# Do IBR-MLV Parenteral Vaccines Transmit to Non-Vaccinates Resulting in Abortions?

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During the late 1970 and early 1971 calving seasons an increased incidence of abortions were reported from the Dakotas. A marked increase was noted, particularly in abortions attributed to Infectious Bovine Rhinotracheitis. S.D.S.U. at Brookings, South Dakota, reported 111 cases of IBR abortion in January and February, 1971, as compared to 19 cases for the similar period in 1970. N.D.S.U. at Fargo, North Dakota, reported examining 425 aborted feti from January 1 to April 30, 1971, which was double the number examined for the same period in 1970.

In early 1971, working through county agents, Drs. Schipper & Kelling surveyed the incidence of abortion in 2,708 herds. They noted that 857 herds reported abortions and 1,851 reported no abortions. Three hundred and eighty-one of the 2,708 herds had some sort of exposure to IBR vaccine, and further noted that 181, or 47% of these, reported some abortions. In the 2,328 herds having no vaccine exposure, 676, or 29%, reported abortions.

The North Dakota report further stated that IBR virus had been isolated from 26 herds as follows:

12 herds—having had some vaccine exposure with the cows, calves or both having been vaccinated.
5 herds—having no exposure to vaccine or replacements.
4 herds—having exposure to replacements but not to vaccine.
5 herds—with no history available.

Based upon the above information and survey results, a news release was issued by N.D.S.U. on September 13, 1971. Comments extracted from this news release are as follows:

(1) A greater percentage of herds exposed to IBR vaccine showed abortions than herds not exposed to vaccine or vaccinated animals.

(2) These figures would indicate that the incidence of abortion is actually increased by vaccination and direct contact with vaccinates.

(3) A higher proportion of herds had abortion problems when cows in the herds were vaccinated against IBR prior to breeding, indicating that immunization of cows vs. IBR has limited preventive value in curbing abortions.

(4) In herds in which calves were vaccinated against IBR, and apparently had no subsequent direct contact with pregnant cows, again a greater percentage of herds reported abortions than in herds with no exposure to IBR vaccine.

(5) Repeated vaccinations over three years did not appear to affect the proportion of herds showing abortions.

(6) A comparatively greater proportion of herds were plagued with abortions when breeding was by A.I.

In the *Beef Production Plus* issue of a 1972 Dakota Farmer publication, a rancher presented the following question to the "Animal Health Question and Answer" column: "This fall I gave my feeder calves IBR, BVD, $PI_3$ and Lepto vaccine when they arrived in the feedlot. They weighed 600 to 700 pounds. Approximately two weeks later some became sick and died. Did the vaccine cause this problem?"

The columnist replied that this happens quite often and if BVD or IBR is diagnosed several excuses have been offered for the vaccine. The author continues by stating other reported reasons offered for post-vaccinal illnesses, and theories offered, and concludes his reply, "If your problem was BVD or IBR, it most likely was due to use of an attenuated (modified) vaccine."

It is little wonder that with comments as appeared in the preceding news release and magazine that ranchers become quite concerned and confused over the safety and efficacy of IBR vaccines.

Based upon field investigations of IBR abortions made by USDA representatives, USDA news release 2292-71 was issued July 19, 1971. This release stated that the vaccination of calves nursing IBR susceptible cows might result in transmission of vaccinal virus to pregnant cows, resulting in abortion. On September 15, 1971, IBR

biological licensees were notified that positive warnings were to be on all IBR cartons and container labels as to use in pregnant animals or nursing calves.

In August and September of 1972 a direct mail questionnaire (Table 1) was sent to 1,059 large animal practitioners in Iowa, Minnesota, Nebraska, North Dakota and South Dakota; 265, or 25%, of those surveyed returned signed questionnaires. A summary of results obtained are as follows: (1) The average respondent had been in practice 6.25 years. (2) The respondents had used approximately 14,500,000 doses of IBR vaccine. (3) Approximately 3,305,000 calves had been vaccinated while nursing cows in 33,300 different herds. (4) 8,500 of these herds had been previously infected with or vaccinated for IBR, leaving nursing calves vaccinated in approximately 25,000 susceptible herds. (5) Calves were vaccinated at an average age of 5.8 months. (6) 2,800,000 calves in 25,000 susceptible herds had been vaccinated while nursing pregnant cows. (7) 17 veterinarians reported IBR abortions in 46 herds, possibly related to the use of vaccine. (8) The above 17 veterinarians had vaccinated 336,000 nursing calves in 3,300 IBR susceptible herds. (9) Eight of the 17 veterinarians reported abortions in 28 herds which occurred from one brand of vaccine in one year, accounting for 61% of all such IBR vaccine associated abortions. (10) Three respondents reported six aborting herds, but no brand mention was made. (11) Three respondents reported abortions in six herds. (12) Three respondents reported abortions in six herds, but had no comments on year, brand usage, or vaccine relationship. (13) Of the 46 herds reporting IBR abortions, 27 were in South Dakota, eight in Iowa, six in Nebraska, four in Minnesota and one in North Dakota. (14) Of the 46 aborting herds, 19 had abortions 30 days or less after vaccination, 18 herds had abortions approximately 60 days after vaccination, and nine herds had abortions 120 days after vaccination.

In addition to answering the survey questions, many veterinarians supplied additional remarks and comments on herd history, diagnostic findings, vaccination by lay personnel and other pertinent information. Based upon survey information obtained, I have made the following conclusions: (1) There was some basis for owners' complaints, resulting in investigations. (2) That some abortions may have resulted from the use of vaccine. In some instances the misuse of vaccine, particularly by lay vaccinators, may have caused the abortions. In some instances the vaccine may have been properly used by professionals. (3) Abortions may have resulted from the use of an improperly attenuated product, or a product or serial containing virulent IBR virus. (4) That properly attenuated, produced, and tested IBR, MLV vaccine, as the profession is used to using, does not transmit from vaccinates to susceptible pregnant cows, resulting in abortion.

If the above conclusions were not so, we should have seen IBR vaccine induced abortions before, and in all states where vaccines are used. Such reported abortions should also have been seen in much larger numbers since IBR vaccine has been available for 15 years with over 40 million doses used in one single year.

**It is also my opinion that such reports and comments as released by the USDA, a university, and a veterinary columnist, based upon temporal coincidence and circumstantial evidence, has done a disservice to the reputable commercial drug producers, the veterinary profession, and the livestock industry. It is my opinion that such reports were not based on sound epidemiologic procedures, supported by definitive laboratory findings.**

Table 1

Questionnaire Covering Field Usage of Parenteral MLV-IBR Vaccine Which has been Commercially Available Since June 1957

I. How many years have you used parenteral MLV-IBR vaccines? _____

II. How many doses do you estimate you have used? _____

III. How many doses (No. or %) were used on calves still nursing the cows? _____

A. Approximately how many herds would this represent? _____

B. In how many of these herds had the cows previously been vaccinated for IBR? _____

C. In how many of these herds had there been IBR infection within three years prior to vaccination of the calves? _____

D. What generally is the age and weight of nursing calves when vaccinated? _____

E. In how many of these herds did abortion problems occur? _____

1. How many days after vaccination? _____
2. Was a diagnosis made as to cause of abortions? _____
3. What was the diagnosis? _____
4. What was the basis of the diagnosis? (Clinical, autopsy paired serology, virus isolation or histopathology) _____
5. Did non-vaccinated herds on adjacent farms abort also? _____
6. Was the same brand and serial of vaccine used on the herds where no abortions occurred? _____
7. Any additional comments: _____

IV. Give comments on any adverse postvaccinal reactions or results of IBR vaccine usage on any animals: _____

Signature _____