7 Market definition and market shares

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Market definition

7.1. Market definition is a necessary first step in assessing market power. However, a high market share is not, in itself, conclusive evidence that a firm has market power: other market features such as barriers to entry should also be considered.

7.2. In defining the relevant markets, we consider both the nature of products and the location in which they are sold. We ask whether, if for example the price of a product (or service) rises, suppliers of other products are likely to switch production to that product (supply-side substitution), or customers (ie those making the purchasing decision) are likely to respond by purchasing a different product (demand-side substitution). Demand-side substitution between two products depends on customers responding to an increase in the price of one by switching to the other. Two products, A and B, can be seen as demand-side substitutes if, following a price rise in product A, the extent of switching to product B would be sufficient to make the price rise unprofitable to the supplier of A. It is not necessary for all customers, or even the majority, to switch products. What is important is that the threat of switching to product B is sufficient to constrain the price of product A.

7.3. We distinguish three levels, for the supply of most POMs, at which competition may take place:

(a) between veterinary manufacturers;
(b) between veterinary wholesalers; and
(c) between veterinary surgeries and pharmacies.

We note that some veterinary medicines are supplied direct from manufacturers to commercial end-users. Examples are pig and poultry in-feed products and feed additives, and medicines for fish. As POMs can only be supplied to end-users by, or on the prescription of, a veterinary surgeon, some larger end-users employ their own veterinary surgeons.

Manufacturers

7.4. In defining the relevant markets at the manufacturer level, we first consider the geographic market. Then, turning to the product market, we discuss supply-side substitution, and market features of relevance to demand-side substitution, before going on to consider demand-side substitution, and to define the relevant markets in each main product area.

Geographic market

7.5. Costs of transport and distribution are low in relation to the value of veterinary medicines. However, regulation limits the potential for imports. A medicine may not be sold in the UK unless it has a UK MA, and the VMD told us that the authorization process took an average of around two years. Veterinary medicines are manufactured in a variety of locations globally, but this does not impact on competition in the UK, as they can only be supplied in the UK by, or with the consent of, the MA holder. There is provision for specific authority to be granted to certain parallel imports but currently such applications, and imports, are rare. We have been told that substantial illegal imports of POMs occur, although the precise extent of this is unclear.

7.6. We have received no evidence that the relevant geographic markets for most veterinary medicines are broader than the UK. Intervet told us that markets were increasingly becoming European due to the centralized and decentralized procedures, but it accepted the European Commission decision in Akzo/Hoechst\(^1\) that markets were national. Schering-Plough said that markets were mainly national in scope, citing the European Commission decision in Ciba-Geigy/Sandoz,\(^2\) but added that there were some products, such as aquaculture products, whose customers had international operations and for which the

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\(^1\)Case no M1681 Akzo Nobel/Hoechst Roussel Vet.
\(^2\)Case no M737 Ciba-Geigy/Sandoz.
markets could be wider than national. Alpharma, the leading supplier of fish vaccines, confirmed that
fish-farming companies were increasingly multinational, and said that some negotiated on global, rather
than national, sales.

7.7. Some manufacturers said that the relevant market was the UK, but others distinguished between
Great Britain and Northern Ireland. A medicine supplied in either Great Britain or Northern Ireland must
be authorized in the UK, and can therefore be supplied in both regions without further authorization. As a
result, the regulatory restraints on transfer of goods, described in paragraph 7.5, do not apply within the
UK.

7.8. We asked manufacturers to describe differences between their operations in Great Britain and
Northern Ireland. Out of 12 respondents, seven (including Pfizer and Fort Dodge) said that there was no
difference; four (Intervet, Schering-Plough, Novartis and Bayer) said that their Northern Ireland
operations were run together with those in the Republic of Ireland; while Norbrook ran its Northern
Ireland operations as separate from those in Great Britain.

7.9. In view of the above, we have treated the UK as the relevant geographical market for the supply
of veterinary medicines at the manufacturer level. An exception to this is the supply of fish vaccines,
which appears to take place at an international or global level.

7.10. We note that veterinary practices in Northern Ireland account for less than 5 per cent of
purchases of veterinary medicines recorded by GfK. As a result, although there are differences in share
between Great Britain and Northern Ireland, there is limited scope for variation between Great Britain
and UK market shares. For example, if a supplier’s share of sales was ten percentage points higher in
Northern Ireland than in Great Britain, its UK share would be only 0.5 per cent higher than its Great
Britain market share.

Product market: supply-side

7.11. Pfizer told us it suspected that a degree of supply-side substitutability might exist ‘as suppliers
have technical capability, infrastructure and distribution networks in place’. However, Pharmacia said
that it did not consider that there was any supply-side substitution. Boehringer said that supply-side
substitution was restricted by patents and, to a lesser extent, the need for MA. Merial told us that a
supplier operating in the UK could relatively quickly bring to market, through the mutual recognition
procedure, a product for which it had an MA in another EC member state. We note that this would only
constitute a price constraint to a POM sold in the UK if a similar product existed, currently sold in other
EC states, whose manufacturer had not chosen to introduce it in the UK but would do so in response to a
small price increase by the UK incumbent.

7.12. In view of the time usually required for product development and obtaining MA, we consider
that the potential for entry, while significant, is not sufficiently immediate to constitute supply-side sub-
stitution. Entry conditions are discussed in Chapter 9.

Product market: demand-side

7.13. In the retail supply of POMs, the decision to prescribe a particular medicine is made by the
veterinary surgeon, although the animal’s owner can choose not to have it treated, or go to another
veterinary surgery. We have been told that farmers are more price-sensitive than owners of companion
animals. In treating farm animals the prescribing decision will depend on which course of treatment, if
any, the farmer is willing to pay for, and this will ultimately be constrained by the value of the animals.
Views differ as to the price sensitivity of veterinary surgeons (see paragraph 9.19). However, we note
that non-price product features (some of which are described below) are critical, and often decisive, in
the veterinary surgeon’s choice of medicine. This suggests that medicines only compete on price if they
perform very similarly in at least some treatment circumstances.

7.14. Substitutability of medicines depends on a range of factors, including:

(a) condition to be treated;
The relevance of each of these factors differs between markets, but some general comments can be made.

7.15. Disease/condition. Some medicines are designed to be effective against more than one disease. If two medicines (for example, vaccines) are each effective against a single different disease (monovalent) they are not direct substitutes, but a third (multivalent) vaccine could be effective against both diseases, and therefore in competition with both of the other two vaccines. In this case a chain of substitution may link all three to the same market. Product markets may, in some cases, change as the introduction of a new product (for example, a multivalent vaccine) creates a chain of substitution linking two products which are not direct substitutes.

7.16. Species. The NOAH sales survey indicates that 54 per cent of veterinary medicines sold are for companion-animal medicines, 34 per cent for food-producing animals, 8 per cent for poultry, and 5 per cent multi-species (products are categorized as ‘multi’ if less than 90 per cent of their sales fall into any one of the other three summary categories, although NOAH notes that manufacturers do not always know where their medicines will be used). The MA for each medicine will identify the species (often more than one) for which approval has been granted. Again, a chain of substitution may exist with regard to species, in that, for example, if one medicine can be used to treat a particular illness in dogs only, another the same illness in cats only, and a third the illness in both dogs and cats, all three could be in the same market.

7.17. Route of administration. Some medicines can only safely be administered by veterinary surgeons, whilst others are suitable for administration by animal owners. Two products may contain the same active ingredient but if, for example, one is a tablet and the other an injection, the circumstances in which a veterinary surgeon would substitute between them in response to a change in the relative price may be limited.

7.18. Whether curative or preventive. Several manufacturers told us that curative and preventive medicines for the same disease might be substitutes for one another. (In some cases, medicines that controlled the disease (ie limiting the clinical signs of the disease but not eradicating it) might also be substitutes for curative or preventive medicines.) However, there is some disagreement about the importance of this in competition terms: see, for example, paragraphs 7.69 to 7.74.

7.19. Before going on to analyse specific markets, we note that our discussion will refer to the classifications used in sales data compiled by NOAH (the NOAH sales survey) and GfK (the BVI). Both datasets are widely used among manufacturers, some of whom use the product categorizations of one, other, or both, with or without modifications, to calculate their market shares. We have considered the classifications used by NOAH and GfK as indicating possible market definitions, but not as conclusive evidence.

7.20. We now turn to the definition of individual product markets at the manufacturer level. The Office of Fair Trading reference required that we consider the supply of POMs in the UK. It did not refer to other veterinary medicines with non-POM classifications. However, although POMs were our primary focus, we also considered the possibility of supply- or demand-side substitution between POMs and other veterinary medicines. The NOAH sales survey indicates that, in 2001, POMs accounted for 72 per cent of veterinary medicine sales in the UK, PML products for 22 per cent and GSL products for 3 per cent. We have focused on markets with annual sales in the UK of more than £1 million.

Antimicrobials

7.21. Microbes include bacteria and fungi, and therefore medicines used to treat microbial infections include antibacterial medicines (also called antibiotics) and antifungal medicines. Antibacterials may differ in the indications for use, route of administration, or target species. We shall first consider indication for use, and then consider route of administration and target species.
7.22. **Indication for use.** Most of the larger-selling antibacterials are broad spectrum (ie indicated for a range of uses) although some are narrow spectrum. Pfizer told us that:

For injectables in particular, markets do not exist by particular disease indication, as products are generally suitable for multiple rather than specific use. Buyers will choose between broad and narrow spectrum products on the basis of price. If a supplier of narrow spectrum products tried to raise prices, purchasers could substitute towards broad spectrum products (and vice versa). The fact that suppliers cannot price discriminate between purchasers of their broad spectrum products on the basis of end use means that the broad spectrum products thus link together narrow spectrum products into a broader antibacterials market.

In contrast, the VMD told us that there was limited if any overlap in spectrum between different classes of antibiotic, such as penicillin, tetracycline, and potentiated sulphonamide. The Pig Veterinary Society told us that ‘If one is treating a specific disease that is responsive to a narrow spectrum antibiotic, it is deemed bad medicine to use a broad spectrum product, even if it is cheaper’. NOAH told us that if the organism causing the disease was unknown, the veterinary surgeon might choose a broad spectrum antibiotic, especially if time-consuming and expensive laboratory tests needed to be conducted before a narrow spectrum antibiotic could be used with confidence.

7.23. In presenting sales data, we have not separated antibacterials on the basis of their indication. We recognize that narrower markets may exist, defined on the basis of the antibacterial’s indication. However, there is a divergence of views within the industry as to whether or not this is the case, and as to where the boundaries lie. We do not consider it necessary, for the purpose of our subsequent analysis, to identify any such narrower markets on the basis of indication for use.

7.24. **Route of administration and target species.** The European Commission in *Akzo/Hoechst* distinguished between injectable, oral and topical antimicrobials. Bayer also distinguished products by route of administration. Pfizer told us that ‘the choice of administration route will in most cases depend on relative cost’.

7.25. A substantial number of injectable antibacterials (accounting for around one-third of sales by value) can be used for both large and small animals. Pfizer told us that in the category of antibacterials for farm animals ‘in contrast with oral antibacterials for companion animals, owners are often farmers, who, in the main, are able to give animals injections. This means that there is overlap between the use of oral products and injectable products.’ With regard to small animals, market research by [X] suggested that, for some veterinary medicines including antibacterials, veterinary surgeons treating small animals often started with an injection and then dispensed tablets for administration by the owner (the VMD also told us that this was common). Where a branded product was used, some veterinary surgeons preferred to dispense the same brand in oral form as they administered in injectable form, suggesting complementarity between oral and injectable products. NOAH told us that use of the same brand in injectable and oral forms, within a particular treatment episode, was a therapeutic and not a commercial link.

7.26. We have identified a number of groups of antibacterials, described in the following paragraphs, that form separate markets. With these exceptions, we have presented data on the basis of a single market for antibacterials in injectable or oral form, for large and small animals.

7.27. Some POM-classified antibacterials (mainly for poultry and pigs) are soluble products administered by adding to drinking water. Several of these (such as Pharmacia’s Linco-Spectin and Elanco’s Tylan) are also available as premixes with a medicated feedingstuffs classification. However, substitution between the soluble products and premixes appears marginal: manufacturers tended rather to identify other POM antibacterial solubles as competitors. A likely reason for this is that soluble products are generally used where the illness has caused animals to lose their appetite—in which case in-feed medicines would not be suitable. The manufacturers of the two largest-selling products in this category (Pharmacia’s Linco-spectin 100 Soluble and Bayer’s Baytril 10% Oral Solution) identified one another as competitors. We consider that POM antibacterial soluble products are distinct from other antibacterial products, but did not consider it necessary to reach a view as to whether a narrower market definition was appropriate.

7.28. Turning to antibacterials for intramammary administration, the European Commission in *Akzo/Hoechst* identified two markets within this area—lactating cow mastitis treatments and dry cow
mastitis treatments. The VMD agreed that each of these was distinct. Pfizer told us that injectable and intramammary treatments for lactating cow mastitis competed with one another (it also said that there was potential for substitution between intramammary products for dry cow mastitis and ‘a few other antibacterials’). [Details omitted. See note on page iv.]

We consider that lactating cow mastitis treatments and dry cow mastitis treatments can be viewed as separate markets.

7.29. Pfizer identified four other markets which included antibacterials:

(a) Licensed veterinary pharmaceuticals (antibacterials) for the treatment of infectious diseases which are primarily bacterial, affecting the eye in one or more of the main species (market value estimated by Pfizer as £1.8 million). Leo defined a market for plain topical eye antibiotics used in the treatment of conjunctivitis in the dog/cat/rabbit, which was of similar total value (£1.9 million) and contained a similar, though slightly longer, list of products to those identified by Pfizer. We have presented market share data on the basis of products identified by Leo.

(b) Licensed veterinary medicines for the control of respiratory diseases (for example, pneumonia) in cattle caused by viruses or bacteria (which may be secondary to viruses) (£23.7 million). This is discussed further in paragraphs 7.69 to 7.74.

(c) Licensed veterinary medicines for the control of respiratory diseases in pigs caused by viruses, mycoplasma or bacteria (which may be secondary infections to viruses or mycoplasma) (£16.8 million). This is discussed further in paragraphs 7.72 to 7.74.

(d) Licensed and unlicensed products for the correction and prevention of scours, dehydration, electrolyte imbalance and/or energy loss in one or more of the main species (£16 million). This is discussed further in paragraph 7.76.

7.30. Leo identified three other markets which included antibacterials:

(a) Topical products for the treatment of otitis externa in the dog/cat (£3.5 million). This market comprises ear/eye steroidal preparations and ear antimicrobials. We have not received any information that contradicts Leo’s view, and have presented market share data on the basis of this definition.

(b) Combination steroid/antibiotics used in the topical treatment of surface pyoderma primarily in the dog (£1.8 million). We have not received any information that contradicts Leo’s view, and have presented market share data on the basis of this definition.

(c) Products used for the treatment of seborrhoeic dermatitis in the dog (£1.9 million): see below.

7.31. As regards antifungals, GfK distinguishes between topical antifungals (£1.2 million) and oral antifungals (£0.4 million). The largest-selling topical antifungal is Leo’s Malaseb, with sales of £1.1 million. Leo defined the market in which Malaseb competed as ‘products used for the treatment of seborrhoeic dermatitis in the dog’ (market (c) above), comprising topical antifungals, antiseptics-disinfectants, other oral antibiotics (GfK category A3G), and other dermatologicals (GfK category S1A)), and we have presented sales data on the basis of this definition.

Parasiticides

7.32. Parasiticides are used to treat either single-cell parasites (for example, protozoa such as coccidia) or multi-cellular parasites. The latter can be further divided into:

(a) ectoparasiticides (or ectocides)—used for the control of external parasites such as fleas, ticks, lice and mange mites;

(b) endoparasiticides (or endocides)—used for the control of internal parasites such as worms, liver flukes and protozoa; and
7.33. As regards anti-coccidials, the *Veterinary Formulary*, published by the RPSGB and the BVA, notes that ‘Previously PML feed additives, for example production enhancers or coccidiostats, were authorized as veterinary medicines under the Medicines Act. Under the Feeding Stuffs (Zootecchnical Product) Regulations 1999 these preparations are no longer considered as medicines.’ We have not identified any areas in which these products compete with POMs, and so we do not consider them further.

7.34. Turning to endoparasiticides, ectoparasiticides, and endectocides, Bayer named flea treatments for companion animals, and Novartis mentioned wormers, as product groups in which curative and preventive treatments were substitutes. Manufacturers of these product types included both preventive and curative medicines among their close competitors.

7.35. The European Commission, in *Ciba-Geigy/Sandoz*, identified four separate product markets in farm-animal endo- and ectocides, and small-animal endo- and ectocides. In doing so, the European Commission noted that ‘The respective products in the above four classifications differ in terms of their effect, formulation and composition, so that they can frequently only be used for either farm or small animals’. The view that parasiticides for large animals are not in the same market as those for small animals was supported by Pfizer, which identified separate markets for (a) cattle and sheep, (b) pigs, (c) horses and (d) cats and dogs. We begin by taking the view that small-animal parasiticides form a separate market or markets from large-animal parasiticides. None of the large-animal parasiticides sold in the UK are POMs, and therefore we do not consider them further. In paragraph 7.37 we briefly discuss whether further separation by species is necessary among small animals, but first we consider whether distinctions can be drawn between small-animal endo- and ectoparasiticides.

7.36. The European Commission, in *Merck/Rhône-Poulenc/Merial*, said that there was a certain degree of interchangeability between endectocides and both endoparasiticides and ectoparasiticides. However, all of the products classed as endectocides by NOAH have ‘food-producing’ (large) animals as their target species. (Pfizer told us that its Stronghold product—discussed in paragraphs 7.38 to 7.40—was classified by NOAH as a small-animal endectocide, but that, as it was the only medicine of this type, NOAH grouped it among ectoparasiticides to avoid revealing its sales.)

7.37. The main small-animal parasiticides are flea treatments (ectoparasiticides) and wormers (endoparasiticides) for cats and dogs. Both categories include substantial sales of products that can be used for both species, so we have not distinguished between dog and cat treatments for the purpose of market definition.

7.38. Pfizer’s Stronghold is both a flea treatment and a wormer. It could be argued that the presence of Stronghold creates a chain of substitution between small-animal flea and worm treatments. Bayer told us that sales of its flea treatment product, Advantage, had suffered as a result of the launch of Stronghold. In contrast, whilst Bayer said that Stronghold was also a close competitor to its Drontal wormer products, there is some evidence from research commissioned by Bayer that Stronghold has had limited impact as a wormer—with around 2 per cent of owners of companion animals naming it as the brand they buy (they can only ‘buy’ Stronghold if it is prescribed by the veterinary surgeon), behind Drontal products (around 20 per cent) and several other PML wormers (Bayer told us that this was because of the technical superiority of its long-established Drontal products). There is also some suggestion from GfK data that Stronghold may have had an impact on sales of other flea treatments, but not on other wormers. Both GfK and NOAH classify Drontal as an ectoparasiticide. GfK-recorded sales of other ectoparasiticides declined following the launch of Stronghold in 2000, although there was also considerable decline in the sector before the launch. Sales of endoparasiticides increased by close to or over £1 million every year from 1997 to 2001, and the launch of Stronghold had no noticeable effect on this. Bayer told us that it ‘suffered quite badly’ when Stronghold was launched, and when its price was cut by half. However, data from Bayer suggests that revenue from sales of Drontal Plus and Drontal Cat increased substantially in 2000 and 2001, despite the launch of Stronghold in February 2000.

7.39. Pfizer, in describing Stronghold to us, [Details omitted. See note on page iv.]:

> It is a flea product … It has a very complex set of indications in a sense. It was launched into … the market competing against … Frontline [and other products], a hugely
competitive segment. The product was complex in terms of what it would do. It was a flea killer; it could kill flea eggs and larvae, et cetera. It also had an application in treating other skin-borne diseases which were far more difficult to kill. It was innovative in that sense. It also was effective against round worms. [Details omitted. See note on page iv.]

7.40. On balance, we consider that the presence of Stronghold is not sufficient to link small-animal flea treatments and wormers (or, more generally, endo- and ectoparasiticides) into a single market. As mentioned, Pfizer told us that Stronghold was the only small-animal endectocide, but Novartis told us that its Program Plus was also effective as a flea treatment and a wormer. However, it did not identify any wormers as competitors, nor did Bayer identify Program Plus as a competitor to Drontal.

7.41. Most flea treatments are POM, but several GSL products are also available. These latter can be sold through supermarkets. The British Small Animal Veterinary Association (BSAVA), Merial and others told us that the flea treatments sold in supermarkets were less efficacious (although they are required to meet their efficacy claims in the authorization process). Merial said that there was a spectrum of performance in flea treatments. It also said that POM treatments were generally significantly more expensive than GSL or PML products. The web sites of the RSPCA, the People’s Dispensary for Sick Animals (PDSA) and The Blue Cross all recommend that owners of companion animals that have fleas should visit their veterinary surgeons. Merial told us that ‘non-prescription flea and tick treatments can and do compete with POMs, indeed in many cases within the veterinary practice’. However, GfK data indicates that flea products sold through veterinary practices are predominantly POMs (over 93 per cent, whilst most of the remaining share is accounted for by household sprays which are not used directly on the animal).

7.42. We asked the manufacturers of the leading POM flea treatments—Frontline, Program, Advantage and Stronghold—to name all medicines sold in the UK which performed a similar function to their own. Merial identified over 50 such products for each of its three varieties of Frontline. [Details omitted. See note on page iv.] Novartis interpreted the question more narrowly, naming six POMs with which its Program was in close competition (including Frontline, Advantage and Stronghold (see below)). Bayer named only Frontline and Stronghold as being in close competition with its Advantage products. Bayer also supplies Fleegard, which is a preventive-only POM. It saw this as being in competition with Program, Cyclo (another POM) and Stronghold.

7.43. On balance, and despite the large number of non-POM competitors identified by Merial and [X[, we consider that POM flea treatments largely compete with other POMs, and that competition from PML or GSL treatments is marginal. We note that GfK-recorded sales of small-animal ectoparasiticides (through veterinary practices) were £37 million in 2001 (excluding wholesaler discount, but including manufacturer discounts/rebates to veterinary practices), while NOAH-recorded sales in this category and period were £42 million. The NOAH figure includes the GSL products of NOAH members (two of which are leading manufacturers of GSL flea treatments), sold both through veterinary practices and other outlets. This would suggest that sales of non-POM small-animal ectoparasiticides, while substantial, may be small in relation to POM sales (in value terms).

7.44. The leading small-animal wormers sold through veterinary practices are Bayer’s Drontal Plus (for dogs) and Drontal Cat, together accounting for 84 per cent of sales through this route. Both Drontal products are PML, although they are sold largely through veterinary practices (see paragraph 9.63). Bayer identified eight close competitors for Drontal Cat (of which four were different presentations of Panacur). All were suitable for dogs and cats, and only one (Stronghold—which we have categorized as a flea treatment) was POM. For Drontal Plus it named the same eight products, along with several GSL medicines used only for dogs. However, Bayer’s Droncit Injectable and Droncit Spot-On, also small-animal wormers, are POM. In view of this, and in contrast to the case of small-animal flea treatments, we consider that a single market exists for the supply of POM and non-POM small-animal wormers.

Anti-inflammatories, analgesics, anaesthesia, and sedation

7.45. Surgery requires the use of a range of different drugs that act on the animal’s nervous system. Both sedatives and anaesthetics assist sleep and muscle relaxation. Analgesia (pain relief) can be
achieved by the use of opioids, but non-steroidal anti-inflammatory agents (NSAIDs) also have analgesic properties, as do local anaesthetics. Opioid analgesics cause sedation, so reducing the need for general anaesthetics. However, NSAIDs do not, and most general anaesthetics and sedative agents do not provide good analgesia. Although there is an overlap in the functions performed by different products, many operations require a combination of different agents.

7.46. Pfizer identified a single market for sedation and anaesthesia, and three other markets (differentiated by on-target species and route) for anti-inflammatories and analgesics. With regard to sedation and anaesthesia, it said that when choosing a product, veterinary surgeons would take account of a number of factors including the cost of various agents.

7.47. In some cases, a veterinary surgeon may be able to decrease the use of, for example, a more expensive anaesthetic by using more of a relatively inexpensive sedative. However, the PDSA and the BSAVA identified a wide range of non-price considerations that would determine a veterinary surgeon’s choice of these products, including animal and human safety, the severity of the procedure being carried out, reactions of particular species or breeds to certain drugs, temperament of the patient, ease of administration, and availability of suitable equipment. The PDSA told us that ‘Neurological agents are chosen primarily in view of the safety of the patient. Cheaper options are used when more expensive choices do not contribute particular advantages to the patient or the situation’. The BSAVA told us that ‘Cost may be a consideration but is unlikely to be a pivotal one … Cost is most likely to influence the choice of the actual anaesthetic induction or maintenance agent rather than whether the patient has a general anaesthetic or a sedative only as many [other considerations] will take precedence.’

7.48. Pfizer told us that the introduction of lower-cost anaesthetics, which allowed a similarly rapid recovery to sedatives, had led to a growth in use of these products at the expense of sedatives. However, the BSAVA told us that the newer short-acting anaesthetics were more expensive than most of the sedatives on the market. Pfizer told us that ‘this may be true if the vet considers only the cost of the products’ but that ‘there is a price-benefit trade-off that pet owners may make’.

7.49. Schering-Plough has the leading general anaesthetics by inhalation (Isoflo) and by injection (Rapinovet and Saffan, which is both an anaesthetic and a sedative). It identified seven general anaesthetic inhalants as close competitors to Isoflo (and no other products). Six products were named as close competitors to Rapinovet and Saffan, five of them injectable general anaesthetics, and the other an anaesthetic and sedative (with low sales). None of the leading sedatives was mentioned.

7.50. Anti-inflammatories can be separated into steroids (also called glucocorticoids or corticosteroids) and NSAIDs. The BSAVA categorized NSAIDs, but not steroids, as analgesics. It said that the use of steroids in the post-operative period was contra-indicated except in certain specific circumstances, and the PDSA confirmed this. NSAIDs and opioids are not interchangeable, as opioids cannot be used at home and require frequent re-dosing. Nevertheless, the BSAVA told us that the relative prices of opioids and NSAIDs might influence the veterinary surgeon’s choice. We consider that a chain of substitution exists from opioids to NSAIDs, and from NSAIDs to steroidal anti-inflammatories.

7.51. In defining markets for anti-inflammatories and analgesics, Pfizer distinguished between injectable, oral companion animal, and oral large animal. For small animals, oral products were usually tablets or drops, whereas for large animals (principally horses), oral products were granules. It said that injections could typically be used in all species. However, Pfizer also said that there was a tendency for injectables to come in two strengths—one for dogs and cats and one for large animals. We note that a substantial proportion of injectable analgesics and NSAIDs can be used for both large and small animals.

7.52. On balance, and particularly in view of the many non-price constraints on the veterinary surgeon’s choice, we consider that the following groups should be considered as operating in distinct markets from one another, albeit that there may be some marginal substitution between them: general anaesthetic inhalants; general anaesthetic injectables; local anaesthetics; sedatives; and finally analgesics and anti-inflammatories together (linked by a chain of substitution)—this last group being subdivided between oral and injectable and, for oral medicines, between large- and small-animal products. Sales of local anaesthetics are below £1 million, and we do not consider this market further. We note that a further group of steroids is included in the market for treatment of surface pyoderma in the dog (see paragraph 7.30(b)). Euthanasia products appear to belong to a further separate market.
Endocrines/hormones

7.53. The European Commission, in *Akzo/Hoechst*, identified a range of different endocrine product groups. The main groupings were gonadotrophin-releasing hormones, prostaglandins, gonadotrophins and progestagens. The first of these could be further divided by species, while each of the remaining three could be split into natural and synthetic hormones. NOAH and GfK use categorizations under the heading of ‘hormones’, which do not correspond to the European Commission view, but appear broadly compatible with each other, although GfK’s are more detailed. GfK’s six categories are: small-animal oestrus control; other sex hormones; pituitary hormones; prostaglandins; androgens/anabolics; other hormones and enzymes; and insulins. In some cases the ‘others’ categories contain medicines aimed at completely different species. No clear pattern emerges in the manufacturers’ views of their close competitors—in some cases no competitor was identified—Intervet saying that several of its medicines had no competitors. Few of the larger-selling products appeared to have more than one or two competing products, and in some cases these competitors came from different areas such as antimicrobials (Schering-Plough’s Estrumate is an example for which antimicrobials were substitutable in certain circumstances) or human pharmaceuticals. (The fifth largest-selling hormone product, Neo Mercazole, is a human product.) In view of this, we conclude that the hormones sector includes a number of small separate markets—in some cases comprising a single product. Individual manufacturers—notably Schering-Plough and Intervet—are selling products for which there are no direct competitors. However, we reached the view that it was not necessary to define each of these markets for the purpose of our analysis.

Cardiac and respiratory products

7.54. GfK does not distinguish between different types of cardiac and respiratory products. However, some distinctions exist between products, in their target species, treatment indications, and manufacturers’ view of their main competitors.

7.55. Four of the six leading products (Fortekor, Vasotop, Vetmedin and Enacard) primarily treat heart failure in dogs, and the manufacturers of these products all identified each other’s products as competitors. The seventh largest-selling product, Corvental D, treats bronchitis and heart failure in dogs, and appears to belong in this group.

7.56. Vivitolin (Intervet), the second biggest-selling product, was named as a competitor by manufacturers of all but one of the five products named above. It does not treat heart failure as such, but rather improves blood supply in older dogs. Intervet saw it as competing with Merial’s Fitergol, a medicine for aging-related disorders (Merial agreed), and only marginally with Corvental D. It did not mention Fortekor, Vasotop, Vetmedin or Enacard.

7.57. Boehringer’s Ventipulmin is for treatment of respiratory diseases in horses. Boehringer identified three competitors to Ventipulmin—Sputolosin (Boehringer), Bisolvon (Boehringer) and Millophyline (Arnolds). Sputolosin is for treatment of horses only, whilst the other two also treat small animals. Arnolds told us that less than 1 per cent of Millophyline’s sales were equine, while Boehringer said that Bisolvon was used primarily in small animals. Fort Dodge’s Dopram V Drops, which have relatively low sales, treat both horses and small animals, but appear to be primarily a horse medicine.

7.58. We conclude that distinct markets exist for cardiac and respiratory products for (a) dogs and (b) horses. However, we note that products within these markets may not be substitutable for one another in all circumstances.

Vaccines

7.59. A vaccine is a substance ‘of the nature of dead, or attenuated living, infectious material introduced into the body with the object of increasing its power to resist or get rid of a disease’.¹ Vaccines are the major subcategory of biologicals. The others are antisera and colostra.

¹*Black’s Medical Dictionary.*
7.60. We consider each of the following types of vaccines in turn:

(a) cat and dog vaccines (paragraphs 7.61 to 7.63);

(b) cattle, sheep and pig vaccines (paragraphs 7.64 to 7.78); and

(c) other vaccines (paragraphs 7.79 to 7.82).

Cat and dog vaccines

7.61. The largest-selling dog vaccines immunize against a range of diseases, usually including distemper, hepatitis, parvovirus, the effects of parainfluenza (DHPPi), and leptospirosis. While the diseases covered by one vaccine may not be exactly the same as those of another, there is considerable overlap between the major products. In view of this, we consider that a single market exists for the supply of vaccines against DHPPi and leptospirosis in dogs.

7.62. GfK identifies two categories of cat vaccine—feline leukaemia vaccines (FeLV) and non-FeLV. All of the largest-selling non-FeLV cat vaccines immunize against viruses which cause infectious respiratory disease (cat ’flu) and infectious enteritis. There is limited demand-side substitutability between FeLV vaccines and non-FeLV vaccines. However, one cat vaccine, Katavac Eclipse, is a combination vaccine providing immunization against feline leukaemia, cat ’flu and infectious enteritis. Its sales represented 25 per cent of sales of feline leukaemia vaccines in 2001, and 16 per cent of total sales of cat vaccines. In our view, the existence of this large-selling vaccine creates a chain of substitution between FeLV and non-FeLV vaccines, and we consider that a single market exists for the supply of FeLV and non-FeLV cat vaccines.

7.63. Intervet identified two further markets for cat/dog vaccines. The first is for rabies vaccines. Three products exist, all of which are for cats and dogs, although one can also be used for cattle and horses. Combined sales are £0.3 million, and we do not consider this market further. The second market is for bordetella vaccines for immunization of dogs against b.bronchiseptica-induced tracheobronchitis (kennel cough). Fort Dodge confirmed that these vaccines are distinct from vaccinations against kennel cough caused by canine adenovirus type 2, which are included in the DHPPi vaccines described in paragraph 7.61, and we consider that they are a distinct market.

Cattle, sheep and pig vaccines

7.64. It has been argued that farmers seek to optimize their purchases across all preventive veterinary medicines, or all veterinary medicines, having regard to the relative risk of the herd being infected with a variety of diseases, and the price of different vaccines or other medicines. Schering-Plough told us that preventive medicines often compete for the farmer’s total preventive medicines budget, although in some cases farmers may have a more specific idea of the diseases they would be interested in preventing. Manufacturers’ views on competition between prevention and treatment are referred to in paragraph 7.69. First, we consider competition between different vaccines, and then competition between vaccines and other medicines.

7.65. The majority of cattle and sheep vaccines are for cattle only or for sheep only. The VMD told us that many of the vaccines used in cattle were live vaccines which required careful handling, and were usually classified as POMs. Sheep vaccines, with some exceptions such as Orf vaccines, were inactivated (killed) bacterial vaccines. Almost all cattle-only vaccines are POM (99 per cent of sales). In contrast, four-fifths of sheep-only products are PML. One Schering-Plough vaccine with substantial sales (Covexin 8—sales of £0.8 million) is for both sheep and cattle. Covexin 8 is a PML product, and less than one-quarter of its sales are through veterinary practices, whereas veterinary surgeons supply almost all cattle vaccines. On balance, we consider that the presence of Covexin 8 is insufficient to link cattle and sheep vaccines into a single market.

7.66. Manufacturers reported sales of POM sheep vaccines in three categories—anti-abortion, orf, and tetanus. We shall consider each in turn.
7.67. Intervet told us that for enzootic abortion in sheep, there is the possibility of vaccination or treating the animals prophylactically with oxytetracycline injections. GfK identifies four ovine anti-abortion vaccines: Intervet’s Enzovax and Toxovax, Novartis’ Mydiavac and Vétoquinol’s Tecvax Chlamydia. Toxovax is for a different condition from the other three (it is of toxoplasma gondii, whereas the others are of chlamydia psitacci) and Intervet said that it had no competitors. Intervet initially named only Mydiavac and Tecvax as competitors to Enzovax (ie it did not mention oxytetracycline). Novartis and Vétoquinol each named Enzovax, but not oxytetracycline or each other. Combined net sales of all three are £0.7 million, and we do not consider the precise market definition further.

7.68. Schering-Plough’s Scabivax is the only orf vaccine recorded by GfK. Schering-Plough did not identify any competitors for this product. Sales of Scabivax are around £[X], and we do not consider this market further. Intervet has two products which treat tetanus in horses and in other species including sheep. Their combined sales are around £0.2 million, and we have considered them as part of the market for horse vaccines.

7.69. We now consider the definition of specific cattle and pig vaccine markets, to which the question of competition between preventive and curative medicine is relevant. NOAH said that vaccines primarily prevented viral infections against which antibiotics had no therapeutic value, perhaps other than to treat or prevent secondary bacterial infection. However, it also said that the two different forms of prevention/treatment could be seen as competitors. (We note that some important bacterial vaccines exist in addition to viral vaccines.) Pfizer, Merial and Pharmacia told us that vaccines could compete with antimicrobials. Similarly, Fort Dodge and Novartis said that farmers in particular would substitute between vaccines and antimicrobials based on price. However, Schering-Plough and Arnolds said that curative and preventive medicines did not compete. Intervet, which is the leading supplier of vaccines in the UK, told us it believed that ‘(whilst in certain cases there may be pharmaceutical alternatives to vaccination), in practice there is no direct substitution between vaccination (prevention) and pharmaceuticals (curative)’. The Royal Association of British Dairy Farmers (RABDF) told us that ‘The incidence of the disease, plus levels of risk, directs the approach to control. If incidence and risk levels are low, treatment of infected animals with antimicrobials will usually be considered. If the levels are high, wider herd vaccination can be more successful and cost effective.’

7.70. Pfizer identified two markets in which vaccines competed with antimicrobials in controlling respiratory diseases (see paragraph 7.29), and we consider each in turn. The first is ‘control of respiratory diseases in cattle’. Intervet and Norbrook also mentioned this example. Pfizer told us that with the rise of multivalent vaccines in this area (ie those covering a range of diseases) the cost per disease covered has fallen, and so vaccination has become more popular. (GfK data shows average growth of 3 per cent a year (1997 to 2001) in vaccines for respiratory diseases in cattle.)

7.71. Pfizer told us that its vaccines for respiratory diseases in cattle were in close competition with nine other vaccines (from five suppliers: Intervet; Novartis; Bayer; Merial; and Vétoquinol) and with ‘all (oral and injectable) antibiotics with a respiratory disease claim in cattle’. The five other suppliers concerned each named a selection of the vaccines (each others’ and Pfizer’s) which had been identified by Pfizer. None referred to antibiotics.

7.72. Pfizer told us that in the market for ‘control of respiratory diseases in pigs’ its products (Stellamune Once and Stellamune Mycoplasma) competed with Merial’s Hyoresp, with two Fort Dodge Products (Suvaxyn M Hyo and Suvaxyn M Hyo Parasuis), and with ‘all oral antibiotics with a respiratory disease claim in pigs’. Both Merial and Fort Dodge (notwithstanding their views mentioned in paragraph 7.69) identified only Hyoresp and the Stellamune and Suvaxyn products as being in competition, although Fort Dodge told us that the pig vaccine sector was an example of competition between vaccines and antimicrobials. The Pig Veterinary Society told of at least five mycoplasma hyopneumonia vaccines available for use in pigs in the UK, all with different effects. It said that price would obviously be a consideration but was by no means the only or the most important one.

7.73. We note that, when deciding whether or not to vaccinate, a farmer will not be able to compare directly the price of vaccines with that of antimicrobials used to treat the disease: the decision will depend on a risk assessment as to how much, if any, of the latter will be required if the herd is not vaccinated (see the RABDF’s comment in paragraph 7.69), and also, perhaps to a lesser extent, as to the future price of antimicrobials. Non-price factors may play an important role in the farmer’s choice of whether to vaccinate. The Sheep Veterinary Society told us that from the farmer’s point of view antimicrobial treatment costs were only a fraction of disease costs as deaths, extra labour, veterinary
time, reduced live weight gain and extra feed costs and delay in marketing must also be considered. It also said that veterinary surgeons preferred vaccination because allowing the disease to occur raised an animal welfare issue. Vaccines are generally preferred in herd health plans, due in part to concern over antimicrobial resistance.

7.74. We recognize that respiratory disease vaccines may face at least some marginal competition from curative medicines. However, as Fort Dodge told us, assessing whether prices of preventive medicines and of curative medicines constrain one another would require a very detailed econometric analysis of the choices of treatments, particularly among farmers. Our analysis of competition (see Chapter 9) is not dependent upon the precise market definition adopted. In presenting sales data, we have distinguished between vaccines against respiratory diseases in 

(a) cattle and 

(b) pigs.

7.75. Pfizer identified licensed veterinary medicines for the control of bovine leptospirosis caused by leptospira hardjo as a separate market, consisting of three vaccine products. NOAH agreed. We have not received any information that contradicts Pfizer’s view, and have treated this as a separate market.

7.76. As mentioned in paragraph 7.29, Pfizer also identified a market for the rehydration and treatment of scour. This included products such as oral electrolytes, intravenous fluids, vaccines and certain antimicrobial products. This view was to some extent supported by Norbrook. Pfizer named a number of antimicrobials, including some broad-spectrum antimicrobials, which it said should be included in the market. The RABDF told us that:

where scour exist the general practice is first to treat with electrolytes, then, if this is unsuccessful, with antimicrobials, and, if this is also unsuccessful, to consider vaccination. Gastro-intestinal problems can be treated with electrolytes. If, however, they are unsuccessful due to infection being present, the antimicrobial/vaccination approach would follow. The use of intravenous fluids requires the services of a veterinary surgeon with cost implications.

Again, we have considered treatment and prevention as distinct from one another, and calculated market share figures based on 

(a) vaccines against calf scour and 

(b) oral and injectable electrolytes.

7.77. Two main vaccines exist for bovine viral diarrhoea: Intervet’s Bovilis BVD and Novartis’s Bovidec. Both identified each other’s product as a competitor, and Novartis also mentioned another, recently launched, product from Pfizer. Combined sales of the two main products are around £750,000.

7.78. GfK identifies four further categories of pig vaccines: parvovirus (all POM), e.coli (PML with one exception), erysipelas (PML) and Aujeszky’s disease (POM). Intervet’s leading product in this area contains both erysipelas and parvovirus, and accounts for 35 per cent of sales of the two groups. In view of this, we consider vaccines against these diseases in pigs to form a single market, with separate markets for vaccines against e.coli and Aujeszky’s disease in pigs (these latter two each have sales below £1 million and we do not consider them further).

● Other vaccines

7.79. The large majority of equine vaccines are tetanus/influenza vaccines (66 per cent—based on GfK data), tetanus vaccines, or influenza vaccines (combined 22 per cent). We therefore consider it appropriate to analyse horse vaccines as a single market.

7.80. Intervet has around 55 per cent of sales of poultry vaccines. Given its high share on the basis of a broad market definition, we have not considered whether any narrower definition is appropriate.

7.81. Two of the manufacturers we contacted, Fort Dodge and Intervet, each supplied a single rabbit vaccine, with sales of around £[X] and £[X] respectively. They did not see themselves as competing with each other, and the vaccines are targeted at different diseases. Fort Dodge and Intervet also supply pigeon vaccines, with combined sales below £[X].

7.82. Alpharma told us that, with sales of around £[X], it had £[X] per cent of sales in the UK fish vaccine market. It identified Intervet, Novartis and Aquaculture Vaccine Ltd (now owned by Schering-Plough) as its most direct competitors in the fish vaccine market both in the UK and globally. A
Norwegian subsidiary of Intervet supplies fish vaccines to the Nordic countries, but Intervet does not have any such products licenced in the UK. In view of the relatively low value of fish vaccine sales, we did not consider it necessary to reach a final view on the appropriate geographical and product market definition.

Other products

7.83. Vétoquinol and Intervet both have products for urinary incontinence in bitches: Propalin and Incurin respectively. Vétoquinol saw Incurin as a marginal competitor, but Intervet said that Propalin was a close competitor, and that some human medicines were also used.

7.84. Pfizer identified the following markets with estimated value sales below £1 million: nutritional treatment of twin lamb disease (£0.3 million), copper injections and oral preparations (£0.9 million), and wound care products (£0.9 million). As each is below £1 million, we have not reached a view on whether a narrower market definition for these products is appropriate.

Summary

7.85. We have identified the following separate markets, with sales above £1 million, at the manufacturer level. These markets may include medicines which are substitutable for one another in all circumstances, medicines which are substitutes for one another only in certain circumstances, or medicines which are never direct substitutes for one another but which are linked together via a chain of substitution (see paragraph 7.15). ‘Equivalent’ medicines, discussed in Chapter 2, are likely to be limited to the first of these categories (or to the first and second categories, with the ‘circumstances’ narrowly defined). Some markets (asterisked) include non-POM medicines. As previously discussed, while we recognize that demand for vaccines may in some cases be constrained by the price of antimicrobials and vice versa, views differ widely as to the extent of such constraint, and we have not received conclusive evidence on the subject. We have presented these categories of medicine as belonging in separate markets.

(a) Antimicrobials:

(i) POM antibacterial soluble products for poultry/pigs;

(ii) lactating cow mastitis treatments;

(iii) dry cow mastitis treatments;

(iv) antibacterials for treatment of eye infections;

(v) treatment of otitis externa in dogs and cats;

(vi) combination steroid/antibiotics for the treatment of surface pyoderma primarily in dogs;

(vii) treatment of seborrhoeic dermatitis in dogs; and

(viii) all other oral and injectable antibacterials.

(b) Parasiticides:

(i) POM small-animal flea treatments; and

(ii) small-animal wormers (mostly PML).*

(c) Neurologicals:

(i) general anaesthetics by inhalation;

(ii) general anaesthetics by injection;
(iii) sedatives;
(iv) small-animal oral analgesics and anti-inflammatories;
(v) large-animal oral analgesics and anti-inflammatories;
(vi) injectable analgesics and anti-inflammatories; and
(vii) euthanasia products.

(d) Hormones—number of small separate markets.

(e) Cardiac/respiratory stimulants:
   (i) cardiac/respiratory products for small animals; and
   (ii) cardiac/respiratory products for horses.

(f) Vaccines:
   (i) cat vaccines (excluding rabies);
   (ii) dog vaccines (excluding rabies and bordetella);
   (iii) bordetella vaccines for dogs;
   (iv) vaccines against respiratory disease in cattle;
   (v) vaccines against calf scour;
   (vi) bovine leptospirosis vaccines;
   (vii) oral and injectable electrolytes for treatment of scour;
   (viii) vaccines against respiratory disease in pigs;
   (ix) vaccines against erysipelas and parvovirus in pigs;*
   (x) horse vaccines; and
   (xi) poultry vaccines.

7.86. Finally, we note that a number of markets exist with sales below £1 million and, in some cases, few competing products (some of these are mentioned in the preceding text). In addition, many niche products have no direct competitors: several manufacturers identified a range of their own products which did not face any competitors. Although the value of each individual product’s sales were relatively small, their combined sales were substantial.

Wholesalers

Demand side

7.87. All veterinary wholesalers stock an almost complete range of POMs (and other veterinary medicines) of all veterinary manufacturers. They do not set the price of individual medicines independently, preferring instead to follow the recommended price lists provided by manufacturers for resale of medicines to veterinary practices. The wholesalers compete with each other on the discount that the veterinary surgeon obtains over total purchases, and on services (for example, frequency of delivery, provision of a computerized order system, and a wide range of non-POM products). In view of this, we do not consider it appropriate to analyse wholesalers’ shares of the sales of individual products or product groups.
Supply side

7.88. Some trade wholesalers exist largely to supply non-POMs to agricultural merchants. As such, they do not appear to compete with veterinary wholesalers.

Geographic market

7.89. None of the five veterinary wholesalers operate outside the UK. NVS, Centaur and Genus supply throughout Great Britain, although Centaur told us that its share was higher in southern England than elsewhere, and Genus told us that its share had been lower in Scotland before it acquired Dunnwood’s assets. Dunlops operates throughout Scotland, Wales and northern England. VSSCo is the only veterinary wholesaler operating in Northern Ireland, and does not operate elsewhere. In view of this, we consider that separate geographical markets exist for Great Britain and Northern Ireland.

Veterinary surgeries and pharmacies

Demand side

7.90. At present the supply of POMs by pharmacies is limited, and we do not consider them further in the context of market definition. Veterinary practices supply a wide range of POMs and other veterinary medicines. However, a veterinary surgeon can only dispense medicines to an animal under his or her care. The species of animals under a veterinary surgeon’s care will depend on the nature of the practice to which the veterinary surgeon belongs—ie whether it is a small-animal practice, a mixed or large-animal practice, or an equine or other specialist practice.

7.91. Animal owners choose which veterinary surgery to use, out of those in their local area that treat the type of animal concerned. An owner of a companion animal will be able to choose between all small-animal and mixed practices in the area, a farmer between all mixed practices in the area, and a horse owner between all mixed and equine practices in the area. Veterinary surgeons face competition from agricultural merchants and other outlets in the supply of non-POM veterinary medicines. However, they face little or no competition from pharmacies in the supply of POMs.

Supply side

7.92. As with veterinary wholesalers (see paragraph 7.87), inter-product substitution is of less importance in defining the market at the veterinary surgery level than at the veterinary manufacturer level, because a veterinary practice will be able to dispense any veterinary medicines for the treatment of animals under the care of one of its veterinary surgeons.

Geographic market

7.93. Competition between veterinary practices is local, because the veterinary surgery must be close enough to treat the animal when required. In urban areas chains of substitution may lead to relatively large geographic markets. For instance, if veterinary surgeon A competes with veterinary surgeon B who is 5 miles away, and B competes with veterinary surgeon C who is a further 5 miles away in the same direction, in competition terms veterinary surgeon A and veterinary surgeon C are in the same geographical market: they are linked by a chain of substitution even though they do not compete directly. We have not attempted to define the boundaries of all the local markets in the UK. Instead, we have analysed local competition on the basis of veterinary surgeries’ perception of the number of competing surgeries in their local area (see Appendix 9.1).
Sales and market shares

Manufacturers

7.94. There are two main sources of sales data for the veterinary medicines industry. GfK records monthly volume sales of veterinary medicines sold through the veterinary wholesalers and calculates sales value based on list price (i.e., before manufacturer discounts and rebates to wholesalers and veterinary practices). The NOAH sales survey records reported sales of veterinary medicines by its participants, which in practice include the major POM manufacturers in the UK. Our analysis indicates that, in many cases, the sales reported in the NOAH survey are gross value sales (before rebates and discounts to veterinary practices). As discussed in Chapter 8 (see paragraphs 8.15 to 8.54), rebates and discounts to veterinary practices can be very large, and the average rate of rebate differs substantially between products and manufacturers. For this reason, market shares established on the basis of sales before rebates and discounts to veterinary practices using GfK or NOAH data may be distorted. We therefore asked POM manufacturers for their sales of veterinary medicines, net of all rebates and discounts, and used this data in order to calculate sales and market shares.

7.95. Appendix 7.1 presents sales and market share data for each of the relevant product markets defined in the previous section, for calendar year 2001. Market share calculations are based on value sales, net of all discounts and rebates, and for the UK as a whole (no distinction is made between Great Britain and Northern Ireland). Some manufacturers sell in Northern Ireland through their Republic of Ireland subsidiaries and not through their Great Britain subsidiary. We have included sales in Northern Ireland in Appendix 7.1 for these manufacturers. Merial told us that market shares should be calculated on the basis of the number of units or doses administered rather than solely on the basis of value of the goods purchased, and that assessing market shares on the basis of value may underestimate the importance of competition from lower-priced PML or GSL products. However, we note that products can vary widely in their effectiveness, and more effective products can generally command a higher price. It is not possible to calculate meaningful market share figures by giving equal weight to products which differ greatly in their effectiveness, and therefore in their value to buyers.

7.96. Table 7.1 summarizes the main information on market shares for each relevant product market: size of the market, leading supplier, share of the leading supplier, concentration ratio of the five largest manufacturers (CR5), and the Herfindahl-Hirschmann Index (HHI). The CR5 and the HHI are both widely-used measures of market concentration. The concentration ratio is the sum of the shares of the five largest manufacturers on each market. A concentration ratio of 100 per cent means that there are five or less manufacturers on the market. The lower the CR5, the lower the concentration. The HHI is equal to the sum of the squares of the market shares of each manufacturer. An HHI of 10,000 indicates that there is only one manufacturer in the market, and the lower the number, the lower the concentration. In merger inquiries, the US Department of Justice distinguishes different levels of concentration by the size of the HHI. Markets with an HHI of less than 1,000 are viewed as having a low degree of concentration. A market with an HHI of between 1,000 and 1,800 is viewed as having a moderate degree of concentration and over 1,800 signifies a high level of concentration.
### TABLE 7.1 Market size and shares in 2001: summary table

<table>
<thead>
<tr>
<th>Name of market</th>
<th>Size of market £m*</th>
<th>Leading supplier</th>
<th>Share of leading supplier* %</th>
<th>CR5 %</th>
<th>HHI</th>
</tr>
</thead>
<tbody>
<tr>
<td>POM antibacterial soluble products for pigs/poultry</td>
<td></td>
<td>Pharmacia</td>
<td>32</td>
<td>82</td>
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<td>Pharmacia</td>
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<td></td>
<td>Boehringer</td>
<td>83</td>
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</tr>
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<td></td>
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<td>56</td>
<td>100</td>
<td>3,895</td>
</tr>
</tbody>
</table>

*Source: CC, based on data from manufacturers.*

*Based on ex-manufacturer sales, net of all discounts and rebates.*

7.97. All in all, individual product markets tend to be highly concentrated. The market share of the largest supplier is over 40 per cent in 25 out of the 30 markets, and exceeds 50 per cent in more than half of the relevant product markets (18 out of 30). The CR5 exceeds 80 per cent in all but two relevant product markets, and it exceeds 90 per cent in all but four relevant markets. This means that in most of the markets, the five largest manufacturers account for almost all of the sales. HHI also indicate high levels of concentration: in all but three markets, the HHI is above 1,800. The top five POM manufacturers are, taken together, the largest suppliers in 18 out of the 30 markets (these markets account for approximately 80 per cent of the total sales of the markets we identified).

7.98. Table 7.2 shows the change in the share of the largest supplier in each market since 1997, and Table 7.3 the change in the total size of each market since 1997. Unless otherwise indicated, both tables are based on GfK data, which means that sales are valued at list price. Indeed, the data that the manufacturers submitted to us, which is based on sales net of all discounts and rebates, only covers years 1999 to 2001. Both tables must be interpreted with care as they are based on sales at list price and therefore do not take into account the rebates and discounts granted by manufacturers to veterinary practices. We did not use GfK data in order to look at the changes in market shares and size of two markets: the market for poultry vaccines and the market for POM antibacterial soluble products for pigs/poultry. Indeed, a large proportion of sales of these products does not go through the veterinary wholesalers, and GfK data does not take such sales into account.
<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
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<td>10</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Lactating cow mastitis treatments</td>
<td>Pharmacia</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>8</td>
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<tr>
<td>Dry cow mastitis treatments</td>
<td>Schering-Plough</td>
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<td>1</td>
<td>1</td>
<td>–1</td>
<td>–6</td>
<td>–7</td>
</tr>
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<td>Leo</td>
<td>5</td>
<td>9</td>
<td>5</td>
<td>3</td>
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<td>24</td>
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<td>Leo</td>
<td>3</td>
<td>4</td>
<td>–5</td>
<td>–4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Combination steroid/antibiotics for surface pyoderma primarily in dogs</td>
<td>Leo</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>26</td>
</tr>
<tr>
<td>Treatment of seborrhoeic dermatitis in dogs</td>
<td>Leo</td>
<td>21</td>
<td>13</td>
<td>5</td>
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<td>1</td>
<td>45</td>
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<tr>
<td>All other oral and injectable antibacterials</td>
<td>Pfizer</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>–1</td>
<td>0</td>
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<td>23</td>
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<td>3</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>15</td>
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<tr>
<td>General anaesthetics by inhalation</td>
<td>Schering-Plough</td>
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<td>0</td>
<td>–3</td>
<td>3</td>
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<td>17</td>
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<tr>
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<td>3</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>13</td>
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<tr>
<td>Sedatives</td>
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<td>–1</td>
<td>–6</td>
<td>0</td>
<td>–5</td>
</tr>
<tr>
<td>Small-animal oral analgesics and anti-inflammatories</td>
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<td>44</td>
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<tr>
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<td>–2</td>
<td>–3</td>
<td>–8</td>
<td>–4</td>
<td>–13</td>
</tr>
<tr>
<td>Injectable analgesics and anti-inflammatories</td>
<td>Pfizer</td>
<td>0</td>
<td>2</td>
<td>20</td>
<td>1</td>
<td>–1</td>
<td>23</td>
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<td>Euthanasia products</td>
<td>Arnolds</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>17</td>
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<tr>
<td>Cardiac/respiratory products for small animals</td>
<td>Novartis</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>2</td>
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<tr>
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<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>9</td>
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<tr>
<td>Cat vaccines excluding rabies</td>
<td>Fort Dodge</td>
<td>5</td>
<td>0</td>
<td>–3</td>
<td>1</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
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<td>Intervet</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
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<td>5</td>
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<td>Schering-Plough</td>
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<td>0</td>
<td>0</td>
<td>–13</td>
<td>–10</td>
<td>–23</td>
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<td>Vaccines against respiratory diseases in cattle</td>
<td>Pfizer</td>
<td>–3</td>
<td>–2</td>
<td>–11</td>
<td>–3</td>
<td>3</td>
<td>–16</td>
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<tr>
<td>Vaccines against calf scours</td>
<td>Schering-Plough</td>
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<td>–3</td>
<td>–2</td>
<td>–7</td>
<td>4</td>
<td>–8</td>
</tr>
<tr>
<td>Bovine leptospirosis vaccines</td>
<td>Schering-Plough</td>
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<td>–12</td>
<td>8</td>
<td>–2</td>
<td>1</td>
<td>–6</td>
</tr>
<tr>
<td>Oral and injectable electrolytes for the treatment of scours†</td>
<td>Animalcare</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>15</td>
</tr>
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<td>Vaccines against respiratory diseases in pigs†</td>
<td>Fort Dodge</td>
<td>4</td>
<td>–2</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>10</td>
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<tr>
<td>Vaccines against erysipelas and parvovirus in pigs</td>
<td>Intervet</td>
<td>5</td>
<td>16</td>
<td>17</td>
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<td>5</td>
<td>56</td>
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<td>Poultry vaccines*</td>
<td>Fort Dodge</td>
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<td>–2</td>
<td>–4</td>
<td>–8</td>
<td>–4</td>
<td>–16</td>
</tr>
</tbody>
</table>

Source: CC, based on GfK, except for * based on data from manufacturers.

†Animalcare expressed reservations on the accuracy of the data on the change in its market share in the market for oral and injectable electrolytes for the treatment of scours.
### TABLE 7.3 Year-on-year change in the size of the relevant product markets, 1997 to 2001

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<td></td>
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<td>Lactating cow mastitis treatments</td>
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<td>–2</td>
<td>–2</td>
<td>1</td>
<td>13</td>
<td>16</td>
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<td>–3</td>
<td>–4</td>
<td>–7</td>
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<td>–19</td>
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<td>10</td>
<td>–8</td>
<td>1</td>
<td>20</td>
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<tr>
<td>Combination steroid/antibiotics for surface pyoderma primarily in dogs</td>
<td>9</td>
<td>6</td>
<td>1</td>
<td>–2</td>
<td>–6</td>
<td>7</td>
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<tr>
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<td>4</td>
<td>3</td>
<td>11</td>
<td>55</td>
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<tr>
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<td>–1</td>
<td>4</td>
<td>1</td>
<td>9</td>
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<td>6</td>
<td>8</td>
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<td>192</td>
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<td>18</td>
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<td>14</td>
<td>4</td>
<td>48</td>
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<td>Small-animal oral analgesics and anti-inflammatories</td>
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<td>19</td>
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<td>11</td>
<td>109</td>
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<td>–3</td>
<td>4</td>
<td>21</td>
<td>6</td>
<td>43</td>
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<td>Injectable analgesics and anti-inflammatories</td>
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<td>10</td>
<td>6</td>
<td>7</td>
<td>3</td>
<td>40</td>
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<td>9</td>
<td>6</td>
<td>32</td>
<td>107</td>
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<td>7</td>
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<td>85</td>
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<td>5</td>
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<tr>
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<td>7</td>
<td>5</td>
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<td>Dog vaccines excluding rabies and bordetella</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>7</td>
<td>26</td>
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<tr>
<td>Bordetella vaccines for dogs</td>
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<td>14</td>
<td>20</td>
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<td>10</td>
<td>18</td>
<td>–4</td>
<td>15</td>
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<tr>
<td>Vaccines against calf scours</td>
<td>–2</td>
<td>–7</td>
<td>–3</td>
<td>–11</td>
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<td>18</td>
<td>–7</td>
<td>–4</td>
<td>17</td>
</tr>
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<td>3</td>
<td>7</td>
<td>0</td>
<td>3</td>
<td>9</td>
</tr>
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<td>4</td>
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<td>137</td>
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<td>–38</td>
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<td>–1</td>
<td>0</td>
<td>1</td>
<td>–1</td>
<td>5</td>
</tr>
<tr>
<td>Poultry vaccines*</td>
<td>–12</td>
<td>–13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** CC, based on GfK, except * based on data from manufacturers.

7.99. The market for prescription-only small-animal flea treatments—which is the largest relevant market—almost tripled in size between 1997 and 2001, and Merial, the leading supplier, gained 23 points in market share in that period. Other strong growth markets during the period (more than doubled in sized) were: vaccines against respiratory diseases in pigs, general anaesthetics by inhalation, bordetella vaccines for dogs, small-animal oral analgesics and anti-inflammatories and euthanasia products. Arnolds told us that sales of Somulose (the leading product in the market for euthanasia products) increased dramatically in 2001 due to the FMD crisis. Declining markets (between 1997 and 2001) were dry cow mastitis treatments, vaccines against calf scours, and vaccines against erysipelas in pigs.

7.100. Pfizer has been losing share in two of the markets in which it is the leading supplier: sedatives and vaccines for respiratory diseases in cattle. Pfizer gained share in oral and injectable antimicrobials. It also gained a large share in the markets for small-animal oral analgesics and anti-inflammatories and injectable analgesics and anti-inflammatories since 1997, predominantly as the result of the acquisition of the Rimadyl product range in 1999. Intervet has been losing share in the market for poultry vaccines, a declining market since 1999. It gained share in the market for dog vaccines and in the market for vaccines against erysipelas in pigs. Merial is the leading supplier in only one of the markets; however, it is the largest market in size and Merial has increased its share by 23 points since 1997. Merial told us that its product on this market, Frontline, was launched in 1995. Schering-Plough has been gaining shares rapidly in the two markets for general anaesthetics. It lost share in the three vaccine markets in which it is the leading supplier, as well as in the market for dry cow mastitis treatments (a declining market). Fort Dodge is the leading supplier in three markets. It increased its share by six points in the cat vaccines market and by ten points in vaccines for respiratory diseases in pigs. Fort Dodge told us that, in both cases, the increase in market share was the result of the introduction of a new product—Fevaxyn Pentofel in the cat vaccine market and Suvaxyn M Hyo Parasuis in the market for vaccines for respiratory diseases in pigs. However, Fort Dodge lost a large share of the horse vaccines market. We
note that all the other smaller manufacturers have been increasing their market share since 1997 in the markets where they were the leading supplier in 2001.

**Wholesalers**

7.101. Table 7.4 shows the shares of supply of veterinary wholesaling services of each of the five full-line wholesalers who operated in Great Britain in 2001. The total Great Britain market was valued at £341 million (at list price) by GfK in 2001. These shares differ from the shares of supply of POMs of the veterinary wholesalers of Chapter 5 (see paragraphs 5.11 to 5.20) established for jurisdiction purposes. Indeed, we defined the relevant economic market in which the veterinary wholesalers operate to be the market for wholesaling services to veterinary practices (which includes sales of other veterinary medicines), and not the market for supply of POMs to veterinary practices. Moreover, we distinguish here between Northern Ireland and Great Britain.

**TABLE 7.4 Share of sales of the Great Britain market for wholesaling services**

<table>
<thead>
<tr>
<th>Wholesaler</th>
<th>Value sales £m</th>
<th>Share of sales %</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVS</td>
<td>148.2</td>
<td>44</td>
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<tr>
<td>Centaur</td>
<td>87.5</td>
<td>26</td>
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<tr>
<td>Genus</td>
<td>41.1</td>
<td>12</td>
</tr>
<tr>
<td>Dunlops</td>
<td>49.3</td>
<td>14</td>
</tr>
<tr>
<td>Dunnwood</td>
<td>14.6</td>
<td>4</td>
</tr>
<tr>
<td>Total market</td>
<td>340.6</td>
<td></td>
</tr>
</tbody>
</table>

*Source: CC, based on GfK.*

7.102. A unique full-line wholesaler, VSSCo, operates in Northern Ireland, where the total market was worth £16 million at list price in the calendar year 2001. VSSCo told us that it had a 90 per cent share of the veterinary wholesaling market in Northern Ireland.

**Veterinary surgeries and other retail outlets**

7.103. In paragraph 7.93, we say that we have not attempted to define the boundaries of all the local retail markets in the UK. For this reason, we have not attempted to establish the market shares of retail outlets on each local market.