Glenda Wiles

From: bjhoy@localnet.com
Sent: Friday, October 26, 2018 5:23 PM
To: Ravalli County Commissioners Office
Subject: New study concerning pesticide and children
Attachments: healtheducation-3-1042.pdf; THE CASE OF THE SEX CHANGED FETUSES.pdf

Dear Ravalli County Commissioners and Board of Health,

Here is a new study concerning pesticide residues in rural homes. It was done in New York, but would be just as pertinent in any state with regard to pesticides (umbrella term) going into homes in the air and being tracked into homes. Some people even use insecticides right in their homes.

The judge in the case against Monsanto by the man who contracted cancer by spraying Roundup on school grounds upheld the verdict against Monsanto. I personally don't think the man should be rewarded for exposing children to Roundup, but he didn't deserve to get cancer either.

Also, 20 years ago, the MDFWP Laboratory's report on the white-tailed deer that Bob Hoy, then game warden, took for them to examine from northern Ravalli County had several errors. I pointed out the errors then, but no one did anything. The white-tailed deer and other wild grazing animals are still being born with a high prevalence of the same birth defects the deer the lab examined had. I have attached my notes on 11 fetuses that Hoy provided to the MDFWP Lab, the MDFWP Laboratory report on those 11 fetuses and the Agricultural Department Veterinarian's report on the 11 fetuses that were taken to him by the MDFWP Lab personnel. Those were supposed to be the same fetuses that Hoy furnished to the MDFWP Lab but the sex of some of the fetuses and sizes according to the Agricultural Department Vet did not match my notes or what the MDFWP Lab personnel said they received (see attached document). I was strongly scolded for not knowing a malformed animal from a normal one and was called several uncomplimentary names, since I removed the fetuses from the damaged does and gave them to Bob Hoy to be taken to the MDFWP Lab, as you will see if you read the document. I still maintain that the fetuses I listed with birth defects did have the malformations I noted.

I recently examined a male fawn born in 2018 at Woodside Crossing. The fawn had a fairly severe underbite. In addition, its genitalia consisted of an extremely short penis sheath and a very short thin flap of skin where the left hemiscrota should have been. There was no right hemiscrota and both testes were in a horizontal position between the skin and the body wall, not at all normal. This was the only male fawn I had the opportunity to examine from this year's fawn crop so far.

Since the only male fawn examined had multiple birth defects, that indicates the prevalence of those birth defects is still quite high and the birth defects are still occurring on newborn wild grazing animals in Ravalli County. If the wild animals are still being born with serious birth defects, human newborns likely are. I have not been tracking the birth defects on human babies for several years, but I do still hear about babies being born with defects, especially heart defects.

Thank you for your consideration of this information.

Sincerely,
Judy Hoy

SciMedCentral JSM Health Education & Primary Health Care

Short Note

Common Pesticide Residues in Rural Homes of New York State

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Abstract

Adverse health effects occur from human exposure to pests in homes, including allergic reactions, asthma attacks and depression. Despite the existence of chemical-free methods to eradicate pests, Americans use over one billion pounds of pesticides per year. Residues of these pesticides enter homes through tracking with shoes, bare feet, clothing, or animal fur; airborne entry; and soil gas entry. Because of spray drift and volatility, adjacency and proximity to agricultural operations can be responsible for residential pesticide residues. Pesticide use in and around homes is another factor responsible for these residues. Numerous health problems occur from exposure to pesticides, such as cancer, birth defects, leukemia, and ocular toxicity. Because of crawling and hand-to-mouth behaviors, children are more vulnerable than adults to adverse health effects from pesticide exposure. This paper examines exposure risks from pesticide residues in homes and presents results from a study of pesticide residues in rural homes in New York State. Policy implications of findings from this study include home maintenance guidelines for prevention of and safe eradication of accumulated pesticide residues of which consumers may not be aware.

INTRODUCTION

Human exposure to pests in the home, including cockroaches, mice, dust mites, and mold, can aggravate allergies and asthma, especially in children [1]. Pest infestations in the home have also been associated with depression [2]. Integrated Pest Management (IPM) is an approach through which pests are controlled through preventive measures and monitoring processes that exclude or limit chemical pesticide use [1]. In spite of this, Americans use over on billion pounds of pesticides per year; worldwide that figure is 5.6 billion pounds [3].

Exposure to pesticides poses health risks to humans, especially infants and children [4]. *Babayigit, Tekbas, and Cetin* [5] reported that these risks include cancer, birth defects, nervous system disorders, and endocrine system disorders. Obendorf et al. [6], listed adverse health effects from exposure to organophosphate pesticides and carbamates as depressed cholinesterase in red blood cells and death at high enough exposure levels. Ocular toxicity from pesticide exposure has been observed. Jaga and Dahrmani [7] described pesticide-related damage to the cornea, retina, lens, conjunctiva, and optic nerve. Pesticide exposure during pregnancy has been linked to autism spectrum disorders [8]. Wang, Costello, Cockburn, Zhang, and Bronstein [9] observed an increased risk of developing Parkinson's disease from exposure to pesticides. Childhood leukemia has also been positively associated with residential pesticide exposure [10].

Because of crawling and hand-to-mouth behaviors, children can ingest large amounts of pesticide residues, not only inside the home but also in yards. The purpose of this study is to examine the extent to which commonly used agricultural pesticides accumulate as residues in rural homes.

Studies of pesticide residues in homes have documented entry routes that include tracking with shoes, bare feet, clothing, or animal fur; airborne entry; and soil gas entry [11,12]. Adjacency and proximity to agricultural operations have also been cited as factors responsible for residential pesticide residues because of spray drift and volatility [13]. Lawn-applied pesticides can follow these same transport routes [12]. Once inside a home, pesticide residues accumulate in dust and degrade at a lower rate than they do outdoors because they are shielded from the effects of rain, sun, and soil microbial activity [14].

METHODS

To examine the extent of indoor pesticide pollution in rural homes, pesticide sampling and analyses were conducted as part of a larger effort that studied pollutants in homes and childcare facilities [15]. Fifteen pesticides with a likelihood of accumulation in the interiors of rural homes were selected for this study.

A two-stage random sampling procedure was used to obtain a representative sample of households in all non-metropolitan counties in New York State. A hierarchical cluster analysis using average linkage methods [16] was performed on the twenty-four non-metropolitan counties in the state. The analysis was conducted in order to determine similar groupings of counties to be used as categories in a stratified sampling design. The counties were grouped based on six housing characteristics: average number of persons per household, proportion of housing units in multiple family dwellings, proportion of housing units occupied by renters, proportion of housing units built before 1979, and proportion of housing units built after 1980. The cluster analysis resulted in six groupings of counties. When one county was randomly selected from each group, the resulting selection comprised Chenango, Columbia, Essex, Franklin, Wyoming, and Hamilton counties.

Budget constraints limited the sample size to approximately 350 homes. Weighted random sampling based on population was conducted in each county. The final sample size was n=328. Telephone surveys of the 328 were conducted with an adult head of household to determine demographic and housing characteristics. Each household was given the opportunity to have pollutant tests conducted; and 132 households agreed to this. Table (1) gives the household demographic profiles for the sample.

A technician visited the 132 houses to conduct these tests during the heating season of 2000 - 2001, and two wipe samples were collected from each participant home. One sample was taken from a carpeted floor area and one from a non-carpeted ("smooth-floor") area. When possible sample areas were selected from main living/traffic areas of the home (living, dining, family room, main entrance hall). The pesticides were selected based on those commonly used in the agricultural practices in the counties that were studied.

Pesticides were analyzed using a GC-MS method [17]. The non-acid pesticides (methamidophos, carbaryl, atrazine, methyl parathion, alachlor, pendimethalin, metolachlor, diazinon, malathion, tetramethrin, trifluralin, resmethrin, and chlorpyrifos) were extracted from dust with ethyl acetate: cyclohexane (3:1) which was replaced with dichloromethane. The extract was filtered and collected with Size Exclusion Chromatography(SEC) using a high-resolution SEC polyvinyl benzene/polystyrene column (Envirosep-ABC column) protected by an Envirosep-ABC guard column (Phenomenex, Torrance, CA) on a HP1090 HPLC (Agilent Technologies, Sunnyvale, CA) equipped with diode array detector (DAD). Hong et al. [17], present detailed SEC conditions. The effluent was manually collected and condensed for GC/MS analysis. Acetone was used to extract filter paper samples for GC/MSD analysis. Pesticides were analyzed on a HP5890 Series II gas chromatograph coupled to a HP 5971A MS (Agilent Technologies, Sunnyvale, CA). Hong et al. [17], detail the operating conditions. Characteristic MS fragment ions and chromatographic retention times were used to identify pesticides by matching. Quality assurance methods described by Hong et al. [17], were followed.

The acid pesticides (picloram, 2,4-D-acid, dicamba, and mecoprop) were extracted from dust three times with distilled water and $Ca(OH)2$ (weight ratio of dust: $Ca(OH)$ 2 was adjusted to 1:0.1). The pH was adjusted to 1 to 2 and the effluent was cleaned up by SPE with a polyvinyl benzene/polystyrene cartridge (Oasis

Table 1: Demographic characteristics of households in the sample.

Characteristic	Minimum	Maximum	Mean	Standard Deviation
Age of household Head	22	86	53.61	14.25
Education level	Grade school	Postgraduate	Technical or vocational school	
Household income	<$5,000	>$50,000	$23,900	$9,750
Number of Children	0	3	0.58	0.91

Table 2: Pesticide residues from non-carpeted areas.

Pesticide	Valid	Missing	Mean	Minimum (μg/m²)	Maximum (μg/m²)
Chlorpyrifos	132	0	0.00641565	0.000027	0.035563
Methamidophos	132	0	0.01534285	0.000022	0.091044
Malathion	132	0	0.02316181	0.000019	0.595709
Picloram Acid	132	0	0.02505954	0.000522	0.983467
Methylparathion	132	0	0.00119004	0.000026	0.044459
Atrazine	132	0	0.00081807	0.000029	0.040208
Diazinon	132	0	0.00715122	0.00002	0.077364
Carbaryl	132	0	0.00305338	0.00003	0.185368
Prowl	132	0	0.01606887	0.000026	0.147364
Resmethrin	132	0	0.00056852	0.000025	0.01974
Tetramethrin	132	0	0.01515323	0.000029	0.086751
Alachlor	132	0	0.00798413	0.000003	0.049125
Trifluralin	132	0	0.00209427	0.000017	0.043156
Metolachlor	132	0	0.01935394	0.000028	0.136299
2,4D-acid	132	0	0.00853624	0.00035	0.226174

Table 3: Pesticide classifications, targets, and uses.

Pesticide	Classification	Targets	Uses
Chlorpyrifos	Organophosphate	insects, worms	crops, animals,
Methamidophos	Organophosphate	insects	potatoes, rice, cotton tomatoes
Malathion	Organophosphate	insects, lice	fruits, vegetables, trees, shrubs
Picloram Acid	Pyridine	Weeds	herbaceous weeds, woody plants
Methyl Parathion	Organophoshate	boll weevils, sucking insects	cotton, soybeans, vegetables
Atrazine	Triazine	broadleaf and grassy weeds	corn, sugarcane, turf
Diazinon	Organophophate	Insects	fruits, vegetables, nuts, field crops
Carbaryl	Carbamate	aphids, fire ants, fleas, ticks, spiders	home gardens, commercial agriculture, forestry, rangelands
Prowl	Pendimethalin	Weeds	corn, soybeans
Resmethrin	Pyrethroid	flying, crawling insects	in and around homes, food-handling facilities, pets, livestock
Tetramethrin	Pyrethroid	mosquitoes, flies, cockroaches, wasps, hornets, fleas, ants	houses, public health situations
Alachlor	Chloroacetanilide	grasses, weeds	corn, soybeans
Trifluralin	Dinitroaniline	grasses, weeds	tree fruits, nuts, vegetable and grain crops
Metolachlor	Chloroacetanilide	grasses, weeds	corn, soybeans, peanuts, grain sorghum, potatoes, cotton, safflower, stone fruits, pod crops, nuts
2,4D-acid	Phenoxy	weeds	pastures, rangelands, residential lawns, roadways, crops

HLB 6 mL, Waters Co. Milford, MA). The cartridge was washed with distilled water at pH 2 and eluted with methanol in MTBE. Diethyl ether was used to extract the solution, and the extract was dried, followed by addition of methanol and trimethylsilyl diazomethane to methylate the carboxylic acid pesticides.

Acidified acetone (3 mM H3PO4) was used extracted with filter paper samples. The extract was condensed, methylated, and injected into the GC in the same way as dust extract except SPE cleanup was not used. Optimized GC/MS conditions were similar to those for non-acid pesticides [17].

Our approach to direct sampling in homes differs from a sewage epidemiology approach, in which samples are taken from wastewater to examine pesticide residues excreted by humans [18]. While sewage epidemiology is less costly than the direct approach that we used, it may underestimate exposure by toddlers. In addition, because of the rural nature of our sample, sewage epidemiology would have required sample extraction from septic tanks. Devault and Bristeau [18] used the sewage epidemiology approach to examine chlordecone exposure in the French West Indies. They detected no chlordecone and concluded that French sanitary and environmental policies were effective in preventing human exposure to this pesticide. Rousis et al. [19], used sewage epidemiology, which they referred to as wastewater epidemiology, to assess human exposure to pesticides in eight European cities. They found different exposure levels across those cities [Table 2,3].

DISCUSSION

The fact that pesticide residues were found in every house tested in our sample indicates the ubiquitous nature of these chemicals in the rural environment. Similar findings were also reported by Obendorf et al. [6], Smith et.al. [20], and Starr et al. [21].

Our study showed residues of five organophosphate pesticides in homes. This class of pesticides is known to disrupt renal functioning in humans [22]. Picloram Acid is classified by the U.S. Environmental Protection Agency (EPA) as a Restricted Use Pesticide that has been shown to be of moderate to low acute toxicity [23]. Atrazine has been shown to cause reproductive problems [24]. Human exposure to large amounts of carbaryl can be toxic to nervous and respiratory systems [25]. Prowl is classified by the EPA as a possible human carcinogen [26]. Pyrethroids are associated with nervous system damage [27]. Alachlor has the potential to cause cancer in laboratory animals [28]. Trifluralin can cause allergic dermatitis from prolonged exposure [29]. Metolachlor is slightly toxic if ingested [30]. 2,4 D may cause birth defects at high doses [31].

McCaule et al. [32], reported that residential cleaning practices can significantly reduce pesticide residues, but those practices are specific to different surfaces. This indicates that educators involved in pesticide education programs may want to include program elements that include home maintenance guidelines for prevention of and safe eradication of accumulated pesticide residues of which consumers may not be aware. This could be an important component of public health education efforts.

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THE CASE OF THE SEX CHANGED FETUSES

By Judy Hoy

In March and April of 1997 I removed 13 fetuses from pregnant does that were too damaged to send the mother's carcass to the lab. Two of the female fetuses had an underbite. I took special notice of that birth defect because one of my newborn goats had been born with crooked front legs and an underbite in spring of 1996.

After removing the fetus or fetuses from the dead doe, I placed them in bags labeled with letters to indicate from which doe the fetuses were removed. I removed fetuses from 8 does, A through H. The single male fetus from Doe F was normal and very autolytic (rotten), so was not sent to the lab. The following is a description of the fetuses in each of the 7 bags that we did send to the MDFWP Laboratory.

It is up to anyone who reads my report on the fetuses sent, the Wildlife Laboratory's report on the fetuses they received, and Dr. Layton's report on the fetuses he received to decide how or why some fetuses were different sex and some were a different size when the MDFWP Lab took them to the Agricultural Laboratory for Dr. Layton to examine. The fetuses in some of the bags still labeled A through G did not match the fetuses we sent or those Aune and Anderson had examined.

The following is a description of the fetuses in each bag when I put them in the bags and froze them.

In March and April of 1997 I removed 13 fetuses from pregnant does that were too damaged to send the mother's carcass to the lab. Two of the female fetuses had an underbite, a birth defect Bob and I began seeing on young deer soon after we began seeing the reproductive malformations. I took special notice of that birth defect because one of my newborn goats had been born with crooked front legs and an underbite in spring of 1996.

For 11 of the fetuses, I placed the fetus or fetuses in a bag labeled for the doe from which they were removed. I removed fetuses from 8 does, A through H. The single male fetus from Doe F was normal and very autolytic (rotten), so was not sent to the lab. The following is a description of the fetuses in each of the 7 bags that were sent to the MDFWP Laboratory.

Bag A contained two fetuses, one **MALE** and one **FEMALE**. The male fetus had normal bone structure, but its **left hemiscrota was directly**

forward of the right hemiscrota. The female had **underdeveloped upper facial bones causing underbite and had hyperextended front legs.** This fetus was examined by a wildlife biologist and a veterinarian prior to being taken to the MDFWP Wildlife Lab and both made written statements that it had those malformations. The wildlife biologist, Dr. Bart O'Gara, stated the following about that female fetus and the female fetus in Bag D; two fetuses appeared to have lower jaws slightly longer than upper jaws, the opposite of the normal condition—this probably resulted from shortening of the nasal bones and face; --"

Bag B contained one **MALE** fetus with **enlarged, malformed stifle joints and hyperextended front legs**, but normal genitalia.

Bag C contained one **MALE** fetus with a long (from front to rear) scrotal sack with **the left hemiscrota (testicular bursa) formed directly forward of the right hemiscrota**. The face and legs were normal.

Bag D contained one **MALE** fetus and one **FEMALE** fetus. The male appeared to be normal and **was quite a bit larger than the female**. Although the legs were damaged by the impact with the vehicle that killed the doe. The female had **severe malformations of the facial muscles and bones, including underbite and crooked lower jaw**. This fetus was examined by a wildlife biologist and a veterinarian prior to being taken to the MDFWP Wildlife Lab. Both made written statements, sent to the lab, that the fetus had those malformations. The wildlife biologist, Dr. Bart O'Gara, stated the following about that female fetus: "one female fetus appeared to have retarded development of its ears and facial musculature, two fetuses appeared to have lower jaws slightly longer than upper jaws, the opposite of the normal condition—this probably resulted from shortening of the nasal bones and face;--" One of those two fetuses with underbite was the same fetus that had "retarded development of its ears and facial musculature."

Bag E contained one **MALE** fetus with a large well-developed normal scrotum and normal bone structure.

Bag G contained one **MALE** fetus and one **FEMALE** fetus. The male fetus had only **a short bump where the scrotum should have been**. The bump is caused by the ectopic testes being horizontal under the skin. No actual scrotum was formed on this fetus. The female fetus appeared to have normal development. The female fetus was LARGER than the male fetus.

Bag H contained one **MALE** and one **FEMALE** fetus. Both fetuses had normal bone development and normal bite. The male had a normal length bilateral scrotum.

I put the sex of the fetuses in capitol letters and bolded it to make it easy to count the number of males and females (7M/4F). I bolded the description of the birth defect on the fetuses that had birth defects to make it easy to count the number of birth defects. There were 7 different birth defects on the 11 fetuses, with two birth defects on one of those, so 6 of the 11 fetuses (55%) had one or more birth defects. Any prevalence of over 5% is supposed to raise a red flag.

We furnished those 11 fetuses (7M/4F) for John Firebaugh, the Missoula MDFWP biologist to take to the Wildlife Lab. The report by Aune and Anderson on the Ravalli County white-tailed deer they examined states they received 7 male fetuses and 4 female fetuses. They also stated that none had a birth defect, even though letters from a wildlife biologist and a veterinarian provided to the Wildlife Laboratory stated that several of those fetuses did have birth defects.

The local veterinarian, Melinda Robin, DVM, stated the following about the two female fetuses with underbite. "Judy Hoy brought two deer fetuses to my attention with abnormal occlusion (lower jaw longer than upper) and one with forelimbs that flexed forward (hyperextended). Although I am not a wildlife veterinarian, this seems out of the ordinary to me.
Melinda Robin, DVM

Since two professionals verified that the female fetuses in Bag A and Bag D did have underbite ("abnormal occlusion") with the upper jaw shorter than the lower jaw ("the opposite of the normal condition—this probably resulted from shortening of the nasal bones and face;--"), they obviously did have that birth defect and being dead, still would have had that condition when the MDFWP Laboratory personnel examined them.

The female with a severely malformed face had a crooked lower jaw and an obvious underbite. Its male twin was completely normal. The other female fetus with underbite had hyperextended front legs, an easily diagnosed birth defect. One of the male fetuses had hyperextended front legs, another had no scrotum formed and a third one had a misaligned scrotum. Aune and Anderson stated in their report that they found no anomalies on any of the deer carcasses provided and that all the fetuses were normal. All of the birth defects we reported to be on the fetuses were easily observed malformations, and hard not to see.

The following is the exact words from the MDFWP Ravalli County White-tailed Deer Report concerning the deer carcasses and fetuses provided for the Wildlife Lab personnel to examine.

"Eleven fetuses (4F, 7M) were weighed, measured and examined. Male fetuses weighed between 71-595 grams and were 154-262 mm in length. Female fetuses weighed 148-500 grams and were 208-258 mm in length. The variation in length and weight was dependent upon stage of development. Several specimens suffered severe post-mortem autolysis or traumatic injury but appeared normal. Radiographs revealed a traumatic injury to the skull of one fetus. The crushed cranium and facial bones resulted in severe distortion leading to what was originally interpreted as a malocclusion. Fetuses had normal eye development and musculature appropriate for their stage of development. Soft fetal bone (calcification of bone matrix just beginning at 70 days), developing fetal joints, and trauma contributed to the distorted appearance of legs."

After the MDFWP Wildlife Laboratory personnel had examined the 11 fetuses, they were taken across the street to the state veterinarian, Dr. William Layton, at the Montana Diagnostic Laboratory Division. His final laboratory report on the 11 fetuses he received consisted of gross examination, histopathology, morphologic diagnosis and comment. Note the bolded sex of the fetuses (5M/6F) when Dr. Layton received them from the Wildlife Laboratory. Somehow at least two of the fetuses had changed sex.

Dr. William Layton's measurements and note of the sex of each fetus in the labeled bags he received from the MDFWP Laboratory are as follows:

"GROSS: Deer fetuses in bags labeled A through H were submitted. Bag A contains **two female** fetuses 16 cm. CRL; bag B **one female** fetus, 4.5 cm. CRL; bag C **one male** fetus 20.5 cm. CRL; bag D **one female** 21.5 cm. and **one male** 21.0 cm. CRL fetus; bag E **one male** 22.0 CRL fetus; bag G **one female** 20.5 cm. CRL and **one male** 21.0 cm. CRL fetuses; and bag H **one male** 21.5 cm. CRL and **one female** 24.4 cm. CRL fetus. All fetuses were in poor postmortem state. Skeletal abnormalities were not present in any of the fetuses examined. The eyes were in developmental stages expected for these size fetuses."

The top fetus is the female fetus that was in Bag D with its normal male twin, bottom fetus. The female fetus has an obviously severe underdevelopment of the skull, upper facial bones and soft tissue, particularly the premaxillary bone and muzzle that would have caused her death. The lower jaw is crooked, extending far to the left of normal.

"HISTOPATHOLOGY:
Random examination of eyes, kidney, liver and lung were made. All tissues are in an extremely advanced stage of autolysis. Eyes examined are at normal stage of development. No other significant lesions were identified."

"MORPHOLOGIC DIAGNOSIS: No significant gross or histologic lesions Autolysis, all fetuses"

"COMMENT: I did not determine any musculoskeletal abnormalities. The eyes were in expected developmental stages for the age of fetuses. Scrotum in several fetuses were slightly edematous and covered by immature skin. Drs. Stackhouse, Mattix and myself have examined multiple specimens from animals thought to be exposed to some unknown toxin and have yet to identify a significant abnormality. A conclusion to the hypothesis that musculosketetal, ocular, or genital abnormalities are occurring due to exposure to an environmental toxin can not be made from the animals which we have examined. In fact, we have not seen abnormalities for which the hypothesis could even be derived. Considerable amount of time and effort have been expended by laboratory personnel to address this concern. It would be helpful for the person collecting the samples to appreciate normal versus abnormal external characteristics. What specific intoxicant is suspected? Have other animals besides deer been effected? Any increase in unusual medical presentations in people of the region been reported? If there is evidence to support some of the above questions then continuation of this survey is justified. If not, then the hypothesis must be considered to be based on normal findings interpreted by an inexperienced observer to be anomalies." Signed, A. W. Layton, DVM, DACVP.

I was blamed for furnishing the fetuses because I had told John Firebaugh that I had removed the fetuses from accident-killed does that were too badly damaged to send. Because two of the fetuses changed sex before being taken to the Montana Veterinary Diagnostic Laboratory to be examined by Dr. Layton, I asked Aune, Anderson and Dr. Layton in person how that could have happened. Aune just said maybe Dr. Layton didn't look at them, and wouldn't let Dr. Layton answer the question. Aune's explanation wasn't at all likely. Dr. Layton took careful measurements of all 11 fetuses and wrote down the sex and measurements for each fetus. After that, I didn't trust anything anyone at MDFWP told me concerning birth defects on wildlife.

It is up to anyone who reads this to decide for themselves how or why two fetuses were a different sex when they were taken to Dr. Layton for him to examine. There were two more females and two less males than Aune and

Anderson had examined. It is also up to the reader to decide why a distinguished veterinarian such as Dr. William Layton, who had been head of the Montana Veterinary Diagnostic Laboratory for several years, could not tell the sex of fetuses he measured and examined, or determine the presence of the very obvious birth defects 6 of the fetuses had when we gave them to the Montana Department of Fish, Wildlife and Parks.

There are several questions that remain unresolved over 20 years after the fetuses were examined by the labs. Why could wildlife biologists not see birth defects that others (including a 5 year old child) could easily see? Why were fetuses examined by Dr. William Layton a different size in relation to their twins than my notes on them indicated. Possibly the most concerning question is, why did Dr. Layton get 5 males and 6 females in the bags labeled as I labeled them, from the Wildlife Lab personnel to examine, when 7 males and 4 females were sent for examination and 7 males and 4 females were verified by the MDFWP Lab report as being received? One independent veterinarian who was asked how this might have happened suggested, "That either Dr. Layton could not tell the sex of a fetus, which is highly unlikely. Or the original fetuses were replaced in the labeled bags with different normal fetuses."

The obvious errors in the MDFWP Wildlife's Ravalli County White-tailed Deer Survey and continued refusal by MDFWP personnel to admit that there is a high prevalence of birth defects on any wild game animal, including white-tailed deer has had grave consequences. Many thousands of children now are living with birth defects or have died because of the serious malformations they were born with since those lab reports were issued on those specific fetuses. The birth defects and health issues on the wild mammals and birds are the same issues that have been rapidly increasing on human newborns. For example heart defects, very common on wildlife have become the number one birth defect on human newborns. If something had been done to find the cause of the birth defects on the fetuses, it is possible that the suffering and deaths of many of those human newborns might have been avoided.