

I'm going to illustrate this by looking at canine pyoderma particularly associated with atopic dermatitis, which as we went back a couple of slides, we showed as a very important reason or cause for use of antimicrobials in practice. And in this study by Charles Bradley, from the University of Pennsylvania, they looked at the diversity of the skin microbiome. And they looked at the axilla, pinna, and groyne, all of which are sites affected by atopic dermatitis, and the mouth, which is not a site we would expect to be affected.

And if you look at the control group, the healthy dogs here-- so these are the blue boxes, and the more colourful bars here, you can see that the microbiome is much more diverse. So a healthy microbiome is diverse. It is rich. It has lots of different bacterial species there. And it is often relatively even, so that each different bacterial species of the family tends to make up an even and relatively equal part of the microbiome.

And you can see, from the atopic dog groups, that these were dogs presenting with a flare that traditionally we would have referred to as a staphylococcal infection. And you can see that, for all the skin sites, the diversity is much less, but not for mouth site, which again we would not expect to be involved. And you can see that this loss of diversity is associated with a skewing towards staphylococci.

So that's the pink bars here. So the microbiome is less diverse and it's much less rich. And this can have a considerable impact on the skin disease, as well as being a driver for use of systemic antibiotics.