among the many various puzzle pieces, if we are going to be successful in our approach to artificial immunization against BRD. Then it will be nicer to fool around with Mother Nature.


### Summary

As veterinarians,we like to think that the calf recovered because of our treatments. Or better still, that it didn't ever get sick, because we vaccinated it. But wait.....

Immunity is not *all good!* Uncontrolled overresponsiveness can be as bad or worse than immunosuppression. For example, development of lesions in the calf lung which we call pneumonia is due to the calf's *own immune response* to infection. So infection is very common. Disease is rather rare. Balance is beautiful!

The immune responsiveness of a calf is often in rather *precarious* balance. As we seek to intervene, we must have an understanding of the interactions which maintain that balanced response. Otherwise, we can find ourselves guilty of doing the right thing, for the right reason, but perhaps at the wrong time. *Oops!*



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# Abstracts

## Protection against respiratory disease in calves induced by vaccines containing respiratory syncytial virus, parainfluenza type 3 virus, *Mycoplasma bovis* and *M dispar*

C. J. Howard, E. J. Stott, L. H. Thomas, R. N. Gourlay, G. Taylor

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**A field trial to assess the ability of two vaccines to protect calves against respiratory disease was carried out on a large beef rearing unit in southern England over the two winters of 1983 to 1984 and 1984 to 1985. A quadrivalent vaccine containing the killed antigens of respiratory syncytial virus, parainfluenza virus type 3, *Mycoplasma bovis* and *M dispar* or a vaccine containing only the respiratory syncytial virus component were inoculated into 246 and 245 calves, respectively; 245 calves remained as unvaccinated controls. The calves were reared in seven batches and outbreaks of disease occurred in five; significant protection was achieved in the four batches in which disease was associated with respiratory syncytial virus and *M bovis* infection, together or independently. The death rate from pneumonia was 9 per cent in the control group, 2 per cent in the calves inoculated with the quadrivalent vaccine ($P<0{\cdot}001$), a protection rate of 77 per cent, and 3 per cent in the calves inoculated with the respiratory syncytial virus vaccine ($P<0{\cdot}01$), a protection rate of 68 per cent. The proportion of calves receiving treatment for respiratory disease was 38 per cent in the control group, 25 per cent in the calves inoculated with the quadrivalent vaccine ($P<0{\cdot}001$) and 27 per cent in the calves inoculated with the respiratory syncytial virus vaccine ($P<0{\cdot}01$). The results show that protection against respiratory disease can be achieved by parenteral vaccination of calves with the appropriate inactivated microorganisms.**

## The effects of selenium, housing and management on the incidence of pneumonia in housed calves

M. Phillippo, J. R. Arthur, J. Price, G. J. Halliday

*Veterinary Record* (1987) **121**, 509-512

**The occurrence and incidence of pneumonia in housed calves were not related to the selenium status of the herd as measured by blood glutathione peroxidase activity nor were they affected by selenium treatment of calves during the neonatal period. Pneumonia was related more closely to herd size and building design.**