EXHIBIT 2
DATE 1-28-15
HB 245

Rebuttal to DPHHS newsletter: Montana One Health, October 2014 Vol. 3, Issue 4
http://dphhs.mt.gov/publichealth and http://liv.mt.gov

General

It is unfortunate and disappointing that the Department of Public Health & Human Services and the Department of Livestock would engage in a propaganda campaign, using taxpayer dollars for lobbying purposes to sway public opinion ahead of the 2015 legislative session instead of letting the elected representatives of the people debate the issue.

The "facts" in the newsletter were obviously cherry-picked to support the view of the departments and studiously ignored decades of scientific fact in the two key areas sited, 1) health benefits of raw milk and 2) health risks of consuming raw milk

At the time of publication there were two major health crises affecting the U.S. and being covered extensively in the press but the Department of Public Health and Human Services chose to focus their taxpayer funded publication on raw milk, hitting hard with selective negative information, misrepresenting the magnitude of the dangers and dismissing out of hand the positive health benefits of raw milk

The departments did a cursory job, at best, with no references cited on the distributed publication and only eight citations available in the online version. More recent Center for Disease Control and Prevention (CDC) reports and opinions were not used.

Health Benefits:

The Department of Public Health & Human Services and the Department of Livestock ignore the benefits derived from drinking fresh, unprocessed milk – milk consumed in its complete, living, functional form – directly from grass fed cows, goats or sheep. They claimed to have ignored the benefits because there is no scientific proof that super-heating milk in the pasteurization process destroys the beneficial vitamins, enzymes, immune system enhancers, cellular elements, antibacterial components, beneficial microorganisms, folate binding proteins, vitamin co-factors, promoters or enablers, prebiotics, hormones, and trace minerals in fresh, unprocessed milk.

Yet, the evidence is there for any who choose to look. Scientific studies that show:

1. Reduction in asthma and allergic rhinitis
2. Raw milk has higher levels of Vitamins A, B, C and D than pasteurized
3. Heat treatment (pasteurization) destroyed all of the Vitamin B12, about 60% of the thiamin and Vitamin B6, 70% of the ascorbic acid, and about 30% of the folate
4. High losses of nutritive value occur in heated proteins
5. There are many intrinsic enzymes that exist naturally in fresh, raw milk
6. There are many extrinsic enzymes that are made by microorganisms in milk. They are very complex and vary depending on which bacteria are present in the milk
7. There are many immune system enhancers in raw milk
    a. Some resist pathogens and toxins by interfering with their ability to cause infection

   b. Some trigger immune mechanisms by activating specific white blood cells to attack pathogens
   c. Some react in response to antigens by producing antibodies
8. Many other complex antibacterial components in raw milk
9. Beneficial bacteria are present in abundance in fresh unprocessed milk – they participate in the digestion of food and the assimilation of nutrients
10. Some of the trace elements in raw milk are essential to vitamin activity
11. Prebiotics – promote the growth and activity of beneficial microorganisms – one specifically present in raw milk is lactoferrin, which is well known as an antibacterial agent
12. Vitamin B-12 – there is a significant amount of vitamin B-12 in raw milk

And, much more anecdotal evidence that send people in search of fresh, unprocessed milk in its raw form:

1. Raw milk from grass-fed cows has been used for disease prevention since the time of Hippocrates – it builds immunity – setting up a protective shield that prevents germs and viruses from attacking
2. The "Raw milk diet" has a 150-year history and was used in the Mayo Clinic and by others and is currently practiced in Europe
3. Many people with professionally diagnosed lactose intolerance do not have the symptoms of this condition, even when consuming large amounts of raw milk
4. Raw milk has shown benefit in some autistic children
5. An anti-stiffness/Anti-arthritis factor has been found in raw butter fat
6. Raw milk drinkers report a reduction of Metabolic Syndrome (a group of conditions – increased blood pressure, high blood sugar, excess body fat around the waist, abnormal cholesterol levels – that occur together, increasing risk of heart disease, stroke and diabetes)
7. There is increasing use of prebiotics, probiotics and fresh milk to treat a variety of intestinal disorders
8. Grass-fed raw milk is a good source of important disease fighters like vitamins and mineral, essential fatty acids, amino acids and good bacteria to strengthen the immune system. During pasteurization, these immunization properties are destroyed.
9. Grass-fed raw milk contains enzymes that are essential inflammation fighters and immune system builders – they, too, are destroyed within minutes by heat during pasteurization.
10. Raw milk is very effective in preventing scurvy and protecting against flu, diphtheria and pneumonia
11. Raw milk is better than pasteurized milk in promoting growth and calcium absorption
12. Raw milk prevents tooth decay, even in children who eat a lot of sugar
13. Children who drink raw milk have fewer allergic skin problems

Here is a sample of what is lost during the pasteurization process:

Amylase: Amylase breaks down carbohydrates in food as it's digested.

Catalase: Catalase is a strong antioxidant that protects cells.

Lactase: This is what's missing when people are lactose intolerant. Lactase makes it easier to absorb other nutrients as well.

Lipase: Lipase breaks down fats like triglycerides and improves the way your body uses them.

Phosphatase: Phosphatase helps your body absorb and use the calcium and phosphorous in milk.

Lactoferrin: Lactoferrin helps protect you from disease. In fact, lactoferrin defends the body against invasion by bacteria, viruses, fungi, and parasites. Lactoferrin has the same protection-fighting power as mother's breast milk for an infant.

It doesn't take an advanced scientific degree to understand there are very clear and substantial benefits to drinking fresh, unprocessed, raw milk from grass-fed cows, goats and sheep.

HEALTH RISKS

1. The calculations supporting the departments' conclusions have at least 3 major flaws:
    a. All dairy products are included, not just fluid mild
    b. It assumes 1% of the population is drinking raw milk when the correct number from FoodNet is 3.7% of the population
    c. The timeframe (1993-2006) used to estimate the total volume of milk consumed in the U.S. includes years in which there was no requirement for reporting, resulting in an over estimation of the of the total volume of milk consumed in the U.S.
2. Studies cited indicate that the total incidence of milk related illnesses, including both pasteurized and non-pasteurized milk, is so low that the numbers do not support a ban on either product.
3. Despite the departments' efforts to document a different public health risk for states that permit raw milk, the studies cited did not find any statistical difference in illnesses between states that permit and those that ban raw milk.
4. The departments cited editorial comments and opinion pieces as supporting documentation for their conclusions. One such citation is flawed by its inclusion of irrelevant information about other products such as cheeses and cultured milk products.
5. One of the citations is a summary of those who oppose raw milk based on the opinion that raw milk cannot be guaranteed to be absolutely safe. It fails to acknowledge that the same is true of all food.
6. Particularly concerning due to its absence from the departments' research is the findings by Dr. Ted Beals, MS, MD, based on the most recent CDC data which concludes that "If a raw milk

drinker has a foodborne illness, it is almost 650 times more likely that that illness is from some food other than the raw milk they are drinking."

7. The departments also ignored the April 13, 2013, press release by Weston A Price Foundation, with subtitle "CDC Study Actually Shows Raw Milk a Very Safe Food." The report concludes that of the government's estimate of almost 10 million people in the U.S. drink raw milk regularly, only an annual average of 41 illnesses can be attributed to drinking raw milk. The report confirms that there have been no deaths from fluid raw milk over the period of the report. By contrast, three people died from pasteurized mil in Massachusetts in 2007. The government reports 15 deaths per year from raw oysters and 30 deaths per year from eggs.
8. The department did not include data and conclusions from the report by Dr. Ted Beals, board certified pathologist, faculty at University of Michigan Medical School, entitled "Those Pathogens, What You Should Know." Dr. Beals concludes the following average annual statistics in the U.S.:

    48,000,000 Total Food Borne Illnesses
    1,937,561 confirmed food borne illnesses from the four "pathogens"
    42 illnesses attributed to consuming raw milk (Dr. Beals 199-2011)
    27 illnesses attributed to consuming raw milk (Crs Oliver and others 2000-2008)

9. The department did not include data and conclusions from the Michigan Workgroup (including Dr. Ted Beals, board certified pathologist, faculty at University of Michigan Medical School; Peggy Beals, RN; Fred Fear PhD MSU College of Agriculture; Susan Esser, Department of Agriculture; K Fedder, Department of Agriculture, Dairy). The study concluded the following by type of pathogen:

Campylobacter – Most common food borne illness in the U.S. with 2 million cases per year (1:150) Immunity results from frequent and direct contact with farm animals. Shedding directly from an infection into the milk does not occur.

20-100% of retail chicken packages are contaminated. It is estimated that one drop of fluid from a packaged chicken contains an infectious dose.

383 outbreaks from raw milk, an average of 32 per year, were claimed over the 12 year period from 1999-2011.

845,025 outbreaks were attributed to all foods over the 2 year period from 2006-2008.

Outbreaks from contaminated water supplies have sickened thousands.

References: FDA; Center for Infectious Disease Research and Policy U of Minn; Journal of Clinical Microbiology; Journal of Applied Microbiology; American Journal of Public Health, Applied and Environmental Microbiology

Listeria: Ready to eat meats like deli meats are the most frequently associated with outbreaks. Pate, salami, hot dogs, processed fish, cheeses, processed vegetables and salads.

There were zero outbreaks reported from raw milk over the 12 year period from 1999-2011.

1,591 outbreaks were attributed to all foods over the 2 year period from 2006-2008.

References: FDA, WHO, Foodborne Pathogens and Diseases, etc.

Salmonella: Most human cases are from eggs, packed fresh poultry, and meat and foods prepared from these items.

There were zero outbreaks reported from raw milk over the 12 year period from 1999-2011.

References: FDA; Epidemiology and Infection; doctoral thesis; Journal of Food Safety

E. Coli: Nearly all E. Coli are benign and some are extremely beneficial and participate in digestion and metabolism in the intestinal tract.

Humans are the ultimate source of human virulent forms of E coli. Ground beef is the most frequently implicated food source for E. Coli outbreaks, per USDA. Other foods responsible for outbreaks include leafy greens, sprouts, cookie dough, nuts and fresh fruit juice.

50 outbreaks, an average 4.2 outbreaks per year were attributed to raw milk over the 12 year period from 1999-2011.

63,153 outbreaks were attributed to all foods over the 2 year period from 2006-2008.

References: FDA, CDC, Applied and Enviro Microbiology; Proceedings of the Natl Academy of Science; Am Soc Nephrology, etc

Additional References regarding benefits and health risks:

Several recent studies in Europe have found that drinking "farm" (raw) milk protects against asthma and allergies. (*See* Riedler, J. et al. 2001. Exposure to farming in early life and development of asthma and allergy: a cross-sectional survey. Lancet 358:1129-33. Perkin, M.R. and D.P. Strachan. 2006. Which aspects of the farming lifestyle explain the inverse association with childhood allergy? J Allergy Clin Immunol. 117(6):1374-8. Waser, M. et al. 2006. Inverse association of farm milk consumption with asthma and allergy in rural and suburban populations across Europe. Clinical and Experimental Allergy 37:661-670. Perkin, M.R. 2007. Unpasteurized milk: health of hazard? Clinical and Experimental Allergy 37:627-630.)

Raw milk retains higher levels of Vitamins A, B, C, and D than pasteurized. (*See* Haug, A., A.T. Hostmark, and O.M. Harstad. 2007. Bovine milk in human nutrition—a review. Lipids Health Disease 6:25 ("Proteins and peptides are heat sensitive, and their bioactivity may be reduced by pasteurization of milk. Heating of milk may also result in the formation of potentially harmful new products, i..e. when carbohydrates in milk react with proteins."). Wong, D.W.S. and W.M. Camirand. 1996. Structures and functionalities of milk proteins. Critical Rev Food Science Nutr. 36(8): 807-844. Runge, F.E. and R. Heger. 2000. Use of microcalorimetry in monitoring stability studies. Example: Vitamin A Esters. J Agric Food Chem 48(1):47-55. Kilshaw, P.J., L.M. Heppell, and J.E. Ford. 1982. Effects of heat treatment of cow's milk and whey on the nutritional quality and antigenic properties. Arch Disease Childhood 57: 842-847 (heat treatment destroyed all of the Vitamin B12, about 60% of the thiamin and Vitamin B6, 70% of the ascorbic acid, and about 30% of the folate). Gregory, J.F. 1982. Denaturation of the folacin-binding protein in pasteurized milk products. J Nutr. 112: 1329-1338. Effect of several heat treatments and frozen storage on thiamine, riboflavin, and ascorbic acid content of milk. J Dairy Sci. 66: 1601-6. Rajakumar, K. 2001. Infantile scurvy: a historical perspective. Pediatrics 108(4):E76. Hollis, B.W. et al. 1981. Vitamin D and its metabolites in human and bovine milk. J Nutr. 111:1240-1248. *See also* Levieux, D. 1980. Heat denaturation of whey proteins: comparative studies with physical and immunological methods. Ann Rech Vet. 11(1): 89-97 ("Nutritionists believe that high losses of nutritive value occur in heated proteins following cross-linking since high cross-linked proteins cannot be degraded by digestive enzymes.").)

Anthimus, De observatione ciborum: On the Observance of Foods. tr. & ed. Mark Grant. Totnes, Devon UK: Prospect, 1996: 117.

Ochoa TJ, Cleary TG "Effect of lactoferrin on enteric pathogens." Biochimie. 2009 Jan; 91(1):30-4.

Enzymes: International Dairy Journal,

Mucin: Stuart Patton, PhD, Professor Emeritus of food science at Penn State Univ, published in the Journal of Dairy Science.

Trace Minerals: American Journal of Clinical Nutrition (article by two PhDs, one is an MD)

Allergies and Asthma: UK Journal of Allergy and Clinical Immunology St George's Univ London (written by an MD); Community Health Sciences of St. Georges Univ, UK Clinical and Experimental Allergy

PARSIFAL study

Dairy Sciences and Technology 2nd Edition

Dr John Partridge Professor at Michigan State Univ, Food Science and Human Nutrition.

PMO 2007 (Pasteurized Milk Ordinance)

Ohio Agricultural Experiment Station Bulletin 518, p 8, 1/33

Painter JA, Hoekstra RM, Ayers T, Tauxe RV, Braden CR, Angulo FJ, et al. Attribution of Foodborne Illnesses,
Hospitalizations, and Deaths to Food Commodities by using Outbreak Data, United States 1998-2008. *CDC Emerginig Infectious*
Diseases, vol 19, No. 3 (March 2013). http://wwwnc.cdc.gov/eid/article/19/3/11-1866_article.htm

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. Published 2008. http://www.cdc.gov/foodnet/PDFs/FNExpAtl03022011.pdf

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