5. Carlsen KH, *et al*. Nebulised beclomethasone dipropionate in recurrent obstructive episodes after acute bronchiolitis. *Arch Dis Child* 1988; **63:** 1428–33.
6. Storr J, *et al*. Nebulised beclomethasone dipropionate in preschool asthma. *Arch Dis Child* 1986; **61:** 270–3.
7. Webb MSC, *et al*. Nebulised beclomethasone dipropionate suspension. *Arch Dis Child* 1986; **61:** 1108–10.
8. Clarke SW. Nebulised beclomethasone dipropionate suspension: commentary. *Arch Dis Child* 1986; **61:** 1110.
9. Wilson NM, Silverman M. Treatment of acute, episodic asthma in preschool children using intermittent high dose inhaled steroids at home. *Arch Dis Child* 1990; **65:** 407–10.

Chronic obstructive pulmonary disease. For discussion of the value of inhaled corticosteroids in chronic obstructive pulmonary disease, see p.1501.

Cough. In children with recurrent cough inhalation of beclometasone 200 micrograms twice daily from a conventional aerosol or salbutamol 200 micrograms twice daily had no effect on cough frequency or severity.[1] However, in another study of 200 adults, use of beclometasone, salbutamol, or sodium cromoglicate (all in aerosol formulation) given 15 minutes before anaesthesia, significantly decreased coughing caused by fentanyl when compared with placebo. Of the 50 patients given beclometasone, none experienced coughing.[2]

1. Chang AB, *et al*. A randomised, placebo controlled trial of inhaled salbutamol and beclomethasone for recurrent cough. *Arch Dis Child* 1998; **79:** 6–11.
2. Agarwal A, *et al*. Salbutamol, beclomethasone or sodium chromoglycate suppress coughing induced by iv fentanyl. *Can J Anesth* 2003; **50:** 297–300.

Graft-versus-host disease. Beclometasone is under investigation for its topical effect in the treatment of intestinal graft-versus-host disease (GVHD). A study[1] in patients with acute intestinal GVHD after bone marrow transplantation (see Haematopoietic Stem Cell Transplantation, p.1811) found that addition of oral beclometasone to prednisolone therapy was associated with a greater proportion of durable responses after 30 days. Repeated courses may be needed in some patients to achieve and maintain response, but prolonged therapy appears to be feasible.[2]

1. McDonald GB, *et al*. Oral beclomethasone dipropionate for treatment of intestinal graft-versus-host disease: a randomized, controlled trial. *Gastroenterology* 1998; **115:** 28–35.
2. Iyer RV, *et al*. Long-term use of oral beclomethasone dipropionate for the treatment of gastrointestinal graft-versus-host disease. *Biol Blood Marrow Transplant* 2005; **11:** 587–92.

Inflammatory bowel disease. Beclometasone 500 micrograms given nightly as an enema was as effective as betamethasone 5 mg enemas in the treatment of acute attacks of distal ulcerative colitis.[1] Although betamethasone produced slightly superior histological improvement and faster disappearance of blood from the stools, systemic adverse effects observed with betamethasone therapy were absent in patients treated with beclometasone.

Comparisons of beclometasone dipropionate enemas (3 mg) with prednisolone sodium phosphate enemas[2] (30 mg) or mesalazine enemas[3] (1 g) found them to be equally effective. Treatment was well tolerated. Beclometasone dipropionate has also been investigated for the oral treatment of ulcerative colitis.[4,5]

For a review of the management of inflammatory bowel disease, including the role of corticosteroids, see p.1697.

1. Halpern Z, *et al*. A controlled trial of beclomethasone versus betamethasone enemas in distal ulcerative colitis. *J Clin Gastroenterol* 1991; **13:** 38–41.
2. Campieri M, *et al*. Beclomethasone dipropionate enemas versus prednisolone sodium phosphate enemas in the treatment of distal ulcerative colitis. *Aliment Pharmacol Ther* 1998; **121:** 361–6.
3. Gionchetti P, *et al*. Italian BDP Study Group. Topical treatment of distal active ulcerative colitis with beclomethasone dipropionate or mesalamine: a single-blind randomized controlled trial. *J Clin Gastroenterol* 2005; **39:** 291–7.
4. Rizzello F, *et al*. Oral beclometasone dipropionate in the treatment of active ulcerative colitis: a double-blind placebo-controlled study. *Aliment Pharmacol Ther* 2002; **16:** 1109–16.
5. Campieri M, *et al*. Oral beclometasone dipropionate in the treatment of extensive and left-sided active ulcerative colitis: a multicentre randomised study. *Aliment Pharmacol Ther* 2003; **17:** 1471–80.

Preparations

BP 2008: Beclometasone Cream; Beclometasone Nasal Spray; Beclometasone Ointment; Beclometasone Powder for Inhalation; Beclometasone Pressurised Inhalation.

Proprietary Preparations (details are given in Part 3)
Arg.: Airbeclosona; Egosona†; Menaderm Simple; Propavent; Qvar†; Rectomenaderm; Rinosol; ***Austral.:*** Aldecin†; Becloforte†; Beconase; Beconase Hayfever; Becotide; Qvar; ***Austria:*** Aerocortin; Beclomet; Beconase; Becotide; Clenil; ***Belg.:*** Beclometatop; Beclophar; Beconase; Becotide†; Qvar; ***Braz.:*** Alerfin; Beclosol; Clenil; Miflasona; ***Canad.:*** Gen-Beclo; Propaderm; Qvar; Rivanase; ***Chile:*** Beclosema; Beclovent†; Beconase†; Destap; Filair; Flumates; Xiten†; ***Cz.:*** Aldecin; Beclazone†; Becloforte; Beclomet; Becodisks; Beconase; Becotide; Clenil; Ecobec; Miflason†; Nasobec; ***Denm.:*** AeroBec; Beclomet; Beconase; ***Fin.:*** AeroBec; Beclomet; Beclonasal; Beconase; Becotide†; ***Fr.:*** Asmabec; Beclo-Rhino; Beclojet; Beclone; Beclospin; Beconase; Becotide; Bemedrex; Ecobec; Humex Rhume des Foins; Miflasone; Nexxair; Prolair; Qvar; Spir†; ***Ger.:*** AeroBec; Beclo; Beclo Siozwo†; Beclobreathe; Beclohexal; Beclomet; Beclorhinol; Becloturmant; Beconase Aquosum; Bronchocort; Junik; ratioAllerg; Rhinivict; Sanasthmax; Sanasthmyl; Ventolair; Viarox†; ***Gr.:*** Beclomet†; Becolex; Becotide†; Bidiclin; Clenil Forte Jet; Clenil Rino; Clenil†; Qvar; Respocort; Rinosol; ***Hong Kong:*** Aldecin†; Beclate; Beclazone; Beclo Asma†; Becloforte†; Becodisks; Beconase; Becotide; Cycloson; Nasobec; Qvar; ***Hung.:*** Aldecin†; Beclomet†; Beclonasal; Ecobec†; ***India:*** Beclate; ***Indon.:*** Beclomet; Beconase; Becotide; Cleniderm; ***Irl.:*** AeroBec†; Asmabec; Beclazone; Beclo-Rhino; Becodisks†; Beconase; Becotide; Nasobec; Qvar; ***Israel:*** Becloforte; Beconase†; Becotide†; Rhinocort; Viarex; ***Ital.:*** Becotide; Becotide A†; Bronco-Turbinal†; Clenil; Clenilex; Clipper; Klostenal; Menaderm Simplex; Prontinal; Rino Clenil; Topster; Turbinal; ***Jpn:*** Propaderm; Rhinocort; Salcoat; ***Malaysia:*** Atomase†; Beclate; Beclazone; Becloforte†; Beclomet; Beconase; Becotide†; Clenil; Qvar; ***Mex.:*** Beclazone; Beconase; Becotide; Dobipro; Riferina; ***Neth.:*** AeroBec†; Aldecin; Beclodin; Becloforte; Beconase; Becotide; Clenil; Qvar; Viarin; ***Norw.:*** AeroBec; Beclomet; Becotide; ***NZ:*** Alanase; Atomase; Atomide†; Beclazone; Beconase Hayfever; Miflasone†; Qvar; Respocort; ***Philipp.:*** Qvar; ***Pol.:*** Becodisk; Cortare; Nasobec; ***Port.:*** Aldecina†; Beclotaide; Beconase; Clenil; Ecobec; ***Rus.:*** Aldecin (Альдецин); Beclazone (Беклазон); Becloforte (Беклофорте); Beclojet (Беклоджет); Becodisk (Бекодиск); Beconase (Беконазе)†; Becotide (Бекотид); Clenil (Кленил); Nasobec (Насобек); ***S.Afr.:*** AeroBec†; Anceron†; Beceze†; Beclate; Becloforte; Becodisks†; Beconase; Becotide; Clenil†; Cycloson†; Nobec†; Qvar; Ventnaze; Viarox†; ***Singapore:*** Atomase†; Beclazone†; Beclo Asma; Becloforte†; Beclomet; Becotide†; Clenil†; Decomit; Qvar†; Rino Clenil†; ***Spain:*** Asmabec†; Beclo Asma; Beclo Rino; Becloenema; Becloforte; Beclomet; Beclosona; Beconase; Becotide; Betsuril†; Broncivent†; Decasona†; Dereme; Menaderm Simple; Qvar†; Recto Menaderm NF; ***Swed.:*** AeroBec; Beclomet; Becotide; ***Switz.:*** AeroBec†; BECeco; Becloforte†; Beclomet†; Beclonarin; Becodisk; Beconase; Beconasol; Becotide†; ***Thai.:*** Atomase; Becloforte†; Beclomet; Becodisk†; Beconase; Becotide†; Bemase; Clenil; Rino Clenil; ***Turk.:*** Becloforte; Becodisks; Becotide; Beklamet; Beklazon; Filair; ***UAE:*** Beclohale; ***UK:*** AeroBec; Asmabec; Beceze; Beclazone; Becloforte†; Beclogen; Becodisks; Beconase; Becotide†; Clenil; Clipper; Filair; Hayfever Relief; Nasal-Bec†; Nasobec; Pollenase Nasal; Propaderm†; Pulvinal Beclometasone Dipropionate; Qvar; Vivabec; ***USA:*** Beclovent; Beconase; Qvar; Vancenase†; ***Venez.:*** Aldecina†; Beclofortil; Beclomet†; Beclorino; Beclosil; Beconase; Biobeclasona; Biobeclod; Genbeclo; Nasair; Rinoclenil†.

Multi-ingredient: ***Arg.:*** Beclasma; Biotaer Gamma†; Biotaer Nebulizable; Butocort; Butosol; Menaderm N; Salbutol Beclo; Ventide; ***Austria:*** Ventide; ***Braz.:*** Aerotide; Clenil Compositum; ***Chile:*** Aero-Plus; Aerosoma; Asmavent-B; Beclasma†; Belomet; Broncoterol-B†; Butotal B; Herolan Aerosol; Ventide; ***Cz.:*** Clenigen†; Combair; Formodual; ***Fr.:*** Innovair; ***Hong Kong:*** Ventide; ***India:*** Aerocort; Anovate; Beclate-C; Beclate-N; Candibiotic; Candid B; Candiderma +; Candiderma†; Cloben-G; Clocip B; Clocip NB; Cutinorm†; Ecodax†; NC-Derm; Otek-AC+; Pilovate; Sigmaderm; Stecort-NM; Translipo-Triple; ***Indon.:*** Ventide; ***Ital.:*** Clenil Compositum; Menaderm; Ventolin Flogo†; ***Mex.:*** Ventide; ***Philipp.:*** Candibec; ***Port.:*** Formodual; Foster; ***Rus.:*** Candibiotic (Кандибиотик); Candid B (Кандид Б); ***Singapore:*** Clenil Compositum†; Ventide†; ***Spain:*** Butosol; Menaderm Clio; Menaderm Neomicina; Menaderm Otologico; ***Thai.:*** Clenil Compositum; Ventide†; ***Turk.:*** Ventide; ***UK:*** Fostair; ***Venez.:*** Aerocort; Beclomet Compositum†; Beclosal; Butosol; Salbutide†; Venticort; Ventide.

Betamethasone *(BAN, USAN, rINN)* ⊗

Beetametasoni; Betadexamethasone; Betametason; Betametasona; Betametazon; Betametazonas; Betamethason; Bétaméthasone; Betamethasonum; Flubenisolone; Flubenisolonum; 9α-Fluoro-16β-methylprednisolone; β-Methasone; NSC-39470; Sch-4831. 9α-Fluoro-11β,17α,21-trihydroxy-16β-methylpregna-1,4-diene-3,20-dione.

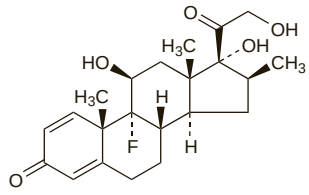
Бетаметазон

$C_{22}H_{29}FO_5$ = 392.5.

CAS — 378-44-9.

ATC — A07EA04; C05AA05; D07AC01; H02AB01; R01AD06; R03BA04; S01BA06; S02BA07; S03BA03.

ATC Vet — QA07EA04; QC05AA05; QD07AC01; QD07XC01; QH02AB01; QR01AD06; QR03BA04; QS01BA06; QS01CB04; QS02BA07; QS03BA03.



Pharmacopoeias. In *Chin.*, *Eur.* (see p.vii), *Int.*, *Jpn*, and *US*.

Ph. Eur. 6.2 (Betamethasone). A white or almost white, crystalline powder. Practically insoluble in water; sparingly soluble in dehydrated alcohol; very slightly soluble in dichloromethane. Protect from light.

USP 31 (Betamethasone). A white to practically white, odourless, crystalline powder. Soluble 1 in 5300 of water, 1 in 65 of alcohol, 1 in 15 of warm alcohol, 1 in 325 of chloroform, and 1 in 3 of methyl alcohol; sparingly soluble in acetone and in dioxan; very slightly soluble in ether. Store in airtight containers at a temperature between 2° and 30°.

Betamethasone Acetate *(BANM, rINNM)* ⊗

Acetato de betametasona; Beetametasoniasetaatti; Betametasonacetat; Betametazon Asetat; Betametazon-acetát; Betametazono acetatas; Betamethason-acetát; Bétaméthasone, acétate de; Betamethasoni acetas. Betamethasone 21-acetate.

Бетаметазона Ацетат

$C_{24}H_{31}FO_6$ = 434.5.

CAS — 987-24-6.

ATC — A07EA04; C05AA05; D07AC01; H02AB01; R01AD06; R03BA04; S01BA06; S02BA07; S03BA03.

ATC Vet — QA07EA04; QC05AA05; QD07AC01; QH02AB01; QR01AD06; QR03BA04; QS01BA06; QS02BA07; QS03BA03.

Pharmacopoeias. In *Eur.* (see p.vii) and *US*.

Ph. Eur. 6.2 (Betamethasone Acetate). A white or almost white, crystalline powder. Practically insoluble in water; soluble in alcohol and in dichloromethane; freely soluble in acetone. It shows polymorphism. Protect from light.

USP 31 (Betamethasone Acetate). A white to creamy-white, odourless powder. Soluble 1 in 2000 of water, 1 in 9 of alcohol, and 1 in 16 of chloroform; freely soluble in acetone. Store in airtight containers at a temperature between 2° and 30°.

Betamethasone Benzoate *(BANM, USAN, rINNM)* ⊗

Benzoato de betametasona; Bétaméthasone, Benzoate de; Betamethasoni Benzoas; W-5975. Betamethasone 17α-benzoate.

Бетаметазона Бензоат

$C_{29}H_{33}FO_6$ = 496.6.

CAS — 22298-29-9.

ATC — A07EA04; C05AA05; D07AC01; H02AB01; R01AD06; R03BA04; S01BA06; S02BA07; S03BA03.

ATC Vet — QA07EA04; QC05AA05; QD07AC01; QH02AB01; QR01AD06; QR03BA04; QS01BA06; QS02BA07; QS03BA03.

Pharmacopoeias. In *US*.

USP 31 (Betamethasone Benzoate). A white to practically white, practically odourless, powder. Insoluble in water; soluble in alcohol, in chloroform, and in methyl alcohol. Store in airtight containers at a temperature between 2° and 30°.

Betamethasone Dipropionate

(BANM, USAN, rINNM) ⊗

Beetametasonidipropionaatti; Betametasondipropionat; Betametazon Dipropiyonat; Betametazon-dipropionát; Betametazono dipropionatas; Betametazonu dipropionian; Betamethasondipropionát; Bétaméthasone, dipropionate de; Betamethasoni dipropionas; Dipropionato de betametasona; Sch-11460. Betamethasone 17α,21-dipropionate.

Бетаметазона Дипропионат

$C_{28}H_{37}FO_7$ = 504.6.

CAS — 5593-20-4.

ATC — A07EA04; C05AA05; D07AC01; H02AB01; R01AD06; R03BA04; S01BA06; S02BA07; S03BA03.

ATC Vet — QA07EA04; QC05AA05; QD07AC01; QH02AB01; QR01AD06; QR03BA04; QS01BA06; QS02BA07; QS03BA03.

NOTE. Compounded preparations of betamethasone dipropionate may be represented by the following names:

- Co-climasone (*PEN*)—clotrimazole and betamethasone dipropionate.

Pharmacopoeias. In *Eur.* (see p.vii), *Jpn*, and *US*.

Ph. Eur. 6.2 (Betamethasone Dipropionate). A white or almost white, crystalline powder. Practically insoluble in water; sparingly soluble in alcohol; freely soluble in acetone and in dichloromethane. Protect from light.

USP 31 (Betamethasone Dipropionate). A white to cream-white, odourless powder. Insoluble in water; sparingly soluble in alcohol; freely soluble in acetone and in chloroform. Store in airtight containers at a temperature of 25°, excursions permitted between 15° and 30°.

Betamethasone Sodium Phosphate

(BANM, rINNM) ⊗

Beetametasoninatriumfosfaatti; Betametasonnatrifosfatum; Betametazon Disodyum Fosfat; Betametazon-nátrium-foszfát; Betametazono natrio fosfatas; Betamethasone Disodium Phosphate; Bétaméthasone, phosphate sodique de; Betamethason-fosfát sodná sůl; Betamethasoni natrii phosphas; Fosfato sódico de betametasona; Natrii Betamethasoni Phosphas. Betamethasone 21-(disodium phosphate).

Натрия Бетаметазона Фосфат

$C_{22}H_{28}FNa_2O_8P$ = 516.4.

CAS — 360-63-4 (betamethasone phosphate); 151-73-5 (betamethasone sodium phosphate).

ATC — A07EA04; C05AA05; D07AC01; H02AB01; R01AD06; R03BA04; S01BA06; S02BA07; S03BA03.

ATC Vet — QA07EA04; QC05AA05; QD07AC01; QH02AB01; QR01AD06; QR03BA04; QS01BA06; QS02BA07; QS03BA03.

NOTE. BET is a code approved by the BP 2008 for use on single unit doses of eye drops containing betamethasone sodium phosphate where the individual container may be too small to bear all the appropriate labelling information.

Pharmacopoeias. In *Eur.* (see p.vii), *Jpn*, and *US*.

Ph. Eur. 6.2 (Betamethasone Sodium Phosphate). A white or almost white, very hygroscopic, powder. Freely soluble in water; slightly soluble in alcohol; practically insoluble in dichloromethane. A 1% solution in water has a pH of 7.5 to 9.0. Store in airtight containers. Protect from light.

USP 31 (Betamethasone Sodium Phosphate). A white to practically white, odourless, hygroscopic, powder. Soluble 1 in 2 of water and 1 in 470 of alcohol; freely soluble in methyl alcohol; practically insoluble in acetone and in chloroform. Store in airtight containers.