculations based on national highway safety data and the data on foodborne illness attributed to drinking raw milk. It can be shown that I have a greater risk of being injured in the car driving to the farm to obtain milk for myself and my wife than becoming ill from the fresh unprocessed whole milk. And we drink a lot of that delicious and healthy milk every day.

Now, let's look at the risk of consuming raw milk compared to other foods. I have combed all available information including scholarly articles, reviews of foodborne illnesses, media reports, public health announcements, listings of outbreaks compiled by numerous government agencies, special interest groups and litigation lawyers and found the following data on total annual illnesses attributed to raw milk from 1999 through March 2011, a period of twelve years, as shown in **Figure 1**.[2]

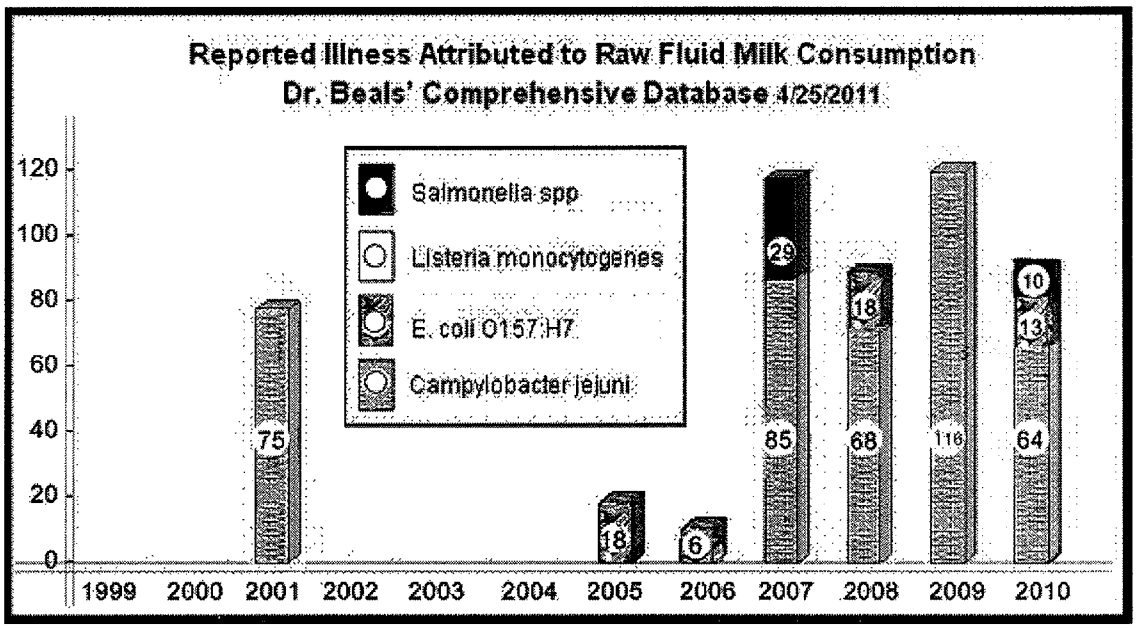

Figure 1

For the period, there were 502 cases of illness, for an average of 42 per year. It is important to note that these illnesses were attributed to raw milk in the opinion of the reporting agencies. I have not excluded any illnesses from these numbers based on my professional judgment of the strength of the linkage reported. They include totals, both "confirmed" and "presumed" cases.

For comparison for those who insist on published data in peer reviewed journals, another set of data was compiled by Stephen P. Oliver and others entitled "Food Safety Hazards Associated with Consumption of Raw milk, published in *Foodborne Pathogens and Disease*.[3] Oliver looked at illnesses attributed to raw milk over a nine-year period, 2000 to 2008, as shown in **Figure 2**. The numbers listed are those attributed to drinking fluid milk, and do not include illnesses attributed to other processed dairy products.

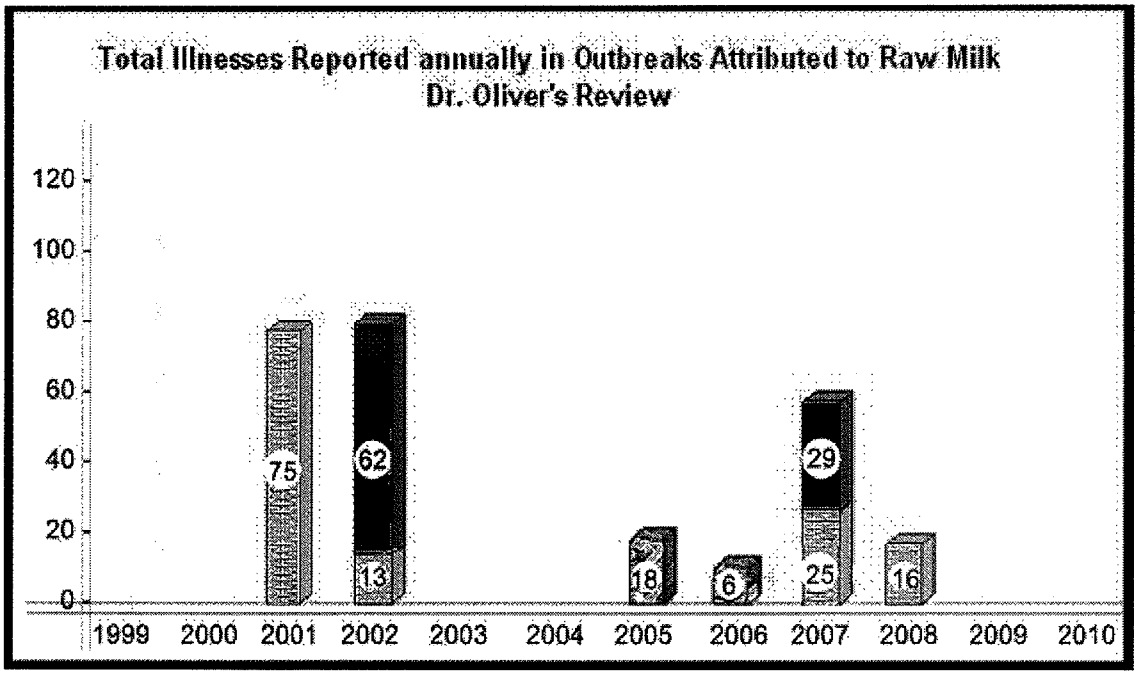

Figure 2

Ironically, Oliver and his team come up with a lower total than I did—246 cases over nine years, for an average of 27 cases per year. As you can see, there is no pattern for the frequency of illness attributed to drinking raw milk in either **Figure 1** or **Figure 2**. With the exception of the more likely occurrence of *Campylobacter jejuni* illness and the absence of illness from listeria, the presumed causative organism and the frequency of illness is sporadic.

Figure 3 shows the annual incidence of foodborne illness confirmed for each of the four pathogens. **Figure 4** shows illnesses confirmed for each of the four pathogens attributed to foodborne illness that might be expected among raw milk drinkers.

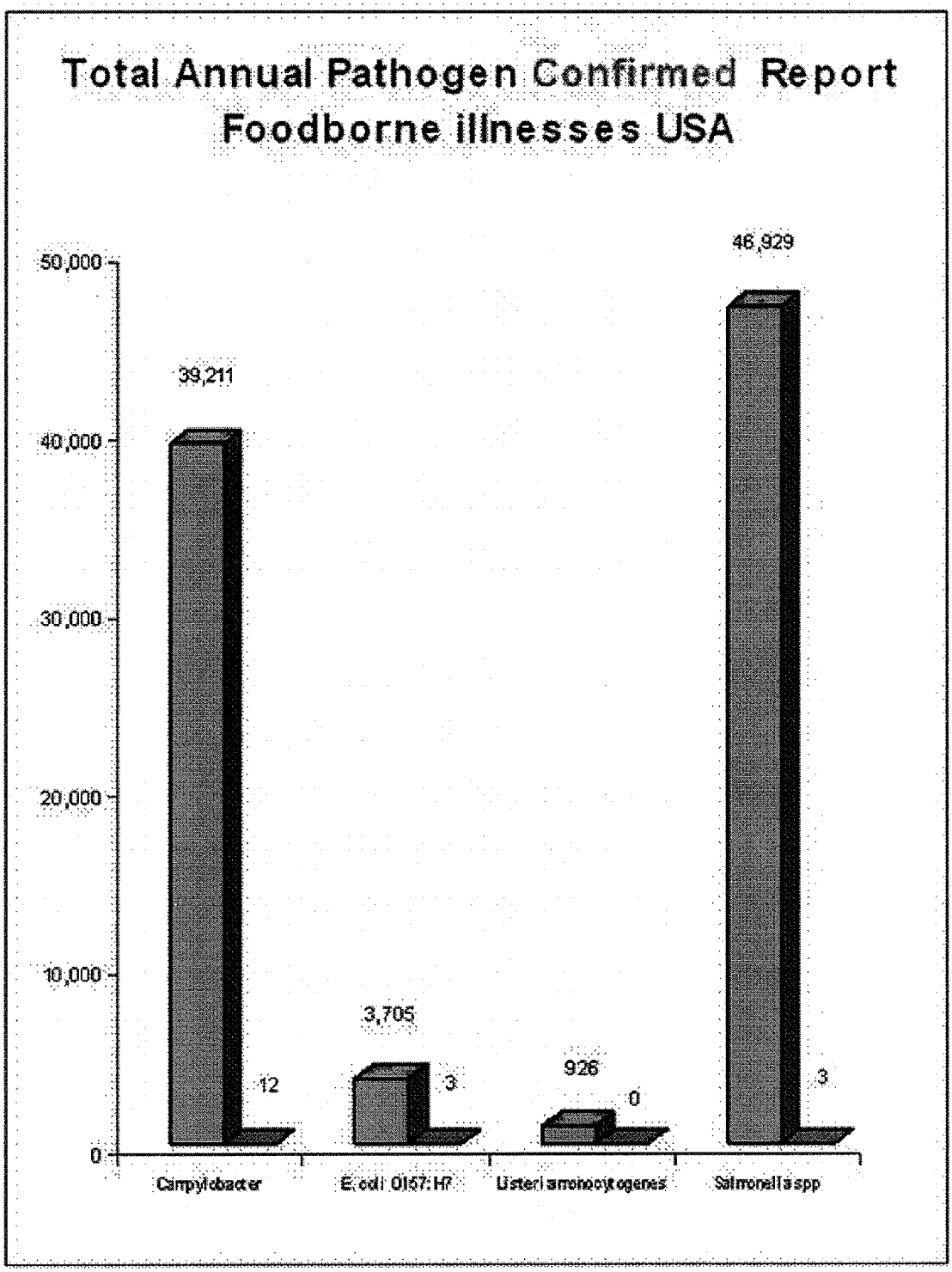
Total Annual Pathogen Confirmed Report
Foodborne illnesses USA
50,000
40,000
30,000
20,000
10,000
0
39,211
12
3,705
3
926
0
46,929
3
Campylobacter
E. coli O157:H7
Listeria monocytogenes
Salmonella spp

Figure 3

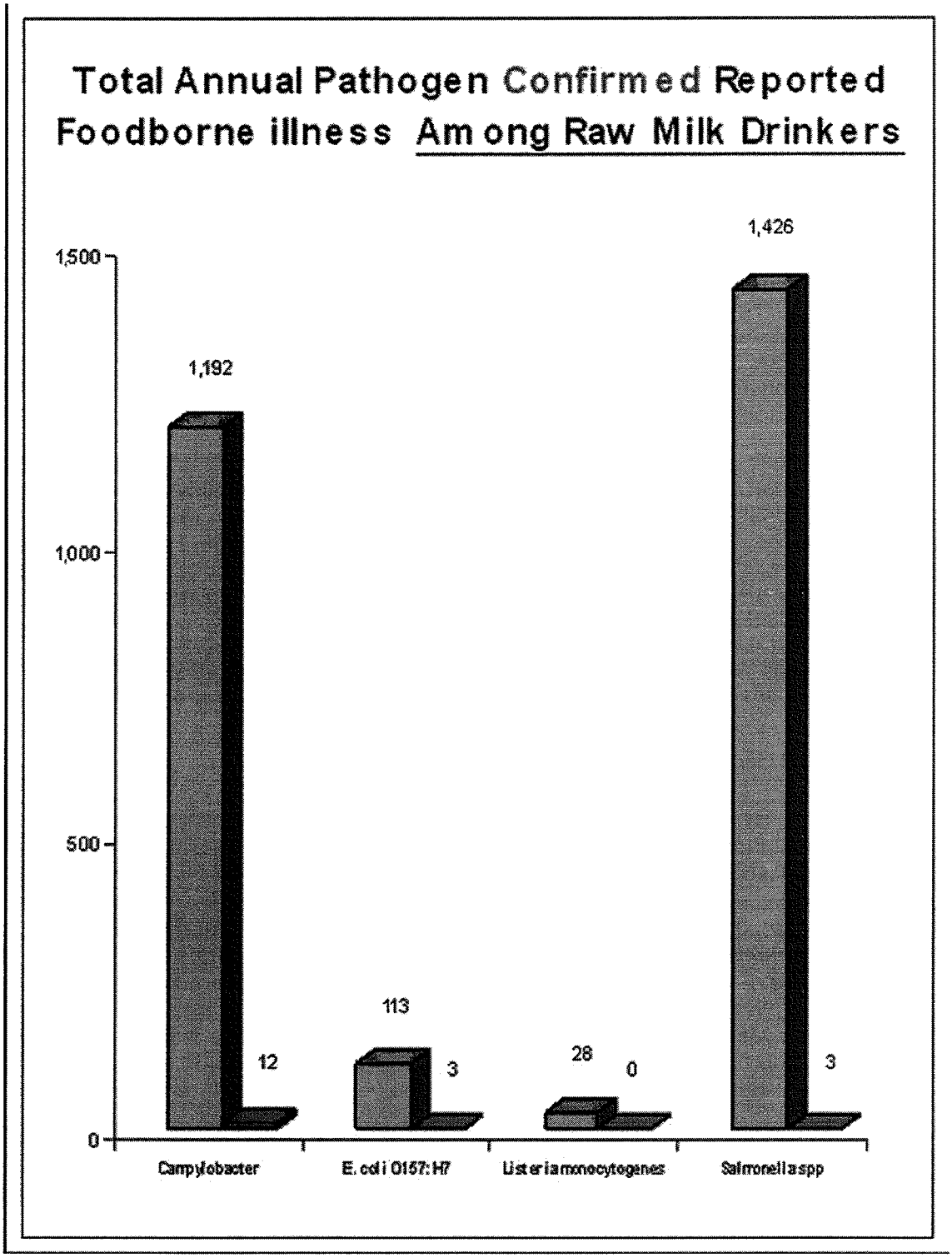

Figure 4

The numbers for illness from all food sources is data from a U.S. government report called *Healthy People 2020*.[4] The report was finalized in December 2010 out of a collaboration of all health and food agencies of the federal government, with private

sector input. In the section on food safety of this report, data is given for "baseline" 2010. The baseline in the report is given as a rate per one hundred thousand people in the U.S. In the graphs, the tall bars are totals attributed to "all foods" based on these rates using 2010 census population data. Critics of all data showing low numbers of people ill from drinking raw milk comment that since there are so few people drinking raw milk, the numbers only appear small. To counter this assumption, the numbers used in **Figure 4** are also calculated using the 2010 Census and the *Healthy People 2020* baseline risk of illness from all foods.

To construct **Figure 4,** we need to know the number of raw milk drinkers in the U.S. Fortunately, this data is available to us, and the number is surprisingly large. According to a very large telephone survey by FoodNet, carried out in 2007, 3.04 percent of the population consumes raw milk or about 9.4 million people based on 2010 census.[5] This number is certainly larger today as raw milk is gaining in popularity; however, we can be conservative and use the percentage in 2007 from the phone survey of 9.4 million Americans consuming unpasteurized (raw) milk for the year 2010.

While it is true that only a minority drink raw milk, **Figure 4** still shows the striking comparison between illness from all foods, and the incredibly small numbers attributed to drinking raw milk. In this graph I made the assumption that the risk of illness from all food sources was the same for people drinking raw milk. I personally suspect that raw milk drinkers as a whole are healthier and more immune than the general public, but the *Healthy People 2020* did not actually make a calculation for the subset of the population that drinks raw milk.

As you can see, the number of illnesses from raw milk is very low compared to illnesses from other causes, both for all consumers and for raw milk consumers.

Illnesses Per Person

Now, let's look at the illnesses per person among the whole population and the population of raw milk drinkers. That data showing illnesses come from a 2011 publication compiled by a team of researchers at the CDC FoodNet Surveillance Center. The paper, by Elaine Scallan and others, is entitled "Foodborne Illness Acquired in the United States—Major Pathogens" and was published in Emerging Infectious Diseases.[6] The model does include a factor for unreported illnesses, but it revised downward the figure of 78 million foodborne illnesses per year that government agencies have been using in the past. Instead the report estimates that 48 million Americans are sickened each year from all agents, including viruses, bacteria and toxins, in all foods. That is one out of every six people. The numbers given in the report are based on their most up-to-date information which was for the year 2008. Their data:

Total diarrheal episodes annually USA	217,973,045
Total foodborne illnesses annually USA	48,000,000
Annual confirmed foodborne infections from the four "pathogens" (all foods)	1,937,561
Average number of illnesses attributed to consuming raw milk (Dr. Beals, 1999–2011)[2]	42
Average number of illnesses attributed to consuming raw milk (Drs. Oliver and others, 2000–2008)[3]	27

Who's Irresponsible?

From the perspective of a national public health professional looking at an estimated total of 48 million foodborne illnesses each year;[6] or from the perspective of a healthcare professional looking at a total of 90,771 (data from *Healthy People 2020*[4]) confirmed bacterial foodborne infections each year (about 0.2 percent), there is no rational justification to focus national attention on raw milk, which may be associated with an average of 42 illnesses maximum among the more than nine million people (about 0.0005 percent) who have chosen to drink milk in its fresh unprocessed form.

Using this average of 42 illnesses per year, we can show, using government figures, that you are about 35,000 times more likely to become ill from other foods than you are from raw milk.

Calculations on Relative Amounts of Illness from Foods for persons Drinking Raw Milk

It is irresponsible for a senior national government administrator to testify that because of those forty-two people, raw milk is inherently hazardous, parents should not be allowed to decide which foods they serve their children and milk should be banned across the nation unless it has been pasteurized.

SIDEBARS

Source Versus Reservoir

Another of the critical myths perpetuated by those who promote fear is that bacteria grow remarkably fast. The most common example used is the statement that *E. coli* multiplies every 20 minutes; suggesting that this is how all bacteria behave. The implication is that even if there is only a single bacterium, it will rapidly multiply producing alarmingly high numbers to spread infection. Yes, in a laboratory you can get *E. coli* to multiply that quickly if you put it in its most favorable environment, with abundance of all the desired nutrients, at the optimal temperature for growth (99 degrees F) and the right mixtures of gases. But just for comparison, *Listeria monocytogenes* divides once every fifteen to thirty-four hours at refrigerator temperatures in packaged meat slices. For the purposes of this discussion, bacteria can multiply, or if conditions are not favorable, they will diminish in numbers. So experiments either show increasing or decreasing numbers over time. In publications they may say "growing" to mean multiplying, and "surviving" to mean diminishing in numbers.

And for the purposes of this discussion, a "source" is a location that has conditions under which the specific virulent bacteria significantly increase in numbers. A "reservoir" is a location in which a specific virulent bacteria is able to survive for some time or has conditions to enable very limited multiplication.

Gastrointestinal Illness

As a physician, I am dedicated to understanding, preventing and minimizing the impact of disease. Gastroenteritis has a real personal impact. Frequent trips to the bathroom, often with terrible abdominal pain, inability to go about your daily activities, lasting for days, is serious. The fortunately rare complications that can occur periodically with the forms of gastroenteritis mentioned here can be horrific and have a devastating impact

on individuals and their families. In no way do I wish to trivialize the personal impact of these illnesses. However, all activities have risk. Consumption of *any* food has some risk of illness or adverse reaction. And the consequence of basing public policy on horrific personal experiences is that all foods will ultimately be banned, and we will not be able to participate in any activity.

REFERENCES

1. Scallan E, Hoekstra RM, Angulo FJ, Tauxe RV, Widdowson M-A, Roy SL, et al. Foodborne illness acquired in the United States—major pathogens. *Emerg Infect Dis.* 2011 Jan. Table 2 cdc.gov/EID/content/17/1/pdfs/09-1101p1.pdf
2. Average annual illnesses attributed to drinking raw milk are from a comprehensive database of outbreaks attributed to raw milk started in Jan. 1, 1999. This database includes all incidents that have been included in any publication or review concerning raw milk outbreaks, newspaper reports, press releases, attorney webpages, lists compiled by interested groups and state and federal agencies as well as presentations at conferences or on TV. The numbers listed here are obtained from this dynamic database as of March 25, 2011. Additional incidents and updated information are being added to this database on an ongoing fashion. In this discussion the annual averages for each "pathogen" include all illnesses (confirmed and presumptive) reported in summary or final reports that have been made public. The annual average numbers of illness include only cases that occurred in the USA and were attributed to drinking raw milk that was produced specifically for consumption by people in the fresh unprocessed form. The numbers do not include cases attributed to dairy products other than fluid whole milk. I did not make a personal judgment to determine if the cases were proven to be caused by virulent pathogens in the milk. Attribution used in calculating the annual averages is solely at the determination of the reporting agency that made the final report. It should be noted that since the database is ongoing; the numbers will change at future points in time because new incidents are added as they surface, and information is continuing to be added to incidents already included in the database.
3. Stephen P. Oliver and others entitled "Food Safety Hazards Associated with Consumption of Raw milk, published in *Foodborne Pathogens and Disease*. Volume 6, Number 7, 2009.
4. Healthy People 2020.
5. Centers for Disease Control and Prevention (CDC). Foodborne Active Surveillance Network (FoodNet) Population Survey Atlas of Exposures. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2006-2007. cdc.gov/foodnet/surveys/FoodNetExposureAtlas0607_508.pdf
6. Scallan E, Hoekstra RM, Angulo FJ, Tauxe RV, Widdowson M-A, Roy SL, et al. Foodborne illness acquired in the United States—major pathogens. *Emerg Infect Dis.* 2011 Jan. Table 2 cdc.gov/EID/content/17/1/pdfs/09-1101p1.pdf

About the Author

Ted Beals, MS, MD, is retired from the University of Michigan Medical School and Veterans Administration Health Administration. A pathologist with personal interest in dairy testing and safety of milk, he has been presenting testimony on dairy safety in North America for the last several years. He and his wife Peggy Beals are members of the Michigan Fresh Unprocessed Whole Milk Workgroup.

A Campaign for Real Milk is a project of The Weston A. Price Foundation
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Real Milk ARTICLES

Fresh, Unprocessed (Raw) Whole Milk: Safety, Health and Economic Issues

by The Weston A. Price Foundation
Published 2009

The Safety of Raw Milk:

PROTECTIVE COMPONENTS: Raw milk contains numerous components that assist in:

- Killing pathogens in the milk (lactoperoxidase, lactoferrin, leukocytes, macrophages, neutrophils, antibodies, medium chain fatty acids, lysozyme, B12 binding protein, bifidus factor, beneficial bacteria);
- Preventing pathogen absorption across the intestinal wall (polysaccharides, oligosaccharides, mucins, fibronectin, glycomacropeptides, bifidus factor, beneficial bacteria);
- Strengthening the Immune System (lymphocytes, immunoglobulins, antibodies, hormones and growth factors) (*Scientific American*, December 1995; *British J of Nutrition,* 2000:84(Suppl. 1):S3-S10, S75-S80, S81-S89).

PASTEURIZATION HARMFUL: Many of these anti-microbial and immune-enhancing components are greatly reduced in effectiveness by pasteurization, and completely destroyed by ultra-pasteurization (*Scientific American*, December 1995; *British J of Nutrition,* 2000:84(Suppl. 1):S3-S10, S75-S80, S81-S89).

DANGERS EXAGGERATED: Although raw milk, like any food, can become contaminated and cause illness, the dangers of raw milk are greatly exaggerated. In an analysis of reports on 70 outbreaks attributed to raw milk, we found many examples of reporting bias, errors and poor analysis resulting in most outbreaks having either no valid positive milk sample or no valid statistical association (ResponsetoMarlerListofStudies.pdf).

USDA/FDA STATISTICS: Based on data in a 2003 USDA/FDA report: Compared to raw milk there are 515 times more illnesses from *L-mono* due to deli meats and 29 times more illness from *L-mono* due to pasteurized milk. On a PER-SERVING BASIS, deli meats were TEN times more likely than raw milk to cause illness (*Intrepretive Summary – Listeria Monocytogenes Risk Assessment*, Center for Food Safety and Applied Nutrition, Sept. 2003, page 17).

OUTBREAKS DUE TO PASTEURIZED MILK: Due to high-volume distribution and its comparative lack of anti-microbial components, pasteurized milk when

contaminated has caused numerous widespread and serious outbreaks of illness, including a 1984-5 outbreak afflicting almost 200,000 people. In 2007, three people died in Massachusetts from illness caused by contaminated pasteurized milk (Real Milk PowerPoint, slide 30).

FORTY-YEAR-OLD SCIENCE AND ANCIENT HISTORY: Claims that raw milk is unsafe are based on 40-year-old science and century-old experiences from distillery dairy "factory farms" in rapidly urbanizing nineteenth century America.

MODERN ADVANTAGES: Compared to 30-50 years ago, dairy farmers today can take advantage of many advancements that contribute to a dramatically safer product including pasture grazing, herd testing, effective cleaning systems, refrigeration and easier, significantly less expensive, more accessible and more sophisticated milk and herd disease testing techniques.

UNIQUE FOOD: Raw milk is the ONLY food that has extensive built-in safety mechanisms and numerous components to create a healthy immune system.

Health Benefits of Raw Milk:

BENEFITS IN EARLY HUMAN STUDIES: In early studies involving humans, raw milk was shown to be superior to pasteurized in protecting against infection, diarrhea, rickets, tooth decay and TB; and children receiving had better growth than those receiving pasteurized milk (Real Milk PowerPoint, slides 54-56, 58).

BENEFITS IN EARLY ANIMAL STUDIES: In early animal studies, animals fed raw milk had better growth, denser bones, greater integrity of internal organs, less anemia, fewer signs of anxiety and stress, and fewer signs of nutrient deficiency than animals fed pasteurized milk (Real Milk PowerPoint, slides 57, 59-64).

ASTHMA: Three recent studies in Europe found that drinking "farm" (raw) milk protected against asthma and allergies (*Lancet*. 2001 Oct 6;358(9288):1129-33; *J Allergy Clin Immunol.* 2006 Jun;117(6):1374-8; *Clinical & Experimental Allergy*. 2007 May; 37(5) 627-630).

RAW HUMAN MILK: In recent studies, infants on pasteurized human milk did not gain weight as quickly compared to those fed raw human milk (*J Pediatr Gastroenterol Nutr.* 1986 Mar-Apr;5(2):248-53) and premature babies given raw human milk had more rapid weight gain than those given pasteurized human milk. Problems were attributed to pasteurization's destruction of lipase (*J Pediatr Gastroenterol Nutr.* 1986 Mar-Apr;5(2):242-7).

THE MILK CURE: In the early 1900s, the Mayo Clinic administered the "Milk Cure," which consisted in drinking 4-5 quarts of raw milk per day, obtaining favorable results for a range of illnesses including cancer, weight loss, kidney disease, allergies, skin problems, urinary tract problems, prostate problems and chronic fatigue; these results are not obtained using pasteurized milk.

DANGERS OF PASTEURIZED MILK: Many studies have linked consumption of pasteurized milk with lactose intolerance, allergies, asthma, frequent ear infections, gastro-Intestinal problems, diabetes, auto-Immune disease, attention deficit disorder and constipation. During a period of rapid population growth, the market for fluid pasteurized milk has declined at 1% per year for the past 20 years. Fewer and fewer consumers can tolerate pasteurized (and

ultrapasteurized) milk (*Don't Drink Your Milk*, Frank Oski, MD, 1983).

LACTOSE INTOLERANCE: In a survey of raw milk drinkers in the state of Michigan, over 80 percent of those advised by a healthcare professional that they were lactose intolerant were able to consume raw milk without problem. (LactoseIntoleranceSurvey.doc).

POSITIVE TESTIMONIALS: Hundreds of testimonials involving reversal of failure to thrive in infants; allergies, asthma and behavior problems in children; and digestive disorders, arthritis, osteoporosis and even cancer in adults (Testimonials, MI-RawMilkHealthTestimonials.pdf).

NUTRIENT DEGRADATION BY PASTEURIZATION:

Vitamin C	Raw milk but not pasteurized can resolve scurvy. ". . . Without doubt. . . the explosive increase in infantile scurvy during the latter part of the 19th century coincided with the advent of use of heated milks. . ." (Rajakumar, *Pediatrics*. 2001;108(4):E76**).**
Calcium	Longer and denser bones on raw milk (Studies from Randleigh Farms).
Folate	Carrier protein inactivated during pasteurization. (Gregory. *J. Nutr.* 1982, 1329-1338).
Vitamin B12	Binding protein inactivated by pasteurization.
Vitamin B6	Animal studies indicate B6 poorly absorbed from pasteurized milk (Studies from Randleigh Farms).
Vitamin A	Beta-lactoglobulin, a heat-sensitive protein in milk, increases intestinal absorption of vitamin A. Heat degrades vitamin A. Said and others (*Am J Clin Nutr*. 1989;49:690-694. Runge and Heger. J Agric Food Chem. 2000 Jan;48(1):47-55).
Vitamin D	Present in milk in protein-bound form, assimilation possibly affected by pasteurization. Hollis and others (J Nutr. 1981;111:1240-1248).
Iron	Lactoferrin, which contributes to iron assimilation, destroyed during pasteurization.
Iodine	Lower in pasteurized milk. Wheeler and others (*J Dairy Sci*. 1983;66(2):187-95).
Minerals	Lactobacilli, destroyed by pasteurization, enhance mineral absorption (MacDonald and others. 1985).

Economic Potential of Raw Milk:

CONVENTIONAL SITUATION: Thirty cows in a confinement situation; high-protein feed to increase milk production; cows produce 190 hundredweight of milk each year; farmer sells milk to co-op and receives about $12 per hundredweight:

- Income is about $1.50 per gallon or $68,400 per year
- Farmer receives no subsidies (only corporate farms get these)
- Farmer has high cost of feed, vet bills, replacement cows, artificial breeding, interest on equipment loans.

In 2002, dairy farms in the U.S. went out of business at the rate of 16 per day.

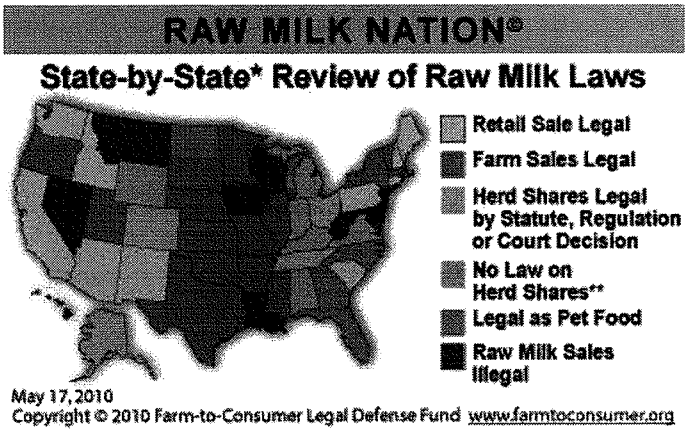
DIRECT SALES OF RAW MILK FROM PASTURE-FED COWS: Thirty cows on 100 acres; cows are fed grass, hay and silage from the farm; cows produce 100 hundredweight each per year.

- Income on raw milk or raw dairy products is $4 - $8 per gallon, or $150,000 - $300,000 per year.
- If the farmer is making cheese, cream or butter, he has whey and skim milk, free food for pigs
- Additional farm income from pork, beef, eggs, chicken, produce, etc., possible in a diversified farm based on dairy, could be $50,000 - $100,000 per year.
- Total gross income to farmer $200,000 - $400,000 per year
- Costs for feed, vet bills, interest are much lower; no replacement cow costs.

RURAL REVIVAL: Every $1 earned on the farm = $5-7 for the local community; if 10 percent of the population would buy raw milk and other products directly from the farm, we would need 75,000 farms, all making at least $200,000 per year. Raw milk sales hold the potential for a huge rural revival.

CURRENT SITUATION FOR RAW MILK SALES

- Retail sales are legal in 10 states
- On-farm sales are legal in 15 states
- Herd shares are legal in 4 states
- There is no law on herd shares in 6 states
- Pet food sales are legal in 4 states, implying that human consumption is feasible
- Raw milk sales are illegal in 11 states and the District of Columbia



SITUATION IN EUROPE: Raw milk sales legal in England, Wales and most of Europe; sold in vending machines in several European countries.

Raw Milk Vending Machine in Italy

A Campaign for Real Milk is a project of The Weston A. Price Foundation
PMB 106-380, 4200 Wisconsin Ave, NW, Washington DC 20016
Phone: (202) 363-4394 | Fax: (202) 363-4396 | Web: www.westonaprice.org
General Information/Membership/Brochures: info (at) westonaprice.org

Local Chapters and Chapter Leaders: chapters (at) westonaprice.org
Website: webmaster (at) realmilk.com
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Slow Food in Action

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Dairy Presidia

Our Campaigns

France

Ireland

Italy

The Netherlands

USA

Slow Food Manifesto

Why Raw Milk

Raw milk is milk that hasn't been submitted to heat treatment. Various treatments exist, that kill most micro micro-organisms present in milk, both "good" and "bad" bacteria.
Today, pasteurization of milk is the norm. The practice is a combined response to the spread of diseases such as tuberculosis through contaminated milk at the beginning of the last century, and the change in farming methods that took place in the second half of the century. The transition to industrial farming led to a rapid fall in the animals' quality of life and increase in handling of the milk, and therefore a higher risk of food borne illness.

Milk is unquestionably a susceptible product to contamination and like many food substance it can contain pathogens.

So why are we defending raw milk?

In defense of bacteria...

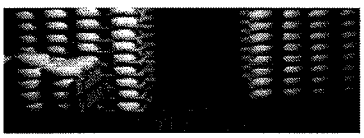
Not all bacteria are bad. While heat kills any potentially harmful pathogens, it also eliminates the bacteria naturally present in the milk that contribute to its flavor and the complexity and character of the cheeses made from it. Also, a growing body of evidence attests that the bacteria found in raw milk have many health benefits, including better digestion. Furthermore, lactic acid-producing bacteria normally present in raw milk actually act to limit or kill bad bugs - some of which survive heat treatments or find their way back after this process.

Pasteurized milk is effectively "dead milk". To build flavor in cheese made from it, cheesemakers must re-introduce bacteria through the form of starter cultures - pre-selected strains of bacteria made in a laboratory and available in powder form. These selected bacteria are the same the world-over, and together with pasteurized milk they make cheeses lacking character and diversity that are identical from Japan to Australia to Sweden.
The U.S. is the world's biggest cheese producer, but can you think of ONE American cheese? Cheddar maybe, except that the cheese named after it's British ancestor is a far cry from the taste (and health benefits) that made it popular in the first place. Germany is the world's second biggest producer of cheese. Again, can you think of ONE German cheese? Probably not. Their production is destined primarily for industrial food: cheese slices, cheese ready for fast-food pizza or

Raw milk heroes

Andy and Mateo Kehler, raw milk cheesemakers, Jasper Hill Farm, USA
Two brothers dream of helping a struggling economy and saving Vermont's rural landscape by...

Ireland
Slow Food Ireland has been promoting raw milk for many years now, working closely with consumers,...



Hugo and Marije van der Poel, aged artisan Gouda, the Netherlands
Hugo and Marije van der Poel and their three kids live and work in an exceptional place, on...

Hervé Mons, France
Cheese affineur of international reputation, Hervé Mons has been involved with Slow Food for over a...

industrial food: cheese slices, cheese ready for fast food pizza or hamburgers and so on.

A taste for raw milk

Have you ever tasted a raw milk cheese? If you have ever eaten traditional Italian Parmesan, Dutch Gouda or French Camembert you have, but many only have the opportunity to try their mass-produced industrial counterparts.

With raw-milk cheeses you taste the breed, the environment and of course the expertise of the cheesemaker. Milks from different breeds are as varied as the breeds themselves; the pasture that the animals grazed - mountains, hills, valleys or plains; and the season the cheese was made. All of these elements are evident in the end product, combining in countless ways to produce the unique cheeses we love. When milk is pasteurized, we lose this diversity and pave the way to abandoning food cultures and animal biodiversity.

What is the point of working to maintain the biodiversity of breeds and ensuring high quality feed if all the cheeses produced are identical? By defending raw milk, we are also defending animal welfare, the protection of landscapes and environments, and entire communities that still maintain artisanal skills such as those of shepherds, cheese makers and affineurs.

How big is the risk, really?

In most countries that have a long tradition of cheesemaking, raw milk is not only legal but highly valued, always proudly mentioned on the label.

However in most Anglo-Saxon countries, where the industrial food system was more eagerly embraced, raw milk has been submitted to fierce, over-hygienic food safety regulations in recent decades. Many of these nations have made the sale of raw milk or raw-milk cheese subject to heavy regulation in an attempt to achieve an impossible and arguably detrimental goal of zero risk. In the USA, UK and Ireland, for example, raw milk cheese can be produced but may only be sold after aging for a minimum of 60 days.

At one time diseases such as tuberculosis were a real threat. But by now, these hazards have disappeared in most western countries (and many other countries too) and hygiene standards and animal husbandry have improved enormously. The risk is very limited, and concerns mainly susceptible groups such as pregnant women, young children, elderly and immune compromised, all groups that should also avoid raw meat and be specially attentive to fruit and vegetable cleanliness.

Food safety scares that are more frequently coming up in the news are in fact not coming from milk, but rather cucumbers, bean sprouts, turkeys, eggs. Why aren't we banning these foods? In Ireland, for example, a country that takes pride in it's high quality milk, it is estimated that 100 000 people drink raw milk every day, yet the health statistics do not indicate any alarm.

We can't help but ask ourselves why raw milk has fallen victim to an illogical perception of risk. Is it because of a lingering fear from a time when dangerous viruses had not yet been eradicated? Is it the importance in our diets? The highly symbolic nature of milk (purity, fertility, maternity, etc.) that makes it more susceptible to irrational behiavour? Or that it is specifically from small-scale production, so an attempt to stamp it out doesn't provoke powerful industry lobbying?

Regulations in the food industry are important but must be appropriate to the risk and help build healthy food cultures, not destroy them.

Power to the people

Risks and benefits known, why shouldn't the consumer have a right to purchase raw milk and raw milk cheese if they believe it is important for their wellbeing? There is no reason why these products should not be produced on the farm according to a fairly monitored, controlled and regulated process and sold with adequate labeling.

When it comes to raw milk products, as with many other foods, Slow Food believes we should not trade our freedom of choice and health for convenience and perceived safety.

Read President of the Slow Food Foundation for Biodiversity Piero Sardo's thoughts on raw milk told through a forest metaphor.

Read the article from Eire cheese producers

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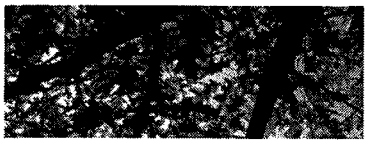
Safety that kills



28/07/2011

President of the Slow Food Foundation for Biodiversity Piero Sardo tells the story of raw milk through an interesting metaphor...

Often ordinary consumers struggle to understand the importance of making cheese from raw milk, milk that hasn't been treated by heating it to high temperatures. One way to explain this issue is with the metaphor of a forest...

Imagine that you've inherited or bought a large, thriving, pristine forest. And because you love nature, you decide to build your house in the middle of the forest. The vegetation isn't a problem, but you'll have to think carefully about the wild animals that live in the area.
Think of the fauna typical to where you live: If you live in the mountains for example, in addition to the myriad species of bacteria, microorganisms and insects that you can't see and are generally harmless, you'll also have birds, squirrels, wild boar, perhaps deer. These are all animals that don't create particular problems; in fact you'd like to live and interact with them.

However, the forest might also be home to foxes, wolves and even bears, animals that could cause a nuisance or be dangerous. Though you know it's very rare for humans to be attacked by wolves or bears, especially if the environment offers abundant food resources and is not threatened by pollution or excess anthropic pressure, you want to protect yourself from possible bad encounters. So you decide to kill all the life in the forest. Let's say you have a gas that exterminates every living creature and that you use it.

Now there are no more dangers, but without animals the forest is dead, silent and boring. In the long term it couldn't even survive. So you introduce some nice little animals: brightly colored birds, puppies, turtles, whatever you like, collecting them from here and there, without worrying if they are typical to that forest or even that region. You've transformed a living, natural system, able to self-regulate and survive most calamities and environmental disasters, into a kind of zoo, an unnatural monster, created only to entertain you and to guarantee your peace of mind. With one problem, however: If a predator arrives from a nearby forest, it won't find any competitors and will be able to reach you and your little house without any problems!

Now, think of milk as like the forest. The vegetation represents the fats, caseins, minerals and so on, while the forest fauna represents the microflora present in the milk and the surrounding environment. This will give you an idea of what happens when you pasteurize that milk: You kill everything, turning something living and vital into an inert, dead substance. And to bring it back to life you have to introduce artificial microorganisms, from outside that environment.

Of course you'll find microbiologists, food scientists and technicians who'll explain how this system allows you to avoid ingesting coliform bacteria, salmonella, etc. In other words, to return to the

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09/19/2011
"No, we do not have any cheese for sale I'm sorry," apologizes Macedonian cheesemaker Aleksandar Dimovski to crowds of people...

allows you to avoid ingesting coliform bacteria, salmonella, etc. In other words, to return to the metaphor, it keeps you safe from wolves and bears. They'll explain how progress inevitably comes with certain losses (of taste, naturalness, variety) but that it means everyone can enjoy an extraordinary level of food safety. You might try to argue, saying that it's very rare for a bear (salmonella) to kill someone, that the important thing is to keep the forest healthy, without polluting it, without altering the vegetative and reproductive cycles, without stressing it, and then the animals will be uninterested in humans.

But the experts will not listen to reason: Pasteurization is progress, and the rest is barbarism or poetry. So the forests disappear, the wolves die out, the bears and boars are forced to scavenge garbage to find food.

Outside the metaphor, in real life, these safe cheeses no longer taste of anything, and are all the same from Singapore to South Africa. They're ready for a global market that no longer wants to take the trouble to differentiate, to understand, to listen to the stories that real cheeses can tell. As Tacitus would say, they have created a desert and called it food safety.

Piero Sardo is the President of the Slow Food Foundation for Biodiversity
p.sardo@slowfood.it

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SEPTEMBER 19, 2011 · 9:04 PM

Australia's raw-milk image sours

Australia's harsh legislation against raw-milk cheese has been highlighted as an example of what could happen in other countries where authorities are reassessing unpasteurised milk and cheese production.

Australia was singled out as of one of the countries with the strictest laws against raw-milk cheese at Slow Food's biennial event, Cheese 2011, held in the Italian city of Bra at the weekend.

Australia produces 12 percent of the world's cheese, but selling and importing raw-milk cheeses has been banned since 1986, with a few exceptions for cheeses such as Parmigiano Reggiano, Pecorino Romano, and Grana Padano from Italy.

As previously reported by The Food Sage, a recent assessment report of raw milk products by Food Standards Australia New Zealand recommended no changes to the present situation. Additionally, there will be a review of current regulations that allow the sale of raw goats' milk in New South Wales and Western Australia next year.

Australia's sour raw-milk image fueled the launch of an international campaign for the rights of consumers to buy raw milk and for cheese makers to produce and sell raw-milk cheese. A new Slow Food website, www.slowfood.com/rawmilk, will be available in five languages and includes sections on health risks and benefits, local campaigns, legislation, education and animal welfare.

Australian raw-milk cheese advocate Will Studd warned the audience that the Australian example could be followed in the United States and in Europe.

> "It is worth fighting for the right to a choice," he said.

Back home, Studd is encouraging Australian cheese makers and food makers to contact their Member of Parliament and email FSANZ at submissions@foodstandards.gov.au before October 14, 2011, which is when the comment period ends for the latest FSANZ report.

The situation for US-based raw-milk cheese makers in the United States is also precarious as the Food and Drug Administration is proposing a risk assessment that could lead to changes in the next 12 to 18 months. Currently cheeses can be made from raw milk if they are aged for at least 60 days.

In Ireland, proposed changes to the law could make it illegal to sell raw milk by the end of the year. Elisabeth Ryan, who leads a campaign against the Irish proposals, said the authorities wanted an international image of Ireland as a safe food country.

> "This sterilisation of food trumps quality," she said.

Raw-milk cheese is made from milk that has not been pasteurised to remove bacteria, which can cause diseases such as tuberculosis, brucellosis, campylobacteriosis, listeriosis and salmonellosis.

While it was estimated that 100,000 people in Ireland consumed raw milk, there have been only two cases of illness from raw milk in the last ten years, Ryan said. In Australia, FSANZ admits that fewer than 10 people have fallen ill in the past decade from the consumption of raw milk. In the US product liability law firm Marler Clark documented 54 illnesses attributed to raw milk cheese in 2010.

Slow Food acknowledges the risks on its new website. The group points out that tuberculosis and brucellosis have been defeated in Europe and North America, but concedes it is important to consider the risks involved in eating such produce in higher-risk countries. Italian researcher Roberto Rubino talked about the importance of maintaining the biodiversity of milk, which naturally contains many dozens of strains of positive bacteria.

In closing the discussion, Piero Sardo, president of the Slow Food Foundation for Biodiversity, said:

> "we had 10,000 years of raw-milk cheese before Pasteur, and we're still here".
>
> "They can't force us to eat sterile food, but nobody is going to defend us. We have to do it ourselves, by choosing, protesting, organising events, campaigning and refusing to eat plastic cheese."

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Raw-milk cheese debate faces final nail in coffin

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What does European law say about raw-milk cheeses?

Let's start with some history.

Europe began issuing general conduct regulations in the 1990s, with the aim of allowing the survival of raw-milk cheese production and at the same time guaranteeing consumer safety.

There are two schools of thought within the European Union. Northern countries tend to focus more on industrial production using pasteurized milk and intensive farming, while around the Mediterranean, a large variety of traditional cheeses are still produced. France, which has an important history of PDO raw-milk cheeses, plays a crucial role in the debate. Some scientific documents on potential risks relating to raw milk - in particular that on *staphylococcal enterotoxin* published in 2003 by the European Union and the documents on *Listeria monocytogenes* published in 1997 by the Ecole Nationale Vétérinaire of Maisons Alfort and in 2000 by the French Food Safety Agency - support the choice to preserve artisan cheeses as long as an efficient self-checking program plan is in place.

The first European directive dates from 1992 (92/46/EEC) and has been followed by a number of regulations (852/2004, 853/2004, 2073/2005, 2074/2005). The production of raw-milk cheeses was allowed, as long as certain minimum requirements were met.

Each European Union member state must follow these minimum regulations, but they can also establish stricter measures. As a result, an individual country can decide to ban the sale of raw-milk cheeses.

Here is an outline of the basic requirements established by the EU for producing raw-milk cheeses.
Raw material

- The milk must come from animals that have no symptoms of infectious diseases that can be transmitted to humans through milk (in particular it must come from farms officially free from brucellosis and tuberculosis), that are healthy and that have not been given unauthorized substances or products, and minimum suspension times must have been respected.

- The bacterial count allowed for raw cow's milk is a maximum of

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The bacterial count allowed for raw cow's milk is a maximum of 100,000 bacteria per ml (measured at 30°C).

- The bacterial count allowed for raw milk from other animals is a maximum of 1,500,000 bacteria per ml (measured at 30°C).
In the case of cow's milk, the somatic cell count is also measured, and the maximum allowed is 400,000 cells per ml.
If these minimum requirements are not respected, producers have three months to identify and resolve the problem.
After this period, depending on the country, the producers either cannot continue to sell or process the milk, or they can use it only for specific products (or to make pasteurized cheeses or raw-milk cheeses aged for at least 60 days).

- If the milk is not processed within two hours of milking, it must immediately be stored in a clean place and chilled to a temperature below 8°C (in case of daily milking) or below 6°C (when milking is not carried out daily).

Processing facilities

The facilities must be clean, undergo regular maintenance and be kept in good conditions. The design, construction and location of the facilities must allow proper maintenance, cleaning and/or disinfection, avoiding or reducing to the minimum any air-borne contamination and ensuring a work space that allows all operations to be carried out in hygienic conditions. A sufficient number of toilets must be available, connected to a suitable disposal system, which must not discharge directly to where food is being processed, and a sufficient number of sinks, properly located and signposted for handwashing.

Floors, walls, ceilings, doors and windows must be kept in good condition, be easy to clean and, if necessary, to disinfect. This requires the use of resistant, non-absorbent, washable and non-toxic materials.

All the surfaces, including equipment surfaces, in the area where food is processed and particularly those that come into contact with food must be kept in good condition and be easy to clean and, if necessary, to disinfect.

Therefore they must be made from smooth, washable, corrosion-resistant and non-toxic materials.

Exceptions

Member states can grant exceptions regarding processing facilities and materials to businesses that produce traditional cheeses (PDO, IGT, PAT - Prodotti Agroalimentari Tradizionali, traditional food products).

If the environment contributes to the development of the cheese's characteristics, the facilities can have walls, ceilings and doors not made from smooth, impermeable, non-absorbent, corrosion-resistant materials and natural geological walls, ceilings and floors.

The same applies to the materials used for the tools and equipment for the preparation and packaging of the cheeses.

Recognition and registration

Businesses that produce, process, transport, store and sell products of animal origin must be either registered or recognized.

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Registration allows sales at a local level. Recognition replaces the old EEC stamp and allows sales to other retailers, abroad, etc., without geographical limitations.

The procedures for obtaining registration are slightly simpler. Recognition involves more frequent inspections by the health authorities.

Microbiological characteristics of raw-milk cheese

Moving on from milk to cheese, it is necessary to guarantee the following through regular analyses:

- the absence of Listeria monocytogenes
- the absence of Salmonella
- the absence of staphylococcal enterotoxins
- the control of the presence of bacteria indicating poor hygiene (Escherichia coli and coagulase-negative staphylococci)

Labels

The label (packaging, document, placard, label, ring or band) that accompanies products made from raw milk must clearly indicate "made with raw milk."