

Supplementary Material A: RECORD Statement

The RECORD statement – checklist of items, extended from the STROBE statement, that should be reported in observational studies using routinely collected health data.

	Item No.	STROBE items	Location in manuscript where items are reported	RECORD items	Location in manuscript where items are reported
Title and abstract					
	1	(a) Indicate the study's design with a commonly used term in the title or the abstract (b) Provide in the abstract an informative and balanced summary of what was done and what was found	Page 1 in title and abstract	RECORD 1.1: The type of data used should be specified in the title or abstract. When possible, the name of the databases used should be included. RECORD 1.2: If applicable, the geographic region and timeframe within which the study took place should be reported in the title or abstract. RECORD 1.3: If linkage between databases was conducted for the study, this should be clearly stated in the title or abstract.	1.1 Page 1 in the abstract. 1.2 Page 1 in the abstract. 1.3 Page 1 – data were linked in a system wide dataset.
Introduction					
Background rationale	2	Explain the scientific background and rationale for the investigation being reported	Page 3 under Introduction		
Objectives	3	State specific objectives, including any prespecified hypotheses	Page 3 at the bottom of the page.		
Methods					
Study Design	4	Present key elements of study design early in the paper	Page 4 under 2.1 Data, application and setting.		
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Page 4		
Participants	6	(a) <i>Cohort study</i> - Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up <i>Case-control study</i> - Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls <i>Cross-sectional study</i> - Give the eligibility criteria, and the sources and methods of selection of participants	Cross-sectional study – page 4 gives eligibility criteria and sources/method of selection.	RECORD 6.1: The methods of study population selection (such as codes or algorithms used to identify subjects) should be listed in detail. If this is not possible, an explanation should be provided. RECORD 6.2: Any validation studies of the codes or algorithms used to select the population should be referenced. If validation was conducted for this study and not published elsewhere, detailed methods and results should be provided. RECORD 6.3: If the study involved linkage of databases, consider use of a flow diagram or other graphical display to demonstrate the data linkage process, including the number	In this case all individuals within BNSSG registered to a contributing practice were included for analyses. Therefore codes to identify the overall study population were not used. For the high-risk group population selection, all codes and criteria used are listed fully in Supplementary Material B and the methods described in section 2.2 (page 4). Furthermore, the resulting list was compared with estimated expected numbers of high-risk individuals described in the Discussion under interpretation page 11. The system-wide dataset at BNSSG CCG is already linked for analyses but a reference is included providing further

		<p>(b) <i>Cohort study</i> - For matched studies, give matching criteria and number of exposed and unexposed</p> <p><i>Case-control study</i> - For matched studies, give matching criteria and the number of controls per case</p>		of individuals with linked data at each stage.	information to the dataset (Reference 25) and linking through a pseudonymised ID (unique individual identifier) was mentioned on page 4.
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable.	All outcomes and variables are fully defined including the use of algorithms and coding lists in Supplementary Material B for the high-risk criteria and Supplementary Material C for all clustering and non-clustering variables. Reference to the Supplementary material included on page 5 of the methods.	RECORD 7.1: A complete list of codes and algorithms used to classify exposures, outcomes, confounders, and effect modifiers should be provided. If these cannot be reported, an explanation should be provided.	All outcomes and variables are fully defined including the use of algorithms and coding lists in Supplementary Material B for the high-risk criteria and Supplementary Material C for all clustering and non-clustering variables.
Data sources/ measurement	8	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Table C.3 in Supplementary Material C.		
Bias	9	Describe any efforts to address potential sources of bias	To minimise misclassification and information bias, high risk criteria and coding lists were subject to double clinical review (page 5 Methods). The discussion page 10,11 discusses potential information bias as a limitation of using routine datasets.		
Study size	10	Explain how the study size was arrived at	Page 4 and 5		
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why	How the variables were operationalised for analyses is detailed in Table C.3 Supplementary Material C.		
Statistical methods	12	<p>(a) Describe all statistical methods, including those used to control for confounding</p> <p>(b) Describe any methods used to examine subgroups and interactions</p> <p>(c) Explain how missing data were addressed</p>	<p>a) Section 2.3 page 5. Further details on cluster analysis and selection of the number of clusters is included in Supplementary Material C.</p> <p>b) Subgroups were investigated in Table</p>		

		(d) <i>Cohort study</i> - If applicable, explain how loss to follow-up was addressed <i>Case-control study</i> - If applicable, explain how matching of cases and controls was addressed <i>Cross-sectional study</i> - If applicable, describe analytical methods taking account of sampling strategy (e) Describe any sensitivity analyses	1. Methods described on page 5. c) Page 5 d) NA. The full BNSSG cohort from March 2019 was taken for analyses. e) Sensitivity analyses in terms of the clustering solution chosen for segmentation is fully described in Supplementary Material C. Also described more briefly in the methods page 5.		
Data access and cleaning methods		..		RECORD 12.1: Authors should describe the extent to which the investigators had access to the database population used to create the study population. RECORD 12.2: Authors should provide information on the data cleaning methods used in the study.	The full BNSSG database population for the SWD were used for analyses. This is included on page 4. How variables were coded and operationalised is documented in Supplementary Material B and C and page 4 describes how a unique identifier is used to link data between the tables in the system wide dataset.
Linkage		..		RECORD 12.3: State whether the study included person-level, institutional-level, or other data linkage across two or more databases. The methods of linkage and methods of linkage quality evaluation should be provided.	Page 4 under section 2.1.
Results					
Participants	13	(a) Report the numbers of individuals at each stage of the study (<i>e.g.</i> , numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed) (b) Give reasons for non-participation at each stage. (c) Consider use of a flow diagram	Page 6 for descriptive analyses. Page 8 for cluster analysis.	RECORD 13.1: Describe in detail the selection of the persons included in the study (<i>i.e.</i> , study population selection) including filtering based on data quality, data availability and linkage. The selection of included persons can be described in the text and/or by means of the study flow diagram.	Page 6 for descriptive analyses. Page 8 for cluster analysis.
Descriptive data	14	(a) Give characteristics of study participants (<i>e.g.</i> , demographic, clinical, social) and information on exposures and potential confounders (b) Indicate the number of participants with missing data for	Page 6 for descriptive analyses. Page 8 for cluster analysis. Number of participants with missing data page 8.		

		each variable of interest (c) <i>Cohort study</i> - summarise follow-up time (e.g., average and total amount)			
Outcome data	15	<i>Cohort study</i> - Report numbers of outcome events or summary measures over time <i>Case-control study</i> - Report numbers in each exposure category, or summary measures of exposure <i>Cross-sectional study</i> - Report numbers of outcome events or summary measures	<i>Cross-sectional study</i> – Page 6, Table 1, Figure 1 and 2 report a comparative analysis of the low, moderate and high-risk groups with regard to demographic and socioeconomic information, historical healthcare utilisation, and burden of comorbidity. Figure 3 shows the geographical distribution of high risk individuals.		
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders were adjusted for and why they were included (b) Report category boundaries when continuous variables were categorized (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	a) Main descriptive analyses reported on pages 6-8. Cluster analysis results reported on page 8-10. b) Continuous variables kept as continuous and results reported as mean, median with interquartile range or proportion. Tables 1 and 2. Supplementary Material C discusses how variables are operationalised. c) Not applicable.		
Other analyses	17	Report other analyses done—e.g., analyses of subgroups and interactions, and sensitivity analyses	Results are presented for low, moderate and high risk subgroups and for the segmentation analysis for clusters 1-6. Pages 6-8 for descriptive analyses and page 8-10 for cluster analyses. Sensitivity analyses in terms of the clustering solution were performed and documented in Supplementary Material C.		
Discussion					
Key results	18	Summarise key results with reference to study objectives	Page 10.		
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	Page 10-11.	RECORD 19.1: Discuss the implications of using data that were not created or collected to answer the specific research question(s). Include discussion of misclassification bias, unmeasured confounding, missing data, and changing eligibility over time, as they	Page 10-12 (i.e. misclassification bias and limitations relating to the data).

				pertain to the study being reported.	
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Page 11-12.		
Generalisability	21	Discuss the generalisability (external validity) of the study results	Page 10-12.		
Other Information					
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	Page 13.		
Accessibility of protocol, raw data, and programming code		..		RECORD 22.1: Authors should provide information on how to access any supplemental information such as the study protocol, raw data, or programming code.	Page 13. Technical appendix and coding lists available in online supplementary files. Local data used for the study are not publicly available.

*Reference: Benchimol EI, Smeeth L, Guttman A, Harron K, Moher D, Petersen I, Sørensen HT, von Elm E, Langan SM, the RECORD Working Committee. The REporting of studies Conducted using Observational Routinely-collected health Data (RECORD) Statement. *PLoS Medicine* 2015; in press.

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Supplementary Material B: High Risk Criteria Using BNSSG System Wide Dataset

1. High Risk Criteria Using BNSSG System Wide Dataset (SWD):

Local search terms are based on fields within the SWD. Disease search terms match to fields within the characteristics table of the SWD, which are based on READ code lists. These are either based the QOF business rules, indicated by 'qof_disease', or code sets published by the Cambridge CPRD group, (https://www.phpc.cam.ac.uk/pcu/research/research-groups/crmh/cprd_cam/codelists/) which were then clinically validated locally.

Category	Sub-category	Local search terms	Reference source
Chronic liver disease, such as hepatitis	Patients having undergone liver transplantation and taking immunosuppression	No local search, assumed picked up by NHS Digital central search.	https://www.bsg.org.uk/wp-content/uploads/2020/03/Hepatology-Risk-Groups-BSG-BASL-v2.0.pdf
	Patients with autoimmune hepatitis taking immunosuppression	(cc_mild_liver_disease OR cc_moderate_or_severe_liver_disease) AND (IMMLIV OR IMMHIRS)	https://www.bsg.org.uk/covid-19-advice/bsg-basl-advice-on-heptalogy-patient-risk-groups/
	Any liver disease AND patients aged ≥ 70 years of age	(cc_mild_liver_disease OR cc_moderate_or_severe_liver_disease) AND age ≥ 70 years	
	Any liver disease AND pregnancy	No local search, assumed picked up by NHS Digital central search.	
	Any liver disease AND patients with other co-morbidities: cardiac disease, respiratory disease, diabetes mellitus	(cc_mild_liver_disease OR cc_moderate_or_severe_liver_disease) AND (cc_myocardial_infarction OR cc_heart_failure OR qof_chd OR qof_hf OR cc_diabetes_no_complications OR cc_diabetes_end_complications OR qof_diabetes OR cc_bronchiectasis OR cc_pulmonary_fibrosis OR ((cc_asthma OR qof_asthma) AND asthma products) OR cc_copd OR qof_copd)	
Rheumatological conditions: Rheumatoid, inflammatory arthritis and other systemic inflammatory conditions.	Corticosteroid dose of ≥ 20 mg (0.5mg/kg) prednisolone (or equivalent) per day for more than four weeks	(inflam_arthritic OR qof_rheum) AND IMMHIRS	https://www.rheumatology.org.uk/News-Policy/Details/Covid19-Coronavirus-update-members

	Cyclophosphamide at any dose orally or within last six months IV	Cyclophosphamide ≥ 1 within the last 6 months	
	Corticosteroid dose of ≥ 5 mg prednisolone (or equivalent) per day for more than four weeks plus at least one other immunosuppressive medication*, biologic/monoclonal** or small molecule immunosuppressant (e.g. JAK inhibitors)***	IMMMoRS AND (IMMIMM OR IMMBIO)	
	Any two agents among immunosuppressive medications, biologics/monoclonals** or small molecule immunosuppressants with any co-morbidity****	any two separate drugs within: IMMIMM OR IMMBIO	
Inflammatory bowel disease (IBD)	AND a co-morbidity (respiratory, cardiac, hypertension or diabetes mellitus) and/or are ≥ 70 years old AND one of: Ustekinumab; Vedolizumab; Methotrexate; Anti-TNF alpha monotherapy (infliximab, adalimumab, golimumab); Thiopurines (azathioprine, mercaptopurine, tioguanine); Calcineurin inhibitors (tacrolimus or ciclosporin); Janus kinase (JAK) inhibition (tofacitinib); Combination therapy in stable patients**; Immunosuppressive/biologic trial medication	(age ≥ 70 years OR cc_diabetes_no_complications OR cc_diabetes_end_complications OR qof_diabetes OR qof_ht OR cc_bronchiectasis OR cc_pulmonary_fibrosis OR cc_copd OR ((qof_asthma OR cc_asthma) AND asthma products) OR qof_copd OR cc_cystic_fibrosis OR cc_myocardial_infarction OR cc_heart_failure OR qof_chd OR qof_hf OR (cc_egfr < 30)) AND (IMMIMM OR IMMBIO)	https://www.bsg.org.uk/wp-content/uploads/2020/03/Hepatology-Risk-Groups-BSG-BASL-v2.0.pdf

	AND who meet one or more of the following criteria: on oral or intravenous prednisolone ≥ 20 mg per day (only while on this dose); new induction therapy with combo therapy (starting biologic within previous 6 weeks); moderate-to-severely active disease despite immunosuppression/biologics; short gut syndrome requiring nutritional support; requirement for parenteral nutrition	ibd AND (IMMHiRS OR (first IMMBIO <started within most recent 6 weeks AND (IMMIMM OR IMMORS OR IMMHiRS))	
Solid organ transplant recipients		No local search, assumed picked up by NHS Digital central search.	https://digital.nhs.uk/coronavirus/shielded-patient-list/methodology
Cancer	active chemotherapy	(cancer_lung_year OR cancer_breast_year OR cancer_bowel_year OR cancer_prostate_year OR cancer_cervical_year OR cancer_ovarian_year OR cancer_melanoma_year OR cancer_headneck_year OR cancer_giliver_year OR cancer_other_year OR cancer_bladder_year OR cancer_kidney_year OR cancer_metase_year) AND any of the 'inpatient or outpatient oncology' codes occurring ≥ 3 times in the past year	https://digital.nhs.uk/coronavirus/shielded-patient-list/methodology
	radical radiotherapy for lung cancer	Covered by other categories	
	leukaemia, lymphoma or myeloma who are at any stage of treatment	cancer_leuklymph_year	
	immunotherapy or other continuing antibody treatments for cancer	Covered by other categories	
	other targeted cancer treatments which can affect the immune system, such as protein kinase inhibitors or PARP inhibitors.	Covered by other categories	

	bone marrow or stem cell transplants in the last 6 months, or who are still taking immunosuppression drugs.	('blood and marrow transplantation code' EVER AND (at least one of: azathioprine, Leflunomide, methotrexate, mycophenolate mofetil or mycophenolic acid, ciclosporin, cyclophosphamide, tacrolimus, sirolimus, Rituximab prescribed in the last 6 months)) OR 'blood and marrow transplantation code' in the last 6 months.	
Severe respiratory conditions	Severe asthma	((qof_asthma OR cc_asthma) AND asthma product codes) AND (4 or more prescriptions for prednisolone in last 6 months of 2019) **OR** Omalizumab with >=1 in most recent 6 months)	https://digital.nhs.uk/coronavirus/shielded-patient-list/methodology , plus local meds op advice
	Patients with Chronic Obstructive Pulmonary Disease (COPD) who have required hospitalisation in the last 12 months or patients who have required 2 or more courses of steroids and/or antibiotics in the last 12 months	(LAMA AND LABA AND ICS) OR home_oxygen OR ((qof_copd OR cc_copd) AND (prescribed Roflumilast (<6 months) OR fev1 <50% predicted OR MRC dyspnoea score 4-5))	
	Severe bronchiectasis	cc_bronchiectasis AND (MRC dyspnoea score 5 OR >=2 in-patient respiratory code in the last 12 months OR fev1 <30% predicted OR age >80 years)	https://www.bronchiectasis.eu/severity-assessment , http://www.bronchiectasisseverity.com/15-2/ , https://thorax.bmj.com/content/74/Suppl_1/1
	Interstitial lung diseases	lung_restrict	https://www.brit-thoracic.org.uk/media/455101/bts-management-advice-for-ild-patients-v10-23-march-2020.pdf
	Cystic fibrosis	cc_cystic_fibrosis	https://digital.nhs.uk/coronavirus/shielded-patient-list/methodology

Rare diseases and inborn errors of metabolism that significantly increase the risk of infections (such as SCID, homozygous sickle cell disease)	Homozygous sickle cell disease	No local search, assumed picked up by NHS Digital central search.	https://digital.nhs.uk/coronaviruses/shielded-patient-list/methodology
Rare diseases and inborn errors of metabolism that significantly increase the risk of infections (such as SCID, homozygous sickle cell disease)	Other including SCID	No local search, assumed picked up by NHS Digital central search.	
People on immunosuppression therapies sufficient to significantly increase risk of infection		Covered by other categories	https://digital.nhs.uk/coronaviruses/shielded-patient-list/methodology
Pregnant	AND with significant heart disease, congenital or acquired	No local search, assumed picked up by NHS Digital central search.	https://digital.nhs.uk/coronaviruses/shielded-patient-list/methodology

Gastroenterology Notes

No specific recommendations are being made regarding IBD and pregnancy, and pregnant women with IBD are encouraged to follow the guidance available from the UK government for pregnant women in the general population.

* i.e. at least one of (comorbidity listed above or age \geq 70) plus at least one therapy from the middle column ** Combination therapy may increase risk over monotherapy

These guidelines were formulated by the UK IBD COVID-19 working group on 20/03/2020 and were based on expert opinion and the available evidence at the time. Column headings updated 22/03/2020 to reflect latest government terminology. but there is no specific evidence for this situation

Rheumatology Notes

*Immunosuppressive medications include: Azathioprine, Leflunomide, methotrexate, Mycophenolate (mycophenolate mofetil or mycophenolic acid), ciclosporin, cyclophosphamide, tacrolimus, sirolimus. It does NOT include Hydroxychloroquine or Sulphasalazine either alone or in combination

** Biologic/monoclonal includes: Rituximab within last 12 months; all anti-TNF drugs (etanercept, adalimumab, infliximab, golimumab, certolizumab and biosimilar variants of all of these); Tocilizumab; Abatacept; Belimumab; Anakinra; Seukinumab; Ixekizumab; Ustekinumab; Sarilumumab; canakinumab

*** Small molecules includes: all JAK inhibitors – baricitinib, tofacitinib etc

**** Co-morbidity includes: age >70, Diabetes Mellitus, any pre-existing lung disease, renal impairment, any history of Ischaemic Heart Disease or hypertension NB This advice applies to both adults, children and young people with rheumatic disease. We do NOT advise that patients increase steroid dose if they become unwell

IMMIMM – at least one in the last 6 months

IMMLIV – at least one in the last 6 months

Roflumilast – at least one in the last 6 months

2. Prescriptions/drug lists to accompany the criteria above

Drug Name	Drug Type	Drug List		Temporal Aspect
IMMIMM	Immunosuppressant/immunomodulator	Immunosuppressant/immunomodulator	Drug	At least one prescription in the last 6 months
		Azathioprine	Thiopurines	
		mercaptopurine	Thiopurines	
		Tioguanine	Thiopurines	
		Leflunomide	Other	
		Thalidomide	Other	
		Methotrexate	Other	
		mycophenolate mofetil	Other	
		mycophenolic acid	Other	
		cyclophosphamide	Other	
		Tacrolimus	Calcineurin inhibitors	
		sirolimus	Calcineurin inhibitors	
		ciclosporin	Calcineurin inhibitors	
IMMLIV	Liver Transplant Drugs	Azathioprine Mycophenolate Mofetil Mycophenolic Ciclosporin Sirolimus Tacrolimus		At least one prescription in the last 6 months
IMMHRS	High Risk Steroids	Prednisolone AND (20mg OR 25mg OR 30mg) Dexamethasone AND ≥ 4 mg AND tablets Methylprednisolone AND (16mg OR 100mg OR injection)		2 or more in the past 3 months
IMMoRS	Moderate Risk Steroids	Prednisolone AND 5mg Betamethasone AND tablets Deflazacort Dexamethasone AND tablets AND < 4 mg Hydrocortisone AND tablets and 20mg Methylprednisolone AND (2mg OR 4mg)		2 or more in the past 3 months
IMMBIO	Biologic/monoclonal	Biologic/monoclonal	Drug	Rituximab one or more in the past 12 months All other drugs one or more in the past 6 months
		rituximab	Other	
		tocilizumab	Other	
		abatacept	Other	
		belimumab	Other	
		anakinra	Other	
		seukinumab	Other	
		ixekizumab	Other	
		ustekinumab	Other	
		sarilumumab	Other	
		canakinumab	Other	
		etanercept	Anti-TNF	
		adalimumab	Anti-TNF	
		infliximab	Anti-TNF	
		golimumab	Anti-TNF	
		certolizumab	Anti-TNF	
		baricitinib	JAK_inhibitors	
		tofacitinib	JAK_inhibitors	
		vedolizumab	Other	
		apremilast	Other	
		brodalumab	Other	
		dupilumab	Other	
		guselkumab	Other	
IMMBIOAST	Biologic asthma	Omalizumab		One or more in the past 6 months
Asthma COPD Products	Asthma and COPD product name list	Product name list given below along with a label for LAMA, LABA and ICS.		One or more in the past 6 months
Other drugs requiring monitoring in previous 2 months	Mixed	Amiodarone Flupentixol Zuclopentixol Haloperidol Pipotiazine Fluphenazine Risperidone Risperdal Paliperidone Olanzapine		One or more in previous 2 months

		Aripiprazole Carbamazepine Cinacalcet Denosumab Dexamfetamine Entecavir Guanfacine Hydroxycarbamide Lamivudine Liothyronine Lisdexamfetamine Lithium Mercaptopurine Mesalazine Metyrapone Mexiletine Modafinil Penicillamine Riluzole Tenofovir Tinzaparin Enoxaparin Warfarin Dalteparin Valproic Acid Sodium Valproate Venlafaxine	
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3. Product name list for Asthma and COPD drugs along with the type of medicine (LAMA, LABA or ICS) and their combinations

#	Product Name	Type Label
1	Accolate 20mg tablets (AstraZeneca UK Ltd)	nil
2	Acclidinium brom 396mcg/dose / Formoterol 11.8mcg/dose DP inh	LAMA_LABA
3	Acclidinium bromide 375micrograms/dose dry powder inhaler	LAMA
4	Acclidinium bromide 396micrograms/dose / Formoterol 11.8micrograms/dose dry powder inhaler	LAMA_LABA
5	Acclidinium bromide 396micrograms/dose / Formoterol 11.8micrograms/dose dry powder inhaler (Colorama Pharmaceuticals Ltd)	LAMA_LABA
6	Adrenaline and Atropine comp spray	other
7	Adrenaline and atropine inhalation solution	other
8	Aerivio Spiromax 50microg / 500microg/dose dry pdr inh	ICS_LABA
9	Aerivio Spiromax 50micrograms/dose / 500micrograms/dose dry powder inhaler (Teva UK Ltd)	ICS_LABA
10	AeroBec 100 Autohaler (Meda Pharmaceuticals Ltd)	nil
11	Aerobec 250microgram/actuation Pressurised inhalation (Meda Pharmaceuticals Ltd)	nil
12	AeroBec 50 Autohaler (Meda Pharmaceuticals Ltd)	nil
13	AeroBec Forte 250 Autohaler (Meda Pharmaceuticals Ltd)	nil
14	Aerolin 400 100microgram/actuation Inhalation powder (3M Health Care Ltd)	ICS
15	Aerolin autohaler 100microgram/actuation Pressurised inhalation (3M Health Care Ltd)	ICS
16	AirFluSal 25micrograms/dose / 125micrograms/dose inhaler	ICS_LABA
17	AirFluSal 25micrograms/dose / 250micrograms/dose inhaler	ICS_LABA
18	AirFluSal 25micrograms/dose / 250micrograms/dose inhaler (Sandoz Ltd)	ICS_LABA
19	AirFluSal Forspiro 50microg / 500microg/dose dry pdr inh	ICS_LABA
20	AirFluSal Forspiro 50micrograms/dose / 500micrograms/dose dry powder inhaler (Sandoz Ltd)	ICS_LABA
21	Airomir 100micrograms/dose Autohaler (Teva UK Ltd)	SABA
22	Airomir 100micrograms/dose inhaler (Teva UK Ltd)	SABA
23	AirSalb 100micrograms/dose inhaler CFC free (Sandoz Ltd)	SABA
24	Aloflute 25micrograms/dose / 125micrograms/dose inhaler	ICS_LABA
25	Aloflute 25micrograms/dose / 250micrograms/dose inhaler	ICS_LABA

26	Alupent 750microgram/inhalation Aerosol refill (Boehringer Ingelheim Ltd)	nil
27	Alupent 750microgram/inhalation Inhalation powder (Boehringer Ingelheim Ltd)	nil
28	Alupent expectorant Mixture (Boehringer Ingelheim Ltd)	nil
29	Alupent expectorant Tablet (Boehringer Ingelheim Ltd)	nil
30	Alvesco 160 inhaler	ICS
31	Alvesco 160 inhaler (AstraZeneca UK Ltd)	ICS
32	Alvesco 80 inhaler	ICS
33	Alvesco 80 inhaler (AstraZeneca UK Ltd)	ICS
34	Aminophylline 100mg modified-release tablets	other
35	Aminophylline 200mg tablets	other
36	Aminophylline 225mg Modified-release tablet (Actavis UK Ltd)	other
37	Aminophylline 225mg Modified-release tablet (Hillcross Pharmaceuticals Ltd)	other
38	Aminophylline 250mg/10ml injection	other
39	Aminophylline 250mg/10ml solution for injection ampoules	other
40	Aminophylline 250mg/10ml solution for injection ampoules (A A H Pharmaceuticals Ltd)	other
41	Aminophylline 250mg/10ml solution for injection ampoules (AMCo)	other
42	Aminophylline 250mg/10ml solution for injection ampoules (Martindale Pharmaceuticals Ltd)	other
43	Aminophylline 250mg/ml injection	other
44	Aminophylline 25mg/ml Injection (Celltech Pharma Europe Ltd)	other
45	Aminophylline 350mg modified-release tablets	other
46	Aminophylline 360mg suppositories	other
47	Aminophylline 360mg suppositories (Special Order)	other
48	Aminophylline hydrate 225mg modified-release tablets	other
49	Aminophylline hydrate 350mg modified-release tablets	other
50	Aminophylline sr 225mg Modified-release tablet (IVAX Pharmaceuticals UK Ltd)	other
51	Anoro Ellipta 55microg/dose / 22microg/dose dry pdr inh	LAMA_LABA
52	Anoro Ellipta 55micrograms/dose / 22micrograms/dose dry powder inhaler (GlaxoSmithKline UK Ltd)	LAMA_LABA
53	Asmabec 100 Clickhaler	ICS
54	Asmabec 100 Clickhaler (Focus Pharmaceuticals Ltd)	ICS
55	Asmabec 100microgram/actuation Spacehaler (Celltech Pharma Europe Ltd)	ICS
56	Asmabec 250 Clickhaler (Focus Pharmaceuticals Ltd)	ICS
57	Asmabec 250microgram/actuation Spacehaler (Celltech Pharma Europe Ltd)	ICS
58	Asmabec 50 Clickhaler (Focus Pharmaceuticals Ltd)	ICS
59	Asmabec 50microgram/actuation Spacehaler (Celltech Pharma Europe Ltd)	ICS
60	Asmanex 200micrograms/dose Twisthaler	ICS
61	Asmanex 200micrograms/dose Twisthaler (Merck Sharp & Dohme Ltd)	ICS
62	Asmanex 400micrograms/dose Twisthaler	ICS
63	Asmanex 400micrograms/dose Twisthaler (Merck Sharp & Dohme Ltd)	ICS
64	Asmasal 100microgram/inhalation Spacehaler (Celltech Pharma Europe Ltd)	nil
65	Asmasal 95micrograms/dose Clickhaler (Focus Pharmaceuticals Ltd)	nil
66	Asmaven 100microgram Inhalation powder (Berk Pharmaceuticals Ltd)	nil
67	Asmavent 100micrograms/dose inhaler CFC free (Kent Pharmaceuticals Ltd)	nil
68	Atimos Modulite 12micrograms/dose inhaler	LABA
69	Atimos Modulite 12micrograms/dose inhaler (Chiesi Ltd)	LABA
70	Atropine methonitrate with papaverine and adrenaline inhalation	other
71	Atrovent 20micrograms/dose Autohaler (Boehringer Ingelheim Ltd)	ipratropium

72	Atrovent 20micrograms/dose inhaler (Boehringer Ingelheim Ltd)	ipratropium
73	Atrovent 20micrograms/dose inhaler CFC free (Boehringer Ingelheim Ltd)	ipratropium
74	Atrovent 20micrograms/dose inhaler CFC free (DE Pharmaceuticals)	ipratropium
75	Atrovent 20micrograms/dose inhaler CFC free (Lexon (UK) Ltd)	ipratropium
76	Atrovent 20micrograms/dose inhaler CFC free (Sigma Pharmaceuticals Plc)	ipratropium
77	Atrovent 250micrograms/1ml nebuliser liquid UDVs (Boehringer Ingelheim Ltd)	ipratropium
78	Atrovent 40microgram Aerocaps (Boehringer Ingelheim Ltd)	ipratropium
79	Atrovent 40microgram Aerocaps with AeroHaler (Boehringer Ingelheim Ltd)	ipratropium
80	Atrovent 500micrograms/2ml nebuliser liquid UDVs (Boehringer Ingelheim Ltd)	ipratropium
81	Atrovent 500micrograms/2ml nebuliser liquid UDVs (Waymade Healthcare Plc)	ipratropium
82	Atrovent aerocaps 40microgram Inhalation powder (Boehringer Ingelheim Ltd)	ipratropium
83	Atrovent arohaler 40microgram Inhalation powder (Boehringer Ingelheim Ltd)	ipratropium
84	Atrovent Forte 40micrograms/dose inhaler (Boehringer Ingelheim Ltd)	ipratropium
85	Atrovent udv 0.25mg/ml Nebuliser liquid (Boehringer Ingelheim Ltd)	ipratropium
86	Bambec 10mg tablets	LABA
87	Bambec 10mg tablets (AstraZeneca UK Ltd)	LABA
88	Bambec 20mg tablets	LABA
89	Bambec 20mg tablets (AstraZeneca UK Ltd)	LABA
90	Bambuterol 10mg tablets	LABA
91	Bambuterol 20mg tablets	LABA
92	Bdp 100microgram/actuation Spacehaler (Celltech Pharma Europe Ltd)	ICS
93	Bdp 250microgram/actuation Spacehaler (Celltech Pharma Europe Ltd)	ICS
94	Bdp 50microgram/actuation Spacehaler (Celltech Pharma Europe Ltd)	ICS
95	Beclazone 100 Easi-Breathe inhaler (Teva UK Ltd)	ICS
96	Beclazone 100 inhaler	ICS
97	Beclazone 100 inhaler (Teva UK Ltd)	ICS
98	Beclazone 100microgram/actuation Inhalation powder (Actavis UK Ltd)	ICS
99	Beclazone 200 inhaler	ICS
100	Beclazone 200 inhaler (Teva UK Ltd)	ICS
101	Beclazone 250 Easi-Breathe inhaler (Teva UK Ltd)	ICS
102	Beclazone 250 inhaler	ICS
103	Beclazone 250 inhaler (Teva UK Ltd)	ICS
104	Beclazone 250microgram/actuation Inhalation powder (Actavis UK Ltd)	ICS
105	Beclazone 50 Easi-Breathe inhaler	ICS
106	Beclazone 50 Easi-Breathe inhaler (Teva UK Ltd)	ICS
107	Beclazone 50 inhaler (Teva UK Ltd)	ICS
108	Beclazone 50microgram/actuation Inhalation powder (Actavis UK Ltd)	ICS
109	Beclazone easi-breathe (roi) 100microgram/actuation Pressurised inhalation (Ivax Pharmaceuticals Ireland)	ICS
110	Beclazone easi-breathe (roi) 250microgram/actuation Pressurised inhalation (Ivax Pharmaceuticals Ireland)	ICS
111	Becloforte 250micrograms/dose inhaler (Dowelhurst Ltd)	ICS
112	Becloforte 250micrograms/dose inhaler (GlaxoSmithKline UK Ltd)	ICS
113	Becloforte 400microgram disks (GlaxoSmithKline UK Ltd)	ICS
114	Becloforte 400microgram disks with Diskhaler (GlaxoSmithKline UK Ltd)	ICS
115	Becloforte easi-breathe 250microgram/actuation Pressurised inhalation (Allen & Hanburys Ltd)	ICS
116	Becloforte integra 250microgram/actuation Inhaler with compact spacer (Glaxo Laboratories Ltd)	ICS

117	Becloforte vm 250microgram/actuation VM pack (Allen & Hanburys Ltd)	ICS
118	Beclometasone 100 micrograms/actuation vortex inhaler	ICS
119	Beclometasone 100mcg/dose breath actuated inhaler CFC free	ICS
120	Beclometasone 100microg/Formoterol 6microg/dose dry pdr inh	ICS_LABA
121	Beclometasone 100microg/Formoterol 6microg/dose inh CFCfree	ICS_LABA
122	Beclometasone 100microgram inhalation powder blisters	ICS
123	Beclometasone 100microgram inhalation powder blisters with device	ICS
124	Beclometasone 100microgram inhalation powder capsules	ICS
125	Beclometasone 100microgram/actuation Inhalation powder (Actavis UK Ltd)	ICS
126	Beclometasone 100microgram/actuation Inhalation powder (Neo Laboratories Ltd)	ICS
127	Beclometasone 100microgram/actuation Pressurised inhalation (Approved Prescription Services Ltd)	ICS
128	Beclometasone 100micrograms disc	ICS
129	Beclometasone 100micrograms with Salbutamol 200micrograms inhalation capsules	ICS_SABA
130	Beclometasone 100micrograms/actuation extrafine particle cfc free inhaler	ICS
131	Beclometasone 100micrograms/dose / Formoterol 6micrograms/dose dry powder inhaler	ICS_LABA
132	Beclometasone 100micrograms/dose / Formoterol 6micrograms/dose inhaler CFC free	ICS_LABA
133	Beclometasone 100micrograms/dose breath actuated inhaler	ICS
134	Beclometasone 100micrograms/dose breath actuated inhaler CFC free	ICS
135	Beclometasone 100micrograms/dose dry powder inhaler	ICS
136	Beclometasone 100micrograms/dose inhaler	ICS
137	Beclometasone 100micrograms/dose inhaler (A H Pharmaceuticals Ltd)	ICS
138	Beclometasone 100micrograms/dose inhaler (Mylan)	ICS
139	Beclometasone 100micrograms/dose inhaler (Teva UK Ltd)	ICS
140	Beclometasone 100micrograms/dose inhaler CFC free	ICS
141	Beclometasone 100micrograms/dose inhaler CFC free (Ennogen Healthcare Ltd)	ICS
142	Beclometasone 200 Cyclocaps (Teva UK Ltd)	ICS
143	Beclometasone 200microg/Formoterol 6microg/dose dry pdr inh	ICS_LABA
144	Beclometasone 200microg/Formoterol 6microg/dose inh CFC free	ICS_LABA
145	Beclometasone 200microgram inhalation powder blisters	ICS
146	Beclometasone 200microgram inhalation powder blisters with device	ICS
147	Beclometasone 200microgram inhalation powder capsules	ICS
148	Beclometasone 200micrograms disc	ICS
149	Beclometasone 200micrograms with Salbutamol 400micrograms inhalation capsules	ICS_SABA
150	Beclometasone 200micrograms/dose / Formoterol 6micrograms/dose dry powder inhaler	ICS_LABA
151	Beclometasone 200micrograms/dose / Formoterol 6micrograms/dose inhaler CFC free	ICS_LABA
152	Beclometasone 200micrograms/dose dry powder inhaler	ICS
153	Beclometasone 200micrograms/dose inhaler	ICS
154	Beclometasone 200micrograms/dose inhaler (A A H Pharmaceuticals Ltd)	ICS
155	Beclometasone 200micrograms/dose inhaler CFC free	ICS
156	Beclometasone 250microgram/actuation Inhalation powder (Actavis UK Ltd)	ICS
157	Beclometasone 250microgram/actuation Inhalation powder (Neo Laboratories Ltd)	ICS
158	Beclometasone 250microgram/actuation Pressurised inhalation (Approved Prescription Services Ltd)	ICS
159	Beclometasone 250micrograms/actuation inhaler and compact spacer	ICS
160	Beclometasone 250micrograms/actuation vortex inhaler	ICS
161	Beclometasone 250micrograms/dose breath actuated inhaler	ICS
162	Beclometasone 250micrograms/dose dry powder inhaler	ICS

163	Beclometasone 250micrograms/dose inhaler	ICS
164	Beclometasone 250micrograms/dose inhaler (A A H Pharmaceuticals Ltd)	ICS
165	Beclometasone 250micrograms/dose inhaler (Mylan)	ICS
166	Beclometasone 250micrograms/dose inhaler (Teva UK Ltd)	ICS
167	Beclometasone 250micrograms/dose inhaler CFC free	ICS
168	Beclometasone 400 Cyclocaps (Teva UK Ltd)	ICS
169	Beclometasone 400microgram disc	ICS
170	Beclometasone 400microgram inhalation powder blisters	ICS
171	Beclometasone 400microgram inhalation powder blisters with device	ICS
172	Beclometasone 400microgram inhalation powder capsules	ICS
173	Beclometasone 400micrograms/actuation inhaler	ICS
174	Beclometasone 400micrograms/dose dry powder inhaler	ICS
175	Beclometasone 50microgram/actuation Inhalation powder (Actavis UK Ltd)	ICS
176	Beclometasone 50microgram/actuation Inhalation powder (Neo Laboratories Ltd)	ICS
177	Beclometasone 50microgram/actuation Pressurised inhalation (Approved Prescription Services Ltd)	ICS
178	Beclometasone 50micrograms with salbutamol 100micrograms/inhalation inhaler	ICS_SABA
179	Beclometasone 50micrograms/actuation extrafine particle cfc free inhaler	ICS
180	Beclometasone 50micrograms/dose breath actuated inh CFC free	ICS
181	Beclometasone 50micrograms/dose breath actuated inhaler	ICS
182	Beclometasone 50micrograms/dose breath actuated inhaler CFC free	ICS
183	Beclometasone 50micrograms/dose dry powder inhaler	ICS
184	Beclometasone 50micrograms/dose inhaler	ICS
185	Beclometasone 50micrograms/dose inhaler (A A H Pharmaceuticals Ltd)	ICS
186	Beclometasone 50micrograms/dose inhaler (Almus Pharmaceuticals Ltd)	ICS
187	Beclometasone 50micrograms/dose inhaler (Mylan)	ICS
188	Beclometasone 50micrograms/dose inhaler (Teva UK Ltd)	ICS
189	Beclometasone 50micrograms/dose inhaler CFC free	ICS
190	Beclometasone 50micrograms/ml nebuliser suspension	ICS
191	Beclometasone 50 micrograms/actuation vortex inhaler	ICS
192	BECLOMETHASONE /SALBUTAMOL	ICS_SABA
193	Becodisks 100microgram	ICS
194	Becodisks 100microgram (GlaxoSmithKline UK Ltd)	ICS
195	Becodisks 100microgram Disc (Allen & Hanburys Ltd)	ICS
196	Becodisks 100microgram with Diskhaler (GlaxoSmithKline UK Ltd)	ICS
197	Becodisks 200microgram (GlaxoSmithKline UK Ltd)	ICS
198	Becodisks 200microgram (Lexon (UK) Ltd)	ICS
199	Becodisks 200microgram (Mawdsley-Brooks & Company Ltd)	ICS
200	Becodisks 200microgram Disc (Allen & Hanburys Ltd)	ICS
201	Becodisks 200microgram with Diskhaler (GlaxoSmithKline UK Ltd)	ICS
202	Becodisks 400microgram (GlaxoSmithKline UK Ltd)	ICS
203	Becodisks 400microgram (Waymade Healthcare Plc)	ICS
204	Becodisks 400microgram Disc (Allen & Hanburys Ltd)	ICS
205	Becodisks 400microgram with Diskhaler (GlaxoSmithKline UK Ltd)	ICS
206	BECOTIDE 100	ICS
207	Becotide 100 inhaler (GlaxoSmithKline UK Ltd)	ICS
208	Becotide 100 inhaler (Waymade Healthcare Plc)	ICS

209	Becotide 100microgram Rotacaps (GlaxoSmithKline UK Ltd)	ICS
210	Becotide 200 inhaler (GlaxoSmithKline UK Ltd)	ICS
211	Becotide 200microgram Rotacaps (GlaxoSmithKline UK Ltd)	ICS
212	Becotide 400microgram Rotacaps (GlaxoSmithKline UK Ltd)	ICS
213	BECOTIDE 50	ICS
214	Becotide 50 inhaler (Dowelhurst Ltd)	ICS
215	Becotide 50 inhaler (GlaxoSmithKline UK Ltd)	ICS
216	Becotide 50microgram/ml Nebuliser liquid (Allen & Hanburys Ltd)	ICS
217	Becotide easi-breathe 100microgram/actuation Pressurised inhalation (Allen & Hanburys Ltd)	ICS
218	Becotide easi-breathe 50microgram/actuation Pressurised inhalation (Allen & Hanburys Ltd)	ICS
219	BECOTIDE FOR NEBULISER	ICS
220	BECOTIDE ROTACAPS	ICS
221	Becotide Rotahaler (GlaxoSmithKline UK Ltd)	ICS
222	BECOTIDE SUSP FOR NEBULISATION	ICS
223	Berotec 100microgram/actuation Inhalation powder (Boehringer Ingelheim Ltd)	nil
224	Berotec 5mg/ml Nebuliser liquid (Boehringer Ingelheim Ltd)	nil
225	Betamethasone valerate 100micrograms/actuation inhaler	ICS
226	Bextasol Inhalation powder (Allen & Hanburys Ltd)	ICS
227	Biophylline 125mg/5ml Oral solution (Lorex Synthelabo Ltd)	other
228	Biophylline 350mg Tablet (Lorex Synthelabo Ltd)	other
229	Biophylline 500mg Tablet (Lorex Synthelabo Ltd)	other
230	Braltus 10microgram inhalation pdr caps with Zonda inhaler	LAMA
231	Braltus 10microgram inhalation powder capsules with Zonda inhaler (Teva UK Ltd)	LAMA
232	Brelomax 2mg Tablet (Abbott Laboratories Ltd)	nil
233	Bricanyl 1.5mg/5ml syrup (AstraZeneca UK Ltd)	SABA
234	Bricanyl 2.5mg/5ml solution for injection ampoules (AstraZeneca UK Ltd)	SABA
235	Bricanyl 500microgram/ml Injection (AstraZeneca UK Ltd)	SABA
236	Bricanyl 500micrograms/1ml solution for injection ampoules (AstraZeneca UK Ltd)	SABA
237	Bricanyl 500micrograms/dose Turbohaler (AstraZeneca UK Ltd)	SABA
238	Bricanyl 500micrograms/dose Turbohaler (DE Pharmaceuticals)	SABA
239	Bricanyl 500micrograms/dose Turbohaler (Necessity Supplies Ltd)	SABA
240	Bricanyl 500micrograms/dose Turbohaler (Waymade Healthcare Plc)	SABA
241	Bricanyl 5mg tablets (AstraZeneca UK Ltd)	SABA
242	Bricanyl 5mg/2ml Nebuliser liquid (AstraZeneca UK Ltd)	SABA
243	Bricanyl 5mg/2ml Respules (AstraZeneca UK Ltd)	SABA
244	Bricanyl Oral solution (AstraZeneca UK Ltd)	SABA
245	Bricanyl Refill canister (AstraZeneca UK Ltd)	SABA
246	Bricanyl Tablet (AstraZeneca UK Ltd)	SABA
247	Bricanyl turbohaler 500 500microgram Turbohaler (AstraZeneca UK Ltd)	SABA
248	Bronchilator Aerosol generator (Sanofi-Synthelabo Ltd)	nil
249	Bronchodil 10mg/5ml Oral solution (Viatris Pharmaceuticals Ltd)	nil
250	Bronchodil 20mg Tablet (Viatris Pharmaceuticals Ltd)	nil
251	Bronchodil 500microgram/dose Inhalation powder (Viatris Pharmaceuticals Ltd)	nil
252	Brovon Inhalation vapour (Torbet Laboratories Ltd)	nil
253	Brovon midget Inhalation powder (Torbet Laboratories Ltd)	nil
254	Budelin Novolizer 200micrograms/dose inhalation pdr refill	ICS

255	Budelin Novolizer 200micrograms/dose inhalation powder	ICS
256	Budelin Novolizer 200micrograms/dose inhalation powder (Meda Pharmaceuticals Ltd)	ICS
257	Budelin Novolizer 200micrograms/dose inhalation powder refill (Meda Pharmaceuticals Ltd)	ICS
258	Budesonide 100microg / Formoterol 6microg/dose dry pdr inh	ICS_LABA
259	Budesonide 100micrograms/actuation inhaler	ICS
260	Budesonide 100micrograms/dose / Formoterol 6micrograms/dose dry powder inhaler	ICS_LABA
261	Budesonide 100micrograms/dose dry powder inhaler	ICS
262	Budesonide 1mg/2ml nebuliser liquid unit dose vials	ICS
263	Budesonide 1mg/2ml nebuliser liquid unit dose vials (A A H Pharmaceuticals Ltd)	ICS
264	Budesonide 200mcg/dose / Formoterol 6mcg/dose dry powder inh	ICS_LABA
265	Budesonide 200microg / Formoterol 6microg/dose inh CFC free	ICS_LABA
266	Budesonide 200microg/dose dry pdr inhalation cart with dev	ICS
267	Budesonide 200micrograms/actuation breath actuated powder inhaler	ICS
268	Budesonide 200micrograms/actuation refill canister	ICS
269	Budesonide 200micrograms/dose / Formoterol 6micrograms/dose dry powder inhaler	ICS_LABA
270	Budesonide 200micrograms/dose / Formoterol 6micrograms/dose inhaler CFC free	ICS_LABA
271	Budesonide 200micrograms/dose dry pdr inhalation cartridge	ICS
272	Budesonide 200micrograms/dose dry powder inhalation cartridge	ICS
273	Budesonide 200micrograms/dose dry powder inhalation cartridge with device	ICS
274	Budesonide 200micrograms/dose dry powder inhaler	ICS
275	Budesonide 200micrograms/dose inhaler	ICS
276	Budesonide 200micrograms/dose inhaler CFC free	ICS
277	Budesonide 400mcg/dose /Formoterol 12mcg/dose dry powder inh	ICS_LABA
278	Budesonide 400micrograms/actuation inhaler	ICS
279	Budesonide 400micrograms/dose / Formoterol 12micrograms/dose dry powder inhaler	ICS_LABA
280	Budesonide 400micrograms/dose dry powder inhaler	ICS
281	Budesonide 400micrograms/dose Turbohaler (Waymade Healthcare Plc)	ICS
282	Budesonide 500micrograms/2ml neb liq unit dose vials	ICS
283	Budesonide 500micrograms/2ml nebuliser liquid unit dose vials	ICS
284	Budesonide 500micrograms/2ml nebuliser liquid unit dose vials (Almus Pharmaceuticals Ltd)	ICS
285	Budesonide 50micrograms/actuation refill canister	ICS
286	Budesonide 50micrograms/dose inhaler	ICS
287	CAM Mixture (Cambridge Healthcare Supplies Ltd)	nil
288	Choledyl 100mg Tablet (Parke-davis Research Laboratories)	nil
289	Choledyl 200mg Tablet (Parke-davis Research Laboratories)	nil
290	Choledyl 62.5mg/5ml Oral solution (Parke-davis Research Laboratories)	nil
291	Choline theophyllinate 100mg tablets	other
292	Choline theophyllinate 200mg tablets	other
293	Choline theophyllinate 62.5mg/5ml oral solution	other
294	Ciclesonide 160micrograms/dose inhaler CFC free	ICS
295	Ciclesonide 80micrograms/dose inhaler CFC free	ICS
296	Clenil Modulite 100micrograms/dose inhaler	ICS
297	Clenil Modulite 100micrograms/dose inhaler (Chiesi Ltd)	ICS
298	Clenil Modulite 100micrograms/dose inhaler (Mawdsley-Brooks & Company Ltd)	ICS
299	Clenil Modulite 200micrograms/dose inhaler	ICS
300	Clenil Modulite 200micrograms/dose inhaler (Chiesi Ltd)	ICS

301	Clenil Modulite 200micrograms/dose inhaler (Mawdsley-Brooks & Company Ltd)	ICS
302	Clenil Modulite 250micrograms/dose inhaler	ICS
303	Clenil Modulite 250micrograms/dose inhaler (Chiesi Ltd)	ICS
304	Clenil Modulite 250micrograms/dose inhaler (Waymade Healthcare Plc)	ICS
305	Clenil Modulite 50micrograms/dose inhaler	ICS
306	Clenil Modulite 50micrograms/dose inhaler (Chiesi Ltd)	ICS
307	Clenil Modulite 50micrograms/dose inhaler (Mawdsley-Brooks & Company Ltd)	ICS
308	Cobutolin 2mg Tablet (Actavis UK Ltd)	nil
309	Combisal 25micrograms/dose / 125micrograms/dose inhaler	ICS_LABA
310	Combisal 25micrograms/dose / 250micrograms/dose inhaler	ICS_LABA
311	Combisal 25micrograms/dose / 50micrograms/dose inhaler	ICS_LABA
312	Combivent nebuliser liquid 2.5ml UDVs (Boehringer Ingelheim Ltd)	other
313	Combivent nebuliser liquid 2.5ml UDVs (DE Pharmaceuticals)	other
314	Combivent nebuliser liquid 2.5ml UDVs (Lexon (UK) Ltd)	other
315	Dexamethasone 100microgram capsules	ICS
316	Dexamethasone 10mg capsules	ICS
317	Dexamethasone 10mg/5ml oral solution	ICS
318	Dexamethasone 10mg/5ml oral solution sugar free	ICS
319	Dexamethasone 1mg/5ml oral solution	ICS
320	Dexamethasone 20mg/5ml oral solution sugar free	ICS
321	Dexamethasone 2mg/5ml oral solution	ICS
322	Dexamethasone 2mg/5ml oral solution sugar free	ICS
323	Dexamethasone 2mg/5ml oral solution sugar free (A A H Pharmaceuticals Ltd)	ICS
324	Dexamethasone 2mg/5ml oral suspension	ICS
325	Dexamethasone 4mg/5ml oral suspension	ICS
326	Dexamethasone 500micrograms/5ml oral solution	ICS
327	Dexamethasone 5mg/5ml oral solution	ICS
328	Dexamethasone 5mg/5ml oral suspension	ICS
329	Dexsol 2mg/5ml oral solution (Rosemont Pharmaceuticals Ltd)	ICS
330	Duaklir 340micrograms/dose / 12micrograms/dose Genuair	LAMA_LABA
331	Duaklir 340micrograms/dose / 12micrograms/dose Genuair (AstraZeneca UK Ltd)	LAMA_LABA
332	Duo-autohaler Inhalation powder (3M Health Care Ltd)	ICS_LABA
333	DuoResp Spiromax 160microg/dose / 4.5microg/dose dry pdr inh	ICS_LABA
334	DuoResp Spiromax 160micrograms/dose / 4.5micrograms/dose dry powder inhaler (Teva UK Ltd)	ICS_LABA
335	DuoResp Spiromax 320microg/dose / 9microg/dose dry pdr inh	ICS_LABA
336	DuoResp Spiromax 320micrograms/dose / 9micrograms/dose dry powder inhaler (Teva UK Ltd)	ICS_LABA
337	Duovent UDVs nebuliser liquid 4ml (Boehringer Ingelheim Ltd)	other
338	Easyhaler Beclometasone 200micrograms/dose dry pdr inhaler	ICS
339	Easyhaler Beclometasone 200micrograms/dose dry powder inhaler (Orion Pharma (UK) Ltd)	ICS
340	Easyhaler Budesonide 100micrograms/dose dry powder inhaler	ICS
341	Easyhaler Budesonide 100micrograms/dose dry powder inhaler (Orion Pharma (UK) Ltd)	ICS
342	Easyhaler Budesonide 200micrograms/dose dry powder inhaler	ICS
343	Easyhaler Budesonide 200micrograms/dose dry powder inhaler (Orion Pharma (UK) Ltd)	ICS
344	Easyhaler Budesonide 400micrograms/dose dry powder inhaler	ICS
345	Easyhaler Budesonide 400micrograms/dose dry powder inhaler (Orion Pharma (UK) Ltd)	ICS

346	Easyhaler Salbutamol sulfate 100micrograms/dose dry powder inhaler (Orion Pharma (UK) Ltd)	SABA
347	Easyhaler Salbutamol sulfate 200micrograms/dose dry powder inhaler (Orion Pharma (UK) Ltd)	SABA
348	Eklira 322micrograms/dose Genuair	LAMA
349	Eklira 322micrograms/dose Genuair (AstraZeneca UK Ltd)	LAMA
350	Eklira 322micrograms/dose Genuair (Waymade Healthcare Plc)	LAMA
351	Ephedrine 15mg tablets	other
352	Ephedrine 15mg/5ml oral solution	other
353	Ephedrine 30mg tablets	other
354	Ephedrine 4mg/5ml oral solution sugar free	other
355	Ephedrine 60mg tablets	other
356	Ephedrine HCl 15mg Tablet (C P Pharmaceuticals Ltd)	other
357	Ephedrine HCl 30mg Tablet (C P Pharmaceuticals Ltd)	other
358	Ephedrine HCl with Chlorphenamine 4mg with 1mg/5ml oral solution sugar free	other
359	Ephedrine hydrochloride 15mg tablets	other
360	Ephedrine hydrochloride 15mg tablets (Wockhardt UK Ltd)	other
361	Ephedrine hydrochloride 30mg tablets	other
362	Ephedrine hydrochloride 30mg tablets (Wockhardt UK Ltd)	other
363	Exirel 10mg Capsule (3M Health Care Ltd)	nil
364	Exirel 15mg Capsule (3M Health Care Ltd)	nil
365	Exirel 7.5mg/5ml Oral solution (3M Health Care Ltd)	nil
366	Exirel Inhalation powder (3M Health Care Ltd)	nil
367	Expulin decongestant sugar free Oral solution (Shire Pharmaceuticals Ltd)	nil
368	Fenoterol 1.25mg/4ml / Ipratropium 500micrograms/4ml nebuliser liquid unit dose vials	other
369	Fenoterol 100microgram/actuation inhaler	other
370	Filair 100 inhaler (Meda Pharmaceuticals Ltd)	nil
371	Filair 50 inhaler (Meda Pharmaceuticals Ltd)	nil
372	Filair Forte 250micrograms/dose inhaler (Meda Pharmaceuticals Ltd)	nil
373	Flixotide 0.5mg/2ml Nebules	ICS
374	Flixotide 0.5mg/2ml Nebules (GlaxoSmithKline UK Ltd)	ICS
375	Flixotide 0.5mg/2ml Nebules (Waymade Healthcare Plc)	ICS
376	Flixotide 100microgram Disc (Allen & Hanburys Ltd)	ICS
377	Flixotide 100microgram disks (GlaxoSmithKline UK Ltd)	ICS
378	Flixotide 100microgram disks with Diskhaler (GlaxoSmithKline UK Ltd)	ICS
379	Flixotide 100micrograms/dose Accuhaler	ICS
380	Flixotide 100micrograms/dose Accuhaler (GlaxoSmithKline UK Ltd)	ICS
381	Flixotide 100micrograms/dose Accuhaler (Waymade Healthcare Plc)	ICS
382	Flixotide 125microgram/actuation Inhalation powder (Allen & Hanburys Ltd)	ICS
383	Flixotide 125micrograms/dose Evohaler	ICS
384	Flixotide 125micrograms/dose Evohaler (DE Pharmaceuticals)	ICS
385	Flixotide 125micrograms/dose Evohaler (Dowelhurst Ltd)	ICS
386	Flixotide 125micrograms/dose Evohaler (GlaxoSmithKline UK Ltd)	ICS
387	Flixotide 125micrograms/dose Evohaler (Lexon (UK) Ltd)	ICS
388	Flixotide 250microgram Disc (Allen & Hanburys Ltd)	ICS
389	Flixotide 250microgram disks (GlaxoSmithKline UK Ltd)	ICS
390	Flixotide 250microgram disks with Diskhaler (GlaxoSmithKline UK Ltd)	ICS
391	Flixotide 250microgram/actuation Inhalation powder (Allen & Hanburys Ltd)	ICS

392	Flixotide 250micrograms/dose Accuhaler	ICS
393	Flixotide 250micrograms/dose Accuhaler (GlaxoSmithKline UK Ltd)	ICS
394	Flixotide 250micrograms/dose Accuhaler (Stephar (U.K.) Ltd)	ICS
395	Flixotide 250micrograms/dose Accuhaler (Waymade Healthcare Plc)	ICS
396	Flixotide 250micrograms/dose Evohaler	ICS
397	Flixotide 250micrograms/dose Evohaler (GlaxoSmithKline UK Ltd)	ICS
398	Flixotide 250micrograms/dose Evohaler (Waymade Healthcare Plc)	ICS
399	Flixotide 25micrograms/dose inhaler (GlaxoSmithKline UK Ltd)	ICS
400	Flixotide 2mg/2ml Nebules	ICS
401	Flixotide 2mg/2ml Nebules (GlaxoSmithKline UK Ltd)	ICS
402	Flixotide 500microgram Disc (Allen & Hanburys Ltd)	ICS
403	Flixotide 500microgram disks (GlaxoSmithKline UK Ltd)	ICS
404	Flixotide 500microgram disks with Diskhaler (GlaxoSmithKline UK Ltd)	ICS
405	Flixotide 500micrograms/dose Accuhaler	ICS
406	Flixotide 500micrograms/dose Accuhaler (GlaxoSmithKline UK Ltd)	ICS
407	Flixotide 500micrograms/dose Accuhaler (Waymade Healthcare Plc)	ICS
408	Flixotide 50microgram Disc (Allen & Hanburys Ltd)	ICS
409	Flixotide 50microgram disks (GlaxoSmithKline UK Ltd)	ICS
410	Flixotide 50microgram disks with Diskhaler (GlaxoSmithKline UK Ltd)	ICS
411	Flixotide 50microgram/actuation Inhalation powder (Allen & Hanburys Ltd)	ICS
412	Flixotide 50micrograms/dose Accuhaler	ICS
413	Flixotide 50micrograms/dose Accuhaler (DE Pharmaceuticals)	ICS
414	Flixotide 50micrograms/dose Accuhaler (GlaxoSmithKline UK Ltd)	ICS
415	Flixotide 50micrograms/dose Accuhaler (Mawdsley-Brooks & Company Ltd)	ICS
416	Flixotide 50micrograms/dose Accuhaler (Sigma Pharmaceuticals Plc)	ICS
417	Flixotide 50micrograms/dose Evohaler	ICS
418	Flixotide 50micrograms/dose Evohaler (GlaxoSmithKline UK Ltd)	ICS
419	Flixotide 50micrograms/dose Evohaler (Lexon (UK) Ltd)	ICS
420	Flixotide accuhaler 100 100microgram/inhalation Inhalation powder (Allen & Hanburys Ltd)	ICS
421	Flixotide accuhaler 250 250microgram/inhalation Inhalation powder (Allen & Hanburys Ltd)	ICS
422	Flixotide accuhaler 50 50microgram/inhalation Inhalation powder (Allen & Hanburys Ltd)	ICS
423	Flixotide accuhaler 500 500microgram/inhalation Inhalation powder (Allen & Hanburys Ltd)	ICS
424	Fluticasone 100microgram Disc	ICS
425	Fluticasone 125mcg/dose / Salmeterol 25mcg/dose inh CFC free	ICS_LABA
426	Fluticasone 125microg / Formoterol 5microg/dose inh CFC free	ICS_LABA
427	Fluticasone 125microg/Formoterol 5microg/dose BA inh CFCfree	ICS_LABA
428	Fluticasone 125microgram/actuation Pressurised inhalation	ICS
429	Fluticasone 125micrograms/dose / Formoterol 5micrograms/dose inhaler CFC free	ICS_LABA
430	Fluticasone 125micrograms/dose / Salmeterol 25micrograms/dose inhaler CFC free	ICS_LABA
431	Fluticasone 125micrograms/dose inhaler CFC free	ICS
432	Fluticasone 250mcg/dose / Salmeterol 25mcg/dose inh CFC free	ICS_LABA
433	Fluticasone 250microg / Formoterol 10microg/dose inh CFCfree	ICS_LABA
434	Fluticasone 250microgram Disc	ICS
435	Fluticasone 250microgram/actuation Pressurised inhalation	ICS
436	Fluticasone 250micrograms/dose / Formoterol 10micrograms/dose inhaler CFC free	ICS_LABA
437	Fluticasone 250micrograms/dose / Salmeterol 25micrograms/dose inhaler CFC free	ICS_LABA

438	Fluticasone 250micrograms/dose / Salmeterol 25micrograms/dose inhaler CFC free (A A H Pharmaceuticals Ltd)	ICS_LABA
439	Fluticasone 250micrograms/dose Evohaler (Sigma Pharmaceuticals Plc)	ICS_LABA
440	Fluticasone 250micrograms/dose inhaler CFC free	ICS
441	Fluticasone 25micrograms/dose inhaler	ICS
442	Fluticasone 2mg/2ml nebuliser liquid unit dose vials	ICS
443	Fluticasone 500microgram Disc	ICS
444	Fluticasone 500micrograms/2ml neb liq unit dose vials	ICS
445	Fluticasone 500micrograms/2ml nebuliser liquid unit dose vials	ICS
446	Fluticasone 50microg / Formoterol 5microg/dose inh CFC free	ICS_LABA
447	Fluticasone 50microg / Salmeterol 25microg/dose inh CFC free	ICS_LABA
448	Fluticasone 50microg/Formoterol 5microg/dose BA inh CFC free	ICS_LABA
449	Fluticasone 50microgram Disc	ICS
450	Fluticasone 50microgram/actuation Pressurised inhalation	ICS
451	Fluticasone 50micrograms/dose / Formoterol 5micrograms/dose inhaler CFC free	ICS_LABA
452	Fluticasone 50micrograms/dose / Salmeterol 25micrograms/dose inhaler CFC free	ICS_LABA
453	Fluticasone 50micrograms/dose inhaler CFC free	ICS
454	Fluticasone furoate 184microg/Vilanterol 22microg/dose	ICS_LABA
455	Fluticasone furoate 184micrograms/dose / Vilanterol 22micrograms/dose dry powder inhaler	ICS_LABA
456	Fluticasone furoate 92microg/Vilanterol 22microg/dose	ICS_LABA
457	Fluticasone furoate 92micrograms/dose / Vilanterol 22micrograms/dose dry powder inhaler	ICS_LABA
458	Fluticasone propion 500mcg/Salmeterol 50mcg/dose dry pdr inh	ICS_LABA
459	Fluticasone propionate 100microg/Salmeterol 50microg/dose	ICS_LABA
460	Fluticasone propionate 100microgram inhalation powder blisters	ICS
461	Fluticasone propionate 100microgram inhalation powder blisters with device	ICS
462	Fluticasone propionate 100micrograms/dose / Salmeterol 50micrograms/dose dry powder inhaler	ICS_LABA
463	Fluticasone propionate 100micrograms/dose dry powder inhaler	ICS
464	Fluticasone propionate 250microg/Salmeterol 50microg/dose	ICS_LABA
465	Fluticasone propionate 250microgram inhalation powder blisters	ICS
466	Fluticasone propionate 250microgram inhalation powder blisters with device	ICS
467	Fluticasone propionate 250micrograms/dose / Salmeterol 50micrograms/dose dry powder inhaler	ICS_LABA
468	Fluticasone propionate 250micrograms/dose dry powder inhaler	ICS
469	Fluticasone propionate 500microgram inhalation powder blisters	ICS
470	Fluticasone propionate 500microgram inhalation powder blisters with device	ICS
471	Fluticasone propionate 500micrograms/dose / Salmeterol 50micrograms/dose dry powder inhaler	ICS_LABA
472	Fluticasone propionate 500micrograms/dose / Salmeterol 50micrograms/dose dry powder inhaler (A A H Pharmaceuticals Ltd)	ICS_LABA
473	Fluticasone propionate 500micrograms/dose dry powder inhaler	ICS
474	Fluticasone propionate 50microgram inhalation powder blisters	ICS
475	Fluticasone propionate 50microgram inhalation powder blisters with device	ICS
476	Fluticasone propionate 50micrograms/dose dry powder inhaler	ICS
477	Flutiform 125micrograms/dose / 5micrograms/dose inhaler	ICS_LABA
478	Flutiform 125micrograms/dose / 5micrograms/dose inhaler (Napp Pharmaceuticals Ltd)	ICS_LABA
479	Flutiform 125micrograms/dose / 5micrograms/dose inhaler (Waymade Healthcare Plc)	ICS_LABA
480	Flutiform 250micrograms/dose / 10micrograms/dose inhaler	ICS_LABA
481	Flutiform 250micrograms/dose / 10micrograms/dose inhaler (Napp Pharmaceuticals Ltd)	ICS_LABA
482	Flutiform 250micrograms/dose / 10micrograms/dose inhaler (Waymade Healthcare Plc)	ICS_LABA

483	Flutiform 50micrograms/dose / 5micrograms/dose inhaler	ICS_LABA
484	Flutiform 50micrograms/dose / 5micrograms/dose inhaler (Napp Pharmaceuticals Ltd)	ICS_LABA
485	Flutiform 50micrograms/dose / 5micrograms/dose inhaler (Waymade Healthcare Plc)	ICS_LABA
486	Flutiform K-haler 125microg/dose / 5microg/dose BA inhaler	ICS_LABA
487	Flutiform K-haler 50microg/dose / 5microg/dose BA inh	ICS_LABA
488	Fobumix Easyhaler 160microg / 4.5microg/dose dry pdr inh	ICS_LABA
489	Fobumix Easyhaler 320microg/dose / 9microg/dose dry pdr inh	ICS_LABA
490	Fobumix Easyhaler 80microg/dose / 4.5microg/dose dry pdr inh	ICS_LABA
491	Foradil 12microgram inhalation powder capsules with device	LABA
492	Foradil 12microgram inhalation powder capsules with device (Novartis Pharmaceuticals UK Ltd)	LABA
493	Foradil 12microgram inhalation powder capsules with device (Sigma Pharmaceuticals Plc)	LABA
494	Formoterol 12microgram inhalation pdr caps with device	LABA
495	Formoterol 12microgram inhalation powder capsules with device	LABA
496	Formoterol 12micrograms/dose dry powder inhaler	LABA
497	Formoterol 12micrograms/dose inhaler CFC free	LABA
498	Formoterol 6micrograms/dose dry powder inhaler	LABA
499	Formoterol Easyhaler 12micrograms/dose dry powder inhaler	LABA
500	Formoterol Easyhaler 12micrograms/dose dry powder inhaler (Orion Pharma (UK) Ltd)	LABA
501	Fostair 100micrograms/dose / 6micrograms/dose inhaler	ICS_LABA
502	Fostair 100micrograms/dose / 6micrograms/dose inhaler (Chiesi Ltd)	ICS_LABA
503	Fostair 200micrograms/dose / 6micrograms/dose inhaler	ICS_LABA
504	Fostair 200micrograms/dose / 6micrograms/dose inhaler (Chiesi Ltd)	ICS_LABA
505	Fostair NEXThaler 100microg/dose / 6microg/dose dry pdr inh	ICS_LABA
506	Fostair NEXThaler 100micrograms/dose / 6micrograms/dose dry powder inhaler (Chiesi Ltd)	ICS_LABA
507	Fostair NEXThaler 200microg/dose / 6microg/dose dry pdr inh	ICS_LABA
508	Fostair NEXThaler 200micrograms/dose / 6micrograms/dose dry powder inhaler (Chiesi Ltd)	ICS_LABA
509	Fusacomb Easyhaler 50microg / 250microg/dose dry pdr inh	ICS_LABA
510	Fusacomb Easyhaler 50microg / 500microg/dose dry pdr inh	ICS_LABA
511	Glycopyrronium bromide 55microg inhalation pdr caps with dev	LAMA
512	Glycopyrronium bromide 55microgram inhalation powder capsules with device	LAMA
513	Glycopyrronium bromide 55microgram inhalation powder capsules with device (J M McGill Ltd)	LAMA
514	Incruse Ellipta 55micrograms/dose dry powder inhaler	LAMA
515	Incruse Ellipta 55micrograms/dose dry powder inhaler (GlaxoSmithKline UK Ltd)	LAMA
516	Indacaterol 150microgram inhalation pdr caps with device	LABA
517	Indacaterol 150microgram inhalation powder capsules with device	LABA
518	Indacaterol 300microgram inhalation pdr caps with device	LABA
519	Indacaterol 300microgram inhalation powder capsules with device	LABA
520	Indacaterol 85microg/Glycopyrronium brom 54microg/dose	LAMA_LABA
521	Indacaterol 85micrograms/dose / Glycopyrronium bromide 54micrograms/dose inhalation powder capsules with device	LAMA_LABA
522	Intal 20mg/2ml nebuliser solution unit dose vials (Aventis Pharma)	nil
523	Intal 5mg/dose inhaler CFC free (Sanofi)	nil
524	Intal autohaler 5 5mg/inhalation Pressurised inhalation (Aventis Pharma)	nil
525	Intal compound Capsule (Rhone-Poulenc Rorer Ltd)	nil
526	Ipratropium nebuliser solution 2.5ml Steri-Neb unit dose vials (Teva UK Ltd)	other
527	Ipratropium 250micrograms/1ml nebuliser liquid Steri-Neb unit dose vials (Teva UK Ltd)	ipratropium

528	Ipratropium 250micrograms/1ml nebuliser liquid unit dose Steripoule vials (Galen Ltd)	ipratropium
529	Ipratropium 500micrograms/2ml nebuliser liquid Steri-Neb unit dose vials (Teva UK Ltd)	ipratropium
530	Ipratropium 500micrograms/2ml nebuliser liquid unit dose Steripoule vials (Galen Ltd)	ipratropium
531	Ipratropium bromide 0.25mg/ml	ipratropium
532	Ipratropium bromide 20micrograms/dose breath actuated inhaler	ipratropium
533	Ipratropium bromide 20micrograms/dose inhaler	ipratropium
534	Ipratropium bromide 20micrograms/dose inhaler CFC free	ipratropium
535	Ipratropium bromide 250microgram/ml	ipratropium
536	Ipratropium bromide 250microgram/ml Inhalation vapour (Galen Ltd)	ipratropium
537	Ipratropium bromide 250microgram/ml Nebuliser liquid (Approved Prescription Services Ltd)	ipratropium
538	Ipratropium bromide 250microgram/ml Nebuliser liquid (Galen Ltd)	ipratropium
539	Ipratropium bromide 250microgram/ml Nebuliser liquid (Hillcross Pharmaceuticals Ltd)	ipratropium
540	Ipratropium bromide 250micrograms/1ml nebuliser liquid unit dose vials	ipratropium
541	Ipratropium bromide 250micrograms/ml	ipratropium
542	Ipratropium bromide 40microgram inhalation powder capsules	ipratropium
543	Ipratropium bromide 40microgram inhalation powder capsules with device	ipratropium
544	Ipratropium bromide 40micrograms/dose inhaler	ipratropium
545	Ipratropium bromide 500micrograms/2ml nebuliser liquid unit dose vials	ipratropium
546	Ipratropium bromide 500micrograms/2ml nebuliser liquid unit dose vials (A A H Pharmaceuticals Ltd)	ipratropium
547	Ipratropium bromide with fenoterol hydrobromide 0micrograms + 100micrograms/actuation	other
548	Ipratropium bromide with fenoterol hydrobromide 40micrograms + 100micrograms/actuation	other
549	Ipratropium bromide with fenoterol hydrobromide 500micrograms + 1.25mg/4ml	other
550	Ipratropium bromide with salbutamol 20mcg + 100mcg	other
551	Ipratropium bromide with salbutamol 500micrograms + 2.5mg/2.5ml	other
552	Iso-autohaler Inhalation powder (3M Health Care Ltd)	other
553	Isoprenaline hc 500micrograms + 50micrograms/metered Pressurised inhalation	other
554	Isoprenaline sulphate 400micrograms/actuation Pressurised inhalation	other
555	Isoprenaline sulphate 80micrograms/actuation Pressurised inhalation	other
556	Isoprenaline sulphate with sodium cromoglicate inhalation Capsule	other
557	Kelhale 100micrograms/dose inhaler	ICS
558	Kelhale 50micrograms/dose inhaler	ICS
559	Lasma 300mg Tablet (Pharmax Ltd)	other
560	Martapan 2mg/5ml oral solution (Martindale Pharmaceuticals Ltd)	Nil
561	Maxivent 100microgram/inhalation Inhalation powder (Ashbourne Pharmaceuticals Ltd)	SABA
562	Maxivent 2.5mg/2.5ml nebuliser liquid unit dose Steripoule vials (Ashbourne Pharmaceuticals Ltd)	SABA
563	Maxivent 5mg/2.5ml nebuliser liquid unit dose Steripoule vials (Ashbourne Pharmaceuticals Ltd)	SABA
564	Medihaler -duo Inhalation powder (3M Health Care Ltd)	SABA
565	Medihaler -iso Aerosol generator (3M Health Care Ltd)	SABA
566	Medihaler -iso forte Inhalation powder (3M Health Care Ltd)	SABA
567	Mometasone 200micrograms/dose dry powder inhaler	ICS
568	Mometasone 400micrograms/dose dry powder inhaler	ICS
569	Monovent 1.5mg/5ml Oral solution (Lagap)	nil
570	Montelukast 10mg tablets	montelukast
571	Montelukast 10mg tablets (A A H Pharmaceuticals Ltd)	montelukast
572	Montelukast 10mg tablets (Accord Healthcare Ltd)	montelukast

573	Montelukast 10mg tablets (Actavis UK Ltd)	montelukast
574	Montelukast 10mg tablets (Alliance Healthcare (Distribution) Ltd)	montelukast
575	Montelukast 10mg tablets (Dr Reddy's Laboratories (UK) Ltd)	montelukast
576	Montelukast 10mg tablets (Milpharm Ltd)	montelukast
577	Montelukast 10mg tablets (Ranbaxy (UK) Ltd)	montelukast
578	Montelukast 10mg tablets (Teva UK Ltd)	montelukast
579	Montelukast 4mg chewable tablets sugar free	montelukast
580	Montelukast 4mg chewable tablets sugar free (Accord Healthcare Ltd)	montelukast
581	Montelukast 4mg chewable tablets sugar free (Actavis UK Ltd)	montelukast
582	Montelukast 4mg chewable tablets sugar free (Alliance Healthcare (Distribution) Ltd)	montelukast
583	Montelukast 4mg granules sachets sugar free	montelukast
584	Montelukast 4mg granules sachets sugar free (A A H Pharmaceuticals Ltd)	montelukast
585	Montelukast 4mg granules sachets sugar free (Teva UK Ltd)	montelukast
586	Montelukast 5mg chewable tablets sugar free	montelukast
587	Montelukast 5mg chewable tablets sugar free (Accord Healthcare Ltd)	montelukast
588	Montelukast 5mg chewable tablets sugar free (Actavis UK Ltd)	montelukast
589	Montelukast 5mg chewable tablets sugar free (Teva UK Ltd)	montelukast
590	Nedocromil 2mg/dose inhaler CFC free	nil
591	Nedocromil sodium 1% nasal spray	nil
592	Nedocromil sodium 2mg/inhalation inhaler	nil
593	Neovent 25micrograms/dose inhaler CFC free (Kent Pharm)	LABA
594	Neovent 25micrograms/dose inhaler CFC free (Kent Pharmaceuticals Ltd)	LABA
595	Nethaprin dospan Tablet (Marion Merrell Dow Ltd)	nil
596	Noradran 7.5mg+15mg/5ml Oral solution (Norma Chemicals Ltd)	nil
597	Novolizer budesonide 200microgram/actuation Pressurised inhalation (Meda Pharmaceuticals Ltd)	nil
598	Nuelin 60mg/5ml liquid (3M Health Care Ltd)	nil
599	Nuelin SA 175mg tablets (Meda Pharmaceuticals Ltd)	nil
600	Nuelin SA 250 tablets (Meda Pharmaceuticals Ltd)	nil
601	Numotac 10mg Tablet (3M Health Care Ltd)	nil
602	Olodaterol 2.5microg/dose soln for inhalation CFCfree	LABA
603	Olodaterol 2.5micrograms/dose inhalation soln cart CFC free	LABA
604	Olodaterol 2.5micrograms/dose solution for inhalation cartridge with device CFC free	LABA
605	Onbrez Breezhaler 150microgram inhalation pdr caps with dev	LABA
606	Onbrez Breezhaler 150microgram inhalation powder capsules with device (Novartis Pharmaceuticals UK Ltd)	LABA
607	Onbrez Breezhaler 300microgram inhalation pdr caps with dev	LABA
608	Onbrez Breezhaler 300microgram inhalation powder capsules with device (Novartis Pharmaceuticals UK Ltd)	LABA
609	Orciprenaline 0.5mg/ml Injection	other
610	Orciprenaline 750micrograms/inhalation Aerosol refill	other
611	Orciprenaline 750micrograms/inhalation inhaler	other
612	Orciprenaline with bromhexine hcl mixture	other
613	Oxis 12 Turbohaler	LABA
614	Oxis 12 Turbohaler (AstraZeneca UK Ltd)	LABA
615	Oxis 12 Turbohaler (DE Pharmaceuticals)	LABA
616	Oxis 12 Turbohaler (Waymade Healthcare Plc)	LABA
617	Oxis 6 Turbohaler	LABA

618	Oxis 6 Turbohaler (AstraZeneca UK Ltd)	LABA
619	Oxis 6 Turbohaler (Lexon (UK) Ltd)	LABA
620	Pecram 225mg Modified-release tablet (Novartis Consumer Health UK Ltd)	nil
621	Phyllocontin Continus 225mg tablets (Napp Pharmaceuticals Ltd)	other
622	Phyllocontin continus 350mg Tablet (Napp Pharmaceuticals Ltd)	other
623	Phyllocontin Forte Continus 350mg tablets (Napp Pharmaceuticals Ltd)	other
624	Pirbuterol 10mg capsule	SABA
625	Pirbuterol 15mg capsule	SABA
626	Pirbuterol 7.5mg/5ml oral solution	SABA
627	Pirbuterol acetate inhaler	SABA
628	Prednisolone 1mg/ml oral solution (Logixx Pharma Solutions Ltd)	other
629	Prednisolone 5mg/5ml oral solution	other
630	Prednisolone 5mg/5ml oral solution unit dose	other
631	Prednisolone 5mg/5ml oral solution unit dose (A A H Pharmaceuticals Ltd)	other
632	Prednisolone 5mg/5ml oral solution unit dose (Logixx Pharma Solutions Ltd)	other
633	Prednisolone Dompe 5mg/5ml oral solution unit dose (Logixx Pharma Solutions Ltd)	other
634	Pro-vent 300mg Capsule (Wellcome Medical Division)	other
635	Pulmadil auto Inhalation powder (3M Health Care Ltd)	nil
636	Pulmadil Inhalation powder (3M Health Care Ltd)	nil
637	Pulmicort 0.5mg Respules	ICS
638	Pulmicort 0.5mg Respules (AstraZeneca UK Ltd)	ICS
639	Pulmicort 0.5mg Respules (Necessity Supplies Ltd)	ICS
640	Pulmicort 0.5mg Respules (Waymade Healthcare Plc)	ICS
641	Pulmicort 100 Turbohaler	ICS
642	Pulmicort 100 Turbohaler (AstraZeneca UK Ltd)	ICS
643	Pulmicort 100 Turbohaler (Waymade Healthcare Plc)	ICS
644	Pulmicort 1mg Respules	ICS
645	Pulmicort 1mg Respules (AstraZeneca UK Ltd)	ICS
646	Pulmicort 1mg Respules (Sigma Pharmaceuticals Plc)	ICS
647	Pulmicort 200 Turbohaler	ICS
648	Pulmicort 200 Turbohaler (AstraZeneca UK Ltd)	ICS
649	Pulmicort 200 Turbohaler (Dowelhurst Ltd)	ICS
650	Pulmicort 200 Turbohaler (Waymade Healthcare Plc)	ICS
651	Pulmicort 200microgram Inhaler (AstraZeneca UK Ltd)	ICS
652	Pulmicort 200microgram Refill canister (AstraZeneca UK Ltd)	ICS
653	Pulmicort 200micrograms/dose inhaler (AstraZeneca UK Ltd)	ICS
654	Pulmicort 200micrograms/dose inhaler CFC free	ICS
655	Pulmicort 200micrograms/dose inhaler CFC free (AstraZeneca UK Ltd)	ICS
656	Pulmicort 400 Turbohaler	ICS
657	Pulmicort 400 Turbohaler (AstraZeneca UK Ltd)	ICS
658	Pulmicort 400 Turbohaler (Waymade Healthcare Plc)	ICS
659	Pulmicort LS 50microgram Refill canister (AstraZeneca UK Ltd)	ICS
660	Pulmicort LS 50micrograms/dose inhaler (AstraZeneca UK Ltd)	ICS
661	Pulvinal Beclometasone Dipropionate 100micrograms/dose dry powder inhaler (Chiesi Ltd)	ICS
662	Pulvinal Beclometasone Dipropionate 200micrograms/dose dry powder inhaler (Chiesi Ltd)	ICS
663	Pulvinal Beclometasone Dipropionate 400micrograms/dose dry powder inhaler (Chiesi Ltd)	ICS

664	Pulvinal Salbutamol 200micrograms/dose dry powder inhaler (Chiesi Ltd)	SABA
665	Qvar 100 Autohaler	ICS
666	Qvar 100 Autohaler (DE Pharmaceuticals)	ICS
667	Qvar 100 Autohaler (Lexon (UK) Ltd)	ICS
668	Qvar 100 Autohaler (Sigma Pharmaceuticals Plc)	ICS
669	Qvar 100 Autohaler (Stephar (U.K.) Ltd)	ICS
670	Qvar 100 Autohaler (Teva UK Ltd)	ICS
671	Qvar 100 inhaler	ICS
672	Qvar 100 inhaler (DE Pharmaceuticals)	ICS
673	Qvar 100 inhaler (Sigma Pharmaceuticals Plc)	ICS
674	Qvar 100 inhaler (Teva UK Ltd)	ICS
675	Qvar 100 inhaler (Waymade Healthcare Plc)	ICS
676	Qvar 100micrograms/dose Easi-Breathe inhaler	ICS
677	Qvar 100micrograms/dose Easi-Breathe inhaler (DE Pharmaceuticals)	ICS
678	Qvar 100micrograms/dose Easi-Breathe inhaler (Sigma Pharmaceuticals Plc)	ICS
679	Qvar 100micrograms/dose Easi-Breathe inhaler (Teva UK Ltd)	ICS
680	Qvar 50 Autohaler	ICS
681	Qvar 50 Autohaler (Teva UK Ltd)	ICS
682	Qvar 50 inhaler	ICS
683	Qvar 50 inhaler (DE Pharmaceuticals)	ICS
684	Qvar 50 inhaler (Mawdsley-Brooks & Company Ltd)	ICS
685	Qvar 50 inhaler (Teva UK Ltd)	ICS
686	Qvar 50micrograms/dose Easi-Breathe inhaler	ICS
687	Qvar 50micrograms/dose Easi-Breathe inhaler (Sigma Pharmaceuticals Plc)	ICS
688	Qvar 50micrograms/dose Easi-Breathe inhaler (Teva UK Ltd)	ICS
689	Relvar Ellipta 184microg/dose / 22microg/dose dry pdr inh	ICS_LABA
690	Relvar Ellipta 184micrograms/dose / 22micrograms/dose dry powder inhaler (GlaxoSmithKline UK Ltd)	ICS_LABA
691	Relvar Ellipta 92microg/dose / 22microg/dose dry pdr inh	ICS_LABA
692	Relvar Ellipta 92micrograms/dose / 22micrograms/dose dry powder inhaler (GlaxoSmithKline UK Ltd)	ICS_LABA
693	Reproterol 10mg/5ml oral solution	SABA
694	Reproterol 10mg/ml respirator solution	SABA
695	Reproterol 500micrograms/dose inhaler	SABA
696	Respacal 2mg Tablet (UCB Pharma Ltd)	LABA
697	Respontin 250micrograms/1ml Nebules (GlaxoSmithKline UK Ltd)	ipratropium
698	Respontin 500micrograms/2ml Nebules (GlaxoSmithKline UK Ltd)	ipratropium
699	Respontin nebulers 250microgram/ml Nebuliser liquid (Glaxo Wellcome UK Ltd)	ipratropium
700	Rimiterol inhaler	SABA
701	Rybarvin Inhalation vapour (Rybar Laboratories Ltd)	other
702	Salamol 100microgram/actuation Inhalation powder (IVAX Pharmaceuticals UK Ltd)	SABA
703	Salamol 100microgram/inhalation Inhalation powder (Kent Pharmaceuticals Ltd)	SABA
704	Salamol 100microgram/inhalation Inhalation powder (Sandoz Ltd)	SABA
705	Salamol 100micrograms/dose Easi-Breathe inhaler (DE Pharmaceuticals)	SABA
706	Salamol 100micrograms/dose Easi-Breathe inhaler (Teva UK Ltd)	SABA
707	Salamol 100micrograms/dose inhaler CFC free (Arrow Generics Ltd)	SABA
708	Salamol 100micrograms/dose inhaler CFC free (Teva UK Ltd)	SABA
709	Salamol 2.5mg/2.5ml nebuliser liquid Steri-Neb unit dose vials (Teva UK Ltd)	SABA

710	Salamol 5mg/2.5ml nebuliser liquid Steri-Neb unit dose vials (Teva UK Ltd)	SABA
711	Salamol easi-breathe 100microgram/actuation Pressurised inhalation (IVAX Pharmaceuticals UK Ltd)	SABA
712	Salamol steri-neb 2.5mg/2.5ml Nebuliser liquid (Numark Management Ltd)	SABA
713	Salamol steri-neb 5mg/2.5ml Nebuliser liquid (Numark Management Ltd)	SABA
714	Salapin 2mg/5ml syrup (Pinewood Healthcare)	nil
715	Salbulin 100micrograms/dose inhaler (3M Health Care Ltd)	nil
716	Salbulin 2mg Tablet (3M Health Care Ltd)	nil
717	Salbulin 2mg/5ml Oral solution (3M Health Care Ltd)	nil
718	Salbulin 4mg Tablet (3M Health Care Ltd)	nil
719	SALBULIN CFC FREE	nil
720	Salbulin Inhalation powder (3M Health Care Ltd)	nil
721	Salbulin Novolizer 100micrograms/dose inhalation powder (Meda Pharmaceuticals Ltd)	nil
722	Salbulin Novolizer 100micrograms/dose inhalation powder refill (Meda Pharmaceuticals Ltd)	nil
723	SALBUTAMOL	SABA
724	SALBUTAMOL .25 MG INJ	SABA
725	Salbutamol 0.05mg/ml injection	SABA
726	Salbutamol 100microgram/inhalation Inhalation powder (Berk Pharmaceuticals Ltd)	SABA
727	Salbutamol 100microgram/inhalation Inhalation powder (C P Pharmaceuticals Ltd)	SABA
728	Salbutamol 100microgram/inhalation Inhalation powder (Celltech Pharma Europe Ltd)	SABA
729	Salbutamol 100microgram/inhalation Inhalation powder (IVAX Pharmaceuticals UK Ltd)	SABA
730	Salbutamol 100microgram/inhalation Inhalation powder (Kent Pharmaceuticals Ltd)	SABA
731	Salbutamol 100microgram/inhalation Inhalation powder (Neo Laboratories Ltd)	SABA
732	Salbutamol 100microgram/inhalation Spacehaler (Celltech Pharma Europe Ltd)	SABA
733	Salbutamol 100micrograms/actuation breath actuated inhaler	SABA
734	Salbutamol 100micrograms/dose / Beclometasone 50micrograms/dose inhaler	ICS_SABA
735	Salbutamol 100micrograms/dose / Ipratropium 20micrograms/dose inhaler	other
736	Salbutamol 100micrograms/dose breath actuated inhaler	SABA
737	Salbutamol 100micrograms/dose breath actuated inhaler CFC free	SABA
738	Salbutamol 100micrograms/dose dry powder inhalation cartridge	SABA
739	Salbutamol 100micrograms/dose dry powder inhalation cartridge with device	SABA
740	Salbutamol 100micrograms/dose dry powder inhaler	SABA
741	Salbutamol 100micrograms/dose inhaler	SABA
742	Salbutamol 100micrograms/dose inhaler (A A H Pharmaceuticals Ltd)	SABA
743	Salbutamol 100micrograms/dose inhaler (Kent Pharmaceuticals Ltd)	SABA
744	Salbutamol 100micrograms/dose inhaler (Mylan)	SABA
745	Salbutamol 100micrograms/dose inhaler CFC free	SABA
746	Salbutamol 100micrograms/dose inhaler CFC free (A A H Pharmaceuticals Ltd)	SABA
747	Salbutamol 100micrograms/dose inhaler CFC free (Actavis UK Ltd)	SABA
748	Salbutamol 100micrograms/dose inhaler CFC free (Alliance Healthcare (Distribution) Ltd)	SABA
749	Salbutamol 100micrograms/dose inhaler CFC free (AM Distributions (Yorkshire) Ltd)	SABA
750	Salbutamol 100micrograms/dose inhaler CFC free (DE Pharmaceuticals)	SABA
751	Salbutamol 100micrograms/dose inhaler CFC free (Mawdsley-Brooks & Company Ltd)	SABA
752	Salbutamol 100micrograms/dose inhaler CFC free (Mylan)	SABA
753	Salbutamol 100micrograms/dose inhaler CFC free (Phoenix Healthcare Distribution Ltd)	SABA
754	Salbutamol 100micrograms/dose inhaler CFC free (Sandoz Ltd)	SABA
755	Salbutamol 100micrograms/dose inhaler CFC free (Teva UK Ltd)	SABA

756	Salbutamol 100micrograms/dose inhaler CFC free (Waymade Healthcare Plc)	SABA
757	Salbutamol 100micrograms/inhalation vortex inhaler	SABA
758	SALBUTAMOL 2 MG/5ML SYR	SABA
759	Salbutamol 2.5mg with ipratropium bromide 500micrograms/2.5ml unit dose nebuliser solution	other
760	Salbutamol 2.5mg/2.5ml / Ipratropium bromide 500micrograms/2.5ml nebuliser liquid ampoules	other
761	Salbutamol 2.5mg/2.5ml / Ipratropium bromide 500micrograms/2.5ml nebuliser liquid unit dose vials	other
762	Salbutamol 2.5mg/2.5ml Nebuliser liquid (Galen Ltd)	SABA
763	Salbutamol 2.5mg/2.5ml nebuliser liquid unit dose Steripoule vials (Galen Ltd)	SABA
764	Salbutamol 2.5mg/2.5ml nebuliser liquid unit dose vials	SABA
765	Salbutamol 2.5mg/2.5ml nebuliser liquid unit dose vials (A A H Pharmaceuticals Ltd)	SABA
766	Salbutamol 2.5mg/2.5ml nebuliser liquid unit dose vials (Alliance Healthcare (Distribution) Ltd)	SABA
767	Salbutamol 200 Cyclocaps (Teva UK Ltd)	SABA
768	Salbutamol 200microgram / Beclometasone 100microgram inhalation powder capsules	SABA
769	Salbutamol 200microgram inhalation powder blisters	SABA
770	Salbutamol 200microgram inhalation powder blisters with device	SABA
771	Salbutamol 200microgram inhalation powder capsules	SABA
772	Salbutamol 200micrograms disc	SABA
773	Salbutamol 200micrograms inahallation capsules	SABA
774	Salbutamol 200micrograms/dose dry powder inhaler	SABA
775	Salbutamol 2mg Tablet (C P Pharmaceuticals Ltd)	SABA
776	Salbutamol 2mg tablets	SABA
777	Salbutamol 2mg tablets (Actavis UK Ltd)	SABA
778	Salbutamol 2mg tablets (Approved Prescription Services Ltd)	SABA
779	Salbutamol 2mg/5ml Oral solution (Lagap)	SABA
780	Salbutamol 2mg/5ml oral solution sugar free	SABA
781	Salbutamol 2mg/5ml oral solution sugar free (A A H Pharmaceuticals Ltd)	SABA
782	Salbutamol 2mg/5ml oral solution sugar free (Pinewood Healthcare)	SABA
783	Salbutamol 2mg/5ml oral solution sugar free (Sandoz Ltd)	SABA
784	Salbutamol 400 Cyclocaps (Teva UK Ltd)	SABA
785	SALBUTAMOL 400MCG/BECLOMETH.100MCG R/CAP INH	ICS_SABA
786	Salbutamol 400microgram / Beclometasone 200microgram inhalation powder capsules	ICS_SABA
787	Salbutamol 400microgram inhalation powder blisters	SABA
788	Salbutamol 400microgram inhalation powder blisters with device	SABA
789	Salbutamol 400microgram inhalation powder capsules	SABA
790	Salbutamol 400micrograms disc	SABA
791	Salbutamol 400micrograms inahallation capsules	SABA
792	Salbutamol 4mg modified-release capsules	SABA
793	Salbutamol 4mg modified-release tablets	SABA
794	Salbutamol 4mg tablets	SABA
795	Salbutamol 4mg tablets (A A H Pharmaceuticals Ltd)	SABA
796	Salbutamol 4mg tablets (Actavis UK Ltd)	SABA
797	Salbutamol 500micrograms/1ml solution for injection ampoules	SABA
798	Salbutamol 5mg/2.5ml Nebuliser liquid (Galen Ltd)	SABA
799	Salbutamol 5mg/2.5ml Nebuliser liquid (Generics (UK) Ltd)	SABA
800	Salbutamol 5mg/2.5ml nebuliser liquid unit dose Steripoule vials (Galen Ltd)	SABA

801	Salbutamol 5mg/2.5ml nebuliser liquid unit dose vials	SABA
802	Salbutamol 5mg/2.5ml nebuliser liquid unit dose vials (Actavis UK Ltd)	SABA
803	Salbutamol 5mg/2.5ml nebuliser liquid unit dose vials (Alliance Healthcare (Distribution) Ltd)	SABA
804	Salbutamol 5mg/50ml solution for infusion vials	SABA
805	Salbutamol 5mg/5ml solution for infusion ampoules	SABA
806	Salbutamol 5mg/ml nebuliser liquid	SABA
807	Salbutamol 8mg modified-release capsules	SABA
808	Salbutamol 8mg modified-release tablets	SABA
809	Salbutamol 8mg tablet	SABA
810	Salbutamol 95micrograms/dose dry powder inhaler	SABA
811	SALBUTAMOL CFC/FREE B/A	SABA
812	Salbutamol cyclocaps 200microgram Inhalation powder (DuPont Pharmaceuticals Ltd)	SABA
813	Salbutamol cyclocaps 400microgram Inhalation powder (DuPont Pharmaceuticals Ltd)	SABA
814	Salbutamol cyclohaler	SABA
815	SALBUTAMOL INHALER	SABA
816	SALBUTAMOL RESPIRATOR SOLN	SABA
817	Salbutamol rondo 100micrograms/actuation inhaler and spacer	SABA
818	SALBUTAMOL ROTAHALER COMPLETE UNIT	SABA
819	SALBUTAMOL U.DOSE NEBULISING 2.5MG/2.5ML	SABA
820	Salbuvent 0.5mg/ml Injection (Pharmacia Ltd)	SABA
821	Salbuvent 100microgram/actuation Inhalation powder (Pharmacia Ltd)	SABA
822	Salbuvent 2mg Tablet (Pharmacia Ltd)	SABA
823	Salbuvent 2mg/5ml Oral solution (Pharmacia Ltd)	SABA
824	Salbuvent 4mg Tablet (Pharmacia Ltd)	SABA
825	Salbuvent 5mg/ml Respirator solution (Pharmacia Ltd)	SABA
826	SALBUVENT inh INH	SABA
827	SALBUVENT RONDO	SABA
828	Salipraneb 0.5mg/2.5mg nebuliser solution 2.5ml ampoules (Actavis UK Ltd)	other
829	Salipraneb 0.5mg/2.5mg nebuliser solution 2.5ml ampoules (Arrow Generics Ltd)	other
830	Salmeterol 25micrograms with fluticasone 125micrograms CFC free inhaler	ICS_LABA
831	Salmeterol 25micrograms with fluticasone 250micrograms CFC free inhaler	ICS_LABA
832	Salmeterol 25micrograms with fluticasone 50micrograms CFC free inhaler	ICS_LABA
833	Salmeterol 25micrograms/dose inhaler	LABA
834	Salmeterol 25micrograms/dose inhaler CFC free	LABA
835	Salmeterol 25micrograms/dose inhaler CFC free (A A H Pharmaceuticals Ltd)	LABA
836	Salmeterol 50microgram Diskhaler (Dowelhurst Ltd)	LABA
837	Salmeterol 50microgram inhalation pdr blist with device	LABA
838	Salmeterol 50microgram inhalation powder blisters	LABA
839	Salmeterol 50microgram inhalation powder blisters with device	LABA
840	Salmeterol 50micrograms disc	LABA
841	Salmeterol 50micrograms with fluticasone 100micrograms dry powder inhaler	ICS_LABA
842	Salmeterol 50micrograms with fluticasone 250micrograms CFC free inhaler	ICS_LABA
843	Salmeterol 50micrograms with fluticasone 500micrograms CFC free inhaler	ICS_LABA
844	Salmeterol 50micrograms/dose dry powder inhaler	LABA
845	Seebri Breezhaler 44microgram inhalation pdr caps with dev	LAMA
846	Seebri Breezhaler 44microgram inhalation powder capsules with device (Novartis Pharmaceuticals UK Ltd)	LAMA

847	Sereflo 25micrograms/dose / 125micrograms/dose inhaler	ICS_LABA
848	Sereflo 25micrograms/dose / 125micrograms/dose inhaler (Kent Pharmaceuticals Ltd)	ICS_LABA
849	Sereflo 25micrograms/dose / 250micrograms/dose inhaler	ICS_LABA
850	Sereflo 25micrograms/dose / 250micrograms/dose inhaler (Kent Pharmaceuticals Ltd)	ICS_LABA
851	Seretide 100 Accuhaler	ICS_LABA
852	Seretide 100 Accuhaler (DE Pharmaceuticals)	ICS_LABA
853	Seretide 100 Accuhaler (GlaxoSmithKline UK Ltd)	ICS_LABA
854	Seretide 100 Accuhaler (Waymade Healthcare Plc)	ICS_LABA
855	Seretide 125 Evohaler	ICS_LABA
856	Seretide 125 Evohaler (DE Pharmaceuticals)	ICS_LABA
857	Seretide 125 Evohaler (GlaxoSmithKline UK Ltd)	ICS_LABA
858	Seretide 125 Evohaler (Lexon (UK) Ltd)	ICS_LABA
859	Seretide 125 Evohaler (Mawdsley-Brooks & Company Ltd)	ICS_LABA
860	Seretide 125 Evohaler (Waymade Healthcare Plc)	ICS_LABA
861	Seretide 250 Accuhaler	ICS_LABA
862	Seretide 250 Accuhaler (DE Pharmaceuticals)	ICS_LABA
863	Seretide 250 Accuhaler (GlaxoSmithKline UK Ltd)	ICS_LABA
864	Seretide 250 Accuhaler (Lexon (UK) Ltd)	ICS_LABA
865	Seretide 250 Accuhaler (Sigma Pharmaceuticals Plc)	ICS_LABA
866	Seretide 250 Accuhaler (Waymade Healthcare Plc)	ICS_LABA
867	Seretide 250 Evohaler	ICS_LABA
868	Seretide 250 Evohaler (DE Pharmaceuticals)	ICS_LABA
869	Seretide 250 Evohaler (GlaxoSmithKline UK Ltd)	ICS_LABA
870	Seretide 250 Evohaler (Lexon (UK) Ltd)	ICS_LABA
871	Seretide 250 Evohaler (Necessity Supplies Ltd)	ICS_LABA
872	Seretide 250 Evohaler (Stephar (U.K.) Ltd)	ICS_LABA
873	Seretide 250 Evohaler (Waymade Healthcare Plc)	ICS_LABA
874	Seretide 50 Evohaler	ICS_LABA
875	Seretide 50 Evohaler (GlaxoSmithKline UK Ltd)	ICS_LABA
876	Seretide 500 Accuhaler	ICS_LABA
877	Seretide 500 Accuhaler (DE Pharmaceuticals)	ICS_LABA
878	Seretide 500 Accuhaler (GlaxoSmithKline UK Ltd)	ICS_LABA
879	Seretide 500 Accuhaler (Lexon (UK) Ltd)	ICS_LABA
880	Seretide 500 Accuhaler (Mawdsley-Brooks & Company Ltd)	ICS_LABA
881	Seretide 500 Accuhaler (Necessity Supplies Ltd)	ICS_LABA
882	Seretide 500 Accuhaler (Waymade Healthcare Plc)	ICS_LABA
883	Serevent 25micrograms/dose Evohaler	LABA
884	Serevent 25micrograms/dose Evohaler (GlaxoSmithKline UK Ltd)	LABA
885	Serevent 25micrograms/dose Evohaler (Lexon (UK) Ltd)	LABA
886	Serevent 25micrograms/dose Evohaler (Waymade Healthcare Plc)	LABA
887	Serevent 25micrograms/dose inhaler	LABA
888	Serevent 50microgram disks (GlaxoSmithKline UK Ltd)	LABA
889	Serevent 50microgram disks with Diskhaler	LABA
890	Serevent 50microgram disks with Diskhaler (GlaxoSmithKline UK Ltd)	LABA
891	Serevent 50micrograms/dose Accuhaler	LABA
892	Serevent 50micrograms/dose Accuhaler (DE Pharmaceuticals)	LABA

893	Serevent 50micrograms/dose Accuhaler (GlaxoSmithKline UK Ltd)	LABA
894	Serevent 50micrograms/dose Accuhaler (Mawdsley-Brooks & Company Ltd)	LABA
895	Serevent 50micrograms/dose Accuhaler (Waymade Healthcare Plc)	LABA
896	Serevent diskhaler 50microgram Inhalation powder (Glaxo Wellcome UK Ltd)	LABA
897	Singulair 10mg tablets (DE Pharmaceuticals)	montelukast
898	Singulair 10mg tablets (Merck Sharp & Dohme Ltd)	montelukast
899	Singulair 10mg tablets (Necessity Supplies Ltd)	montelukast
900	Singulair Paediatric 4mg chewable tablets (Merck Sharp & Dohme Ltd)	montelukast
901	Singulair Paediatric 4mg granules sachets (Mawdsley-Brooks & Company Ltd)	montelukast
902	Singulair Paediatric 4mg granules sachets (Merck Sharp & Dohme Ltd)	montelukast
903	Singulair Paediatric 5mg chewable tablets (Merck Sharp & Dohme Ltd)	montelukast
904	Sirdupla 25micrograms/dose / 125micrograms/dose inhaler	ICS_LABA
905	Sirdupla 25micrograms/dose / 125micrograms/dose inhaler (Mylan)	ICS_LABA
906	Sirdupla 25micrograms/dose / 250micrograms/dose inhaler	ICS_LABA
907	Sirdupla 25micrograms/dose / 250micrograms/dose inhaler (Mylan)	ICS_LABA
908	Sirdupla 25micrograms/dose / 250micrograms/dose inhaler (Waymade Healthcare Plc)	ICS_LABA
909	Slo-phyllin 125mg Capsule (Lipha Pharmaceuticals Ltd)	other
910	Slo-Phyllin 125mg capsules (Merck Serono Ltd)	other
911	Slo-phyllin 250mg Capsule (Lipha Pharmaceuticals Ltd)	other
912	Slo-Phyllin 250mg capsules (Merck Serono Ltd)	other
913	Slo-phyllin 60mg Capsule (Lipha Pharmaceuticals Ltd)	other
914	Slo-Phyllin 60mg capsules (Merck Serono Ltd)	other
915	Sodium cromoglicate 1mg/dose / Salbutamol 100micrograms/dose inhaler	other
916	Sodium cromoglicate 1mg/dose / Salbutamol 100micrograms/dose inhaler with spacer	other
917	Sodium cromoglicate 1mg/inhalation inhaler	other
918	Sodium cromoglicate 20mg/2ml nebuliser liquid unit dose vials	other
919	Sodium cromoglicate 5mg/dose inhaler CFC free	other
920	Sodium cromoglicate 5mg/inhalation inhaler & spacer	other
921	Sodium cromoglicate with isoprenaline inhalation capsules	other
922	Soltel 25micrograms/dose inhaler CFC free	LABA
923	Soltel 25micrograms/dose inhaler CFC free (Kent Pharmaceuticals Ltd)	LABA
924	Soprobecc 100micrograms/dose inhaler	ICS
925	Soprobecc 200micrograms/dose inhaler	ICS
926	Soprobecc 250micrograms/dose inhaler	ICS
927	Soprobecc 50micrograms/dose inhaler	ICS
928	Spacehaler BDP 100microgram/actuation Spacehaler (Celltech Pharma Europe Ltd)	other
929	Spacehaler BDP 250microgram/actuation Spacehaler (Celltech Pharma Europe Ltd)	other
930	Spacehaler BDP 50microgram/actuation Spacehaler (Celltech Pharma Europe Ltd)	other
931	Spacehaler salbutamol 100microgram/inhalation Spacehaler (Celltech Pharma Europe Ltd)	other
932	Spiolto Respimat 2.5microg/dose / 2.5microg/dose soln refill	LAMA_LABA
933	Spiolto Respimat 2.5microg/dose/2.5microg/dose soln	LAMA_LABA
934	Spiolto Respimat 2.5micrograms/dose / 2.5micrograms/dose solution for inhalation cartridge with device (Boehringer Ingelheim Ltd)	LAMA_LABA
935	Spiriva 18 microgram Capsule (Boehringer Ingelheim Ltd)	LAMA
936	Spiriva 18microgram inhalation pdr caps with HandiHaler	LAMA
937	Spiriva 18microgram inhalation powder capsules	LAMA
938	Spiriva 18microgram inhalation powder capsules (Boehringer Ingelheim Ltd)	LAMA

939	Spiriva 18microgram inhalation powder capsules (Mawdsley-Brooks & Company Ltd)	LAMA
940	Spiriva 18microgram inhalation powder capsules (Sigma Pharmaceuticals Plc)	LAMA
941	Spiriva 18microgram inhalation powder capsules with HandiHaler (Boehringer Ingelheim Ltd)	LAMA
942	Spiriva 18microgram inhalation powder capsules with HandiHaler (DE Pharmaceuticals)	LAMA
943	Spiriva 18microgram inhalation powder capsules with HandiHaler (Sigma Pharmaceuticals Plc)	LAMA
944	Spiriva 18microgram inhalation powder capsules with HandiHaler (Waymade Healthcare Plc)	LAMA
945	Spiriva Respimat 2.5microg/dose inhalation soln	LAMA
946	Spiriva Respimat 2.5microg/dose inhalation soln refill cart	LAMA
947	Spiriva Respimat 2.5micrograms/dose solution for inhalation cartridge with device (Boehringer Ingelheim Ltd)	LAMA
948	Spiriva Respimat 2.5micrograms/dose solution for inhalation cartridge with device (Waymade Healthcare Plc)	LAMA
949	Stalpex 50microg/dose / 500microg/dose dry powder inh	ICS_LABA
950	Steri-neb cromogen 10mg/ml Nebuliser liquid (IVAX Pharmaceuticals UK Ltd)	other
951	Steri-neb ipratropium 250microgram/ml Nebuliser liquid (IVAX Pharmaceuticals UK Ltd)	LAMA
952	Striverdi Respimat 2.5microg/dose inhalation soln	LABA
953	Striverdi Respimat 2.5microg/dose inhalation soln refill	LABA
954	Striverdi Respimat 2.5micrograms/dose solution for inhalation cartridge with device (Boehringer Ingelheim Ltd)	LABA
955	Symbicort 100/6 Turbohaler	ICS_LABA
956	Symbicort 100/6 Turbohaler (AstraZeneca UK Ltd)	ICS_LABA
957	Symbicort 100/6 Turbohaler (Mawdsley-Brooks & Company Ltd)	ICS_LABA
958	Symbicort 100/6 Turbohaler (Sigma Pharmaceuticals Plc)	ICS_LABA
959	Symbicort 200/6 Turbohaler	ICS_LABA
960	Symbicort 200/6 Turbohaler (AstraZeneca UK Ltd)	ICS_LABA
961	Symbicort 200/6 Turbohaler (DE Pharmaceuticals)	ICS_LABA
962	Symbicort 200/6 Turbohaler (Mawdsley-Brooks & Company Ltd)	ICS_LABA
963	Symbicort 200/6 Turbohaler (Necessity Supplies Ltd)	ICS_LABA
964	Symbicort 200/6 Turbohaler (Sigma Pharmaceuticals Plc)	ICS_LABA
965	Symbicort 200microg/dose / 6microg/dose pressurised inh	ICS_LABA
966	Symbicort 200micrograms/dose / 6micrograms/dose pressurised inhaler (AstraZeneca UK Ltd)	ICS_LABA
967	Symbicort 400/12 Turbohaler	ICS_LABA
968	Symbicort 400/12 Turbohaler (AstraZeneca UK Ltd)	ICS_LABA
969	Symbicort 400/12 Turbohaler (DE Pharmaceuticals)	ICS_LABA
970	Symbicort 400/12 Turbohaler (Mawdsley-Brooks & Company Ltd)	ICS_LABA
971	Tedral Oral solution (Parke-davis Research Laboratories)	other
972	Tedral Tablet (Parke-davis Research Laboratories)	other
973	Terbutaline 1.5mg/5ml Oral solution (Sandoz Ltd)	SABA
974	Terbutaline 1.5mg/5ml oral solution sugar free	SABA
975	Terbutaline 2.5mg/5ml solution for injection ampoules	SABA
976	Terbutaline 250micrograms/actuation refill canister	SABA
977	Terbutaline 500micrograms/1ml solution for injection ampoules	SABA
978	Terbutaline 500micrograms/dose dry powder inhaler	SABA
979	Terbutaline 500micrograms/ml injection	SABA
980	Terbutaline 5mg tablets	SABA
981	Terbutaline 5mg/2ml nebuliser liquid unit dose vials	SABA
982	Terbutaline with guaifenesin expectorant	SABA
983	Theodrox Tablet (3M Health Care Ltd)	other

984	Theo-Dur 200mg tablets (AstraZeneca UK Ltd)	other
985	Theo-Dur 300mg tablets (AstraZeneca UK Ltd)	other
986	Theograd 350mg Tablet (Abbott Laboratories Ltd)	other
987	Theophylline 10mg/5ml SF elixir	other
988	Theophylline 125mg modified-release capsules	other
989	Theophylline 125mg/5ml syrup	other
990	Theophylline 175mg modified-release tablets	other
991	Theophylline 200mg modified-release tablets	other
992	Theophylline 250mg modified-release capsules	other
993	Theophylline 250mg modified-release tablets	other
994	Theophylline 250mg/5ml oral suspension	other
995	Theophylline 300mg modified release capsules	other
996	Theophylline 300mg modified-release tablets	other
997	Theophylline 350mg modified release tablets	other
998	Theophylline 400mg modified-release tablets	other
999	Theophylline 500mg modified release tablets	other
1000	Theophylline 60mg modified-release capsules	other
1001	Theophylline 60mg/5ml oral solution	other
1002	Theophylline 60mg/5ml oral suspension	other
1003	Theophylline with ephedrine & caffeine tablets	other
1004	Tilade 2mg/dose inhaler CFC free (Sanofi)	nil
1005	Tilade 2mg/inhalation Inhalation powder (Sanofi)	nil
1006	Tilarin 1% Nasal spray suspension (Rhône-Poulenc Rorer Ltd)	nil
1007	Tiotropium 18 microgram Capsule	LAMA
1008	Tiotropium brom 2.5microg/dose soln for inhalation CFCfree	LAMA
1009	Tiotropium brom 2.5microg/Olodaterol 2.5microg/dose soln	LAMA_LABA
1010	Tiotropium brom 2.5microg/Olodaterol 2.5microg/dose soln&dev	LAMA_LABA
1011	Tiotropium bromide 10microgram inhalation pdr caps with dev	LAMA
1012	Tiotropium bromide 10microgram inhalation powder capsules with device	LAMA
1013	Tiotropium bromide 18microgram inhalation pdr caps with dev	LAMA
1014	Tiotropium bromide 18microgram inhalation powder capsules	LAMA
1015	Tiotropium bromide 18microgram inhalation powder capsules with device	LAMA
1016	Tiotropium bromide 2.5micrograms/dose / Olodaterol 2.5micrograms/dose solution for inhalation cartridge with device CFC free	LAMA_LABA
1017	Tiotropium bromide 2.5micrograms/dose inhalation soln cart	LAMA
1018	Tiotropium bromide 2.5micrograms/dose solution for inhalation cartridge with device CFC free	LAMA
1019	Tiotropium bromide 2.5micrograms/dose solution for inhalation cartridge with device CFC free (AM Distributions (Yorkshire) Ltd)	LAMA
1020	Trelegy Ellipta 92microg/55microg/22microg/dose dry pdr inh	triple
1021	Trimbow 87microg/dose / 5microg/dose / 9microg /dose inh	triple
1022	Tropiovent steripoule 250microgram/ml Nebuliser liquid (Ashbourne Pharmaceuticals Ltd)	LAMA
1023	Tulobuterol 1mg/5ml sugar free syrup	LABA
1024	Tulobuterol 2mg	LABA
1025	Ultibro Breezhaler 85microg/43microg pdr caps with dev	LAMA_LABA
1026	Ultibro Breezhaler 85microgram/43microgram inhalation powder capsules with device (Novartis Pharmaceuticals UK Ltd)	LAMA_LABA
1027	Umeclidinium brom 65microg/Vilanterol 22microg/dose dry pdr	LAMA_LABA
1028	Umeclidinium bromide 65micrograms/dose / Vilanterol 22micrograms/dose dry powder inhaler	LAMA_LABA

1029	Umeclidinium bromide 65micrograms/dose dry powder inhaler	LAMA
1030	Uniphyllin Continus 200mg tablets (Napp Pharmaceuticals Ltd)	other
1031	Uniphyllin Continus 300mg tablets (Napp Pharmaceuticals Ltd)	other
1032	Uniphyllin Continus 400mg tablets (Napp Pharmaceuticals Ltd)	other
1033	Ventmax SR 4mg capsules (Chiesi Ltd)	SABA
1034	Ventmax SR 8mg capsules (Chiesi Ltd)	SABA
1035	Ventodisks 200microgram/blister Disc (Allen & Hanburys Ltd)	SABA
1036	Ventodisks 400microgram/blister Disc (Allen & Hanburys Ltd)	SABA
1037	VENTOLIN	SABA
1038	VENTOLIN .25 MG INJ	SABA
1039	Ventolin 100microgram/inhalation Inhalation powder (Glaxo Wellcome UK Ltd)	SABA
1040	Ventolin 100micrograms/dose Evohaler (DE Pharmaceuticals)	SABA
1041	Ventolin 100micrograms/dose Evohaler (GlaxoSmithKline UK Ltd)	SABA
1042	Ventolin 100micrograms/dose Evohaler (Mawdsley-Brooks & Company Ltd)	SABA
1043	Ventolin 100micrograms/dose Evohaler (Waymade Healthcare Plc)	SABA
1044	Ventolin 2.5mg Nebules (GlaxoSmithKline UK Ltd)	SABA
1045	Ventolin 2.5mg Nebules (Mawdsley-Brooks & Company Ltd)	SABA
1046	Ventolin 200microgram Rotacaps (GlaxoSmithKline UK Ltd)	SABA
1047	Ventolin 200micrograms/dose Accuhaler (DE Pharmaceuticals)	SABA
1048	Ventolin 200micrograms/dose Accuhaler (Dowelhurst Ltd)	SABA
1049	Ventolin 200micrograms/dose Accuhaler (GlaxoSmithKline UK Ltd)	SABA
1050	Ventolin 200micrograms/dose Accuhaler (Lexon (UK) Ltd)	SABA
1051	Ventolin 200micrograms/dose Accuhaler (Mawdsley-Brooks & Company Ltd)	SABA
1052	Ventolin 200micrograms/dose Accuhaler (Sigma Pharmaceuticals Plc)	SABA
1053	Ventolin 200micrograms/dose Accuhaler (Waymade Healthcare Plc)	SABA
1054	Ventolin 2mg Tablet (Allen & Hanburys Ltd)	SABA
1055	Ventolin 2mg/5ml syrup (GlaxoSmithKline UK Ltd)	SABA
1056	Ventolin 400microgram Rotacaps (GlaxoSmithKline UK Ltd)	SABA
1057	Ventolin 4mg Tablet (Allen & Hanburys Ltd)	SABA
1058	Ventolin 500micrograms/1ml solution for injection ampoules (GlaxoSmithKline UK Ltd)	SABA
1059	Ventolin 50microgram/ml Injection (Allen & Hanburys Ltd)	SABA
1060	Ventolin 5mg Nebules (GlaxoSmithKline UK Ltd)	SABA
1061	Ventolin 5mg/5ml solution for infusion ampoules (GlaxoSmithKline UK Ltd)	SABA
1062	Ventolin 5mg/ml respirator solution (GlaxoSmithKline UK Ltd)	SABA
1063	Ventolin accuhaler 200 200microgram/actuation Inhalation powder (Glaxo Wellcome UK Ltd)	SABA
1064	Ventolin cr 4mg Tablet (Allen & Hanburys Ltd)	SABA
1065	Ventolin cr 8mg Tablet (Allen & Hanburys Ltd)	SABA
1066	Ventolin easi-breathe 100microgram/actuation Pressurised inhalation (Allen & Hanburys Ltd)	SABA
1067	Ventolin evohaler 100 100microgram/inhalation Pressurised inhalation (Glaxo Wellcome UK Ltd)	SABA
1068	VENTOLIN I/V 5 MG INJ	SABA
1069	VENTOLIN NEBULES	SABA
1070	VENTOLIN RESPIRATOR	SABA
1071	VENTOLIN ROTACAPS	SABA
1072	VENTOLIN ROTAHALER	SABA
1073	Ventolin Rotahaler (GlaxoSmithKline UK Ltd)	SABA
1074	VENTOLIN S/R	SABA

1075	VENTOLIN S/R 8 MG SPA	SABA
1076	Vertine 25micrograms/dose inhaler CFC free	LABA
1077	Vertine 25micrograms/dose inhaler CFC free (Teva UK Ltd)	LABA
1078	Yanimo Respimat 2.5microg/dose / 2.5microg/dose soln	LAMA_LABA
1079	Zafirlukast 20mg tablets	other

Supplementary Material C: Detail of Approach to Cluster Analysis

Data were analysed in *RStudio* version 1.2.5033 (driven by *R* version 3.6.0) on a Windows 10 desktop computer.¹ Additional packages were loaded from The Comprehensive R Archive Network (<https://cran.r-project.org/>).²

There are a variety of methods and tools which can be used for population segmentation to help enable integrated healthcare models.³ A comprehensive review of population segmentation methods is provided by Wood, Murch and Betteridge.⁴ Data driven population segmentation has been applied for Population Health Management (PHM) for a wide variety of different clinical contexts.⁵ The most commonly used data driven segmentation analysis methods are latent class, k-means cluster analysis and hierarchical analysis.⁵ Cluster analysis is an unsupervised machine learning approach which can be used to identify patterns and attributes between different segments of people. Clustering is used to group data into similar groups which are designated as ‘clusters’. Machine learning methods are only recently being applied to PHM. The linked dataset can be considered big data with different types of variables in which nonparametric machine learning approaches may be best placed for certain types of analyses. Although more statistical based approaches such as decision trees are recommended for utilisation based population segmentation studies,⁴ cluster analysis is a useful non-objective exploratory tool when there are no a priori hypotheses or particular outcomes to model. There are several clustering methods which can be applied to larger datasets including k-means, k-modes and k-prototypes (which is in essence a combination of both the k-means and k-modes algorithms). K-means is typically used for continuous data types and requires the value of k (the number of clusters) to be determined upfront. K-modes is an analogue of k-means but requires categorical data.

The clustering method used for this analysis was k-prototypes. This method allows clustering on mixed data types (both continuous variables and categorical). This algorithm can also handle larger datasets where hierarchical clustering methods may be impractical. The R package ‘clustMixType’ was used for analyses which is based on Huang’s k-prototypes algorithm.^{2 6 7} This algorithm uses the Euclidean distance measure (a dissimilarity metric to measure similarity between observations) for numerical data and simple matching dissimilarity measures for categorical data. K-prototypes has been previously employed to identify vulnerable populations for malaria in the Yunnan Province of China.⁸ A summary of the cluster analysis methods is given in Table C.1 below which covers the 5 reporting criteria by Aldenderfer and Blashfield.^{9 10}

Reporting Criteria	
1 – Computer Software	R, clustMixType Package, ⁶ based on Huang’s k-prototypes algorithm ⁷
2 – Similarity Measure	The Euclidean distance measure for numerical data and simple matching dissimilarity measures for categorical data
3 – Cluster Method	k-prototypes
4 – Decision on number of clusters	Both data driven and through interpretation. Scree plot showing elbow point for total within sum of squares by number of clusters and Silhouette Index. Use of 6 criteria reported by Chong, Lim and Matchar for healthcare segmentation including actionability, identifiability and responsiveness.
5 – Evidence of Cluster Validity	Expert Review - Clinician Review of clusters produced for 6,7,8 and 9 cluster solutions, Silhouette Index, external comparison with literature.

Table C.1: 5 Reporting Criteria for cluster analysis by Aldenderfer and Blashfield.^{9 10}

The number of clusters (or segments) was determined both empirically from the data and by interpretation of the segments and clinical context. The total within sum of squares was plotted across different numbers of clusters (1-10) to identify a point in which the curve begins to flatten out. In addition, the Silhouette index was applied to assess cluster validity where the maximum value of the index was used to determine the optimal number of clusters.¹¹ A consideration of the healthcare context was used in order that each segment has a ‘relatively substantial’ portion of the sample population as well as being responsive and actionable in order to benefit from service based intervention.³ A population segmentation scheme for healthcare policy can be determined through 6

criteria described by Chong, Lim and Matchar (2019) as substantiality, responsiveness, actionability, identifiability and accessibility.³

The k-prototypes algorithm repeats until a stopping criterion is reached, therefore the maximum number of iterations used for the algorithm was 1,000,000 to enable the algorithm to converge. In addition, to overcome the random component of the algorithm (variation arising due to random choice of the initial prototype observations) it was run 1000 times with the best outcome across all runs being selected as the single outcome. As well as the number of clusters needing to be determined, another parameter ' λ ' which represents the trade-off between numerical data (Euclidean distance) and categorical data (simple matching distance) also needs to be selected. ' λ ' was determined as 3.06 based on the average variance over all numeric variables related to the average concentration of all categorical variables.²

The k-prototypes clustering method was applied to 6,7,8 and 9 clusters and these were reviewed by two clinicians and assessed for their usefulness in terms of the criteria discussed above including identifiability and actionability. Cluster profiles were also produced to provide further information on the homogeneity of clusters (cluster profiles for the 6 cluster solution is given in Figure C.2 below). Cluster stability was observed since 7 clusters reproduced the groups identified for the 6 cluster solution but with an additional cancer group with a higher occurrence of non-elective admissions. Similar groupings were found for 8 and 9 clusters, but they produced separate groups for the same condition for male and female which could be better captured within one cluster. Ultimately 6 clusters were selected based on a combination of these investigations (see Table C.4-C.6 for the results of this clustering).

Number of Clusters	Within Sum of Squares	Silhouette Index
2	309,757.1	0.160
3	286,488.8	0.174
4	264,354.7	0.190
5	243,689.9	0.187
6	227,313.3	0.192
7	217,342.0	0.196
8	206,578.7	0.178
9	196,894.5	0.193
10	191,006.9	0.184

Table C.2: Indexes to assess cluster validity. The maximum value of the Silhouette index is used to determine the optimal number of clusters (20 nstarts, 100,000 iterations). The within sum of squares values are plotted on a scree plot to determine an elbow point when the curve begins to flatten out.

Data were pre-processed before cluster analyses to ensure variables were on the same scale (continuous variables were scaled). A smaller proportion of the population use a large proportion of available healthcare which can skew the data. As such, the top 0.1% of people with the highest healthcare utilisation were excluded from the analyses to aid with the clustering process as clustering algorithms can be sensitive to outliers. Removing the top utilisers (0.4%) left a high-risk population of 29,454. The attributes considered included those cited as core indicators¹² and through discussion with clinicians. Previous work by the authors suggest including utilisation variables to add increased discriminative ability. Using the number of co-morbid conditions has been shown to act as a proxy for the care needs of a group.¹³ Mental health needs of the high-risk group who have been asked to isolate for 12 weeks will be included by assessing number of previous mental health appointments in the past 12 months along with community support accessed during the last 12 months. Utilisation variables consisted of combined appointments since the more variables included in the clustering, the more they will dilute other variables and so the following strategy was employed to maintain a good balance of information: Primary care and community care contacts were combined, secondary care elective appointments included both outpatient and in-patient appointments and secondary care non-elective appointments included A&E and non-elective in- patient appointments. Clustering variables were included based on

whether the variable could assist the following: targeting advice/guidance, identification of those most in need to home deliveries of critical supplies, informing distribution of healthcare resources and services. Variables were grouped where appropriate to ensure there were not too many variables which may dilute the effects of others. Full List shown in **Table 1** below.

Variable	How the Variable is Operationalised
Clustering Variables	
Demographics	
Age	Continuous: Current age
Sex	Categorical: Male/Female
Healthcare Utilisation (calendar year 2019)	
Primary Care (GP) and Community contacts (previous calendar year 2019)	Continuous count
Mental health attendances (previous calendar year 2019)	Continuous count
Secondary care elective (outpatient and elective in patient appointments) (previous calendar year 2019)	Continuous count
Secondary care non-elective (accident and emergency and non-elective in patient appointments) (previous calendar year 2019)	Continuous count
Co-morbidities and other health conditions	
Cardiovascular condition (current)	Binary: Based on the presence of myocardial infarction or heart failure or peripheral vascular disease or stroke
Cancer diagnosed in the past 5 years	Binary: Based on the presence of the following in the past 5 years: lung cancer, breast cancer, bowel cancer, prostate cancer, leukaemia/lymphoma, cervical cancer, ovarian cancer, melanoma, head and neck cancer, upper GI/liver cancer, other cancer, metastatic cancer, bladder cancer, kidney cancer
Mental Health	Binary: Based on the presence of depression or QoF mental health
Diabetes	Binary: Based on diabetes no complications, diabetes end complications, QoF diabetes
Dementia	Binary: Based on a record of Dementia
Asthma	Binary: Based on if there is a record for asthma and an asthma related prescription in the preceding 12 months (March 2019 to March 2020)
COPD	Binary: Based on a record of COPD
Other	
Drugs that require monitoring or administering	Binary: Based on a record of medication that requires monitoring in the previous 2 months ('Other' drugs requiring monitoring in the previous 2 months – full list of drugs in Supplementary Material B) Or a record of a prescription of an immunosuppressant/immunomodulator (IMMIMM) or biologic/monoclonal (IMMBIO) in the previous 6 months (or previous 12 months for rituximab). Full lists of drugs included in Supplementary Material B
Non clustering variables	
Lifestyle Factors	
Smoking	Categorical: current smoker, non-smoker
IMD Decile	Continuous: Based on current LSOA as recorded by GP practice The Index of Multiple Deprivation (IMD) ranks LSOAs from most to least deprived on a scale from one to ten
Urban/Rural	Categorical: Urban City and Town/Rural town and fringe/Rural village and dispersed Using the Rural Urban Classification (2011) of Lower Layer Super Output Areas in England and Wales.
Learning disabilities and autism	Based on a QoF record of a learning disability and a record of autism
Housebound	Binary variable
Has a carer	Binary variable
Is a carer	Binary variable
Charlson comorbidity score ¹⁴	Continuous

Table C.3: Clustering and non-clustering variables used for analyses and how they are operationalised.

The resulting segments/clusters were then analysed by assessing the different attributes, comorbidities and utilisation variables. Additional factors of interest were also summarised for each of the clusters (non-cluster variables). These included social status factors such as whether someone is housebound or whether they have a carer to determine if a particular cluster may benefit from having medications or food delivered or to ensure they are still receiving appropriate healthcare. Both clustering variables and

non-clustering variables were assessed for whether they were statistically different from other clusters, an approach used by other studies to verify results and to indicate how segments differ on each clustering variable.^{15 16} Firstly an omnibus statistical test was applied (ANOVA, Kruskal-Wallis, Chi square test) to confirm differences across clusters. ANOVA for example determines if at least one group mean differs from the others and the Kruskal-Wallis test is the non-parametric equivalent. This omnibus testing was followed by post hoc pairwise comparisons. 15 pairwise tests between all other clusters were used (t-test, Mann-Whitney U test and z-test for proportions) to assign whether the cluster was significantly different from 5, 4, or 3 other clusters indicated with a superscript a,b or c. A Bonferroni adjustment was made to the significance level of 0.05 due to using multiple test comparisons which increases the probability of at least one false rejection of the null hypothesis ($0.05/15 = 0.0033$ (based on 15 pairwise tests)).

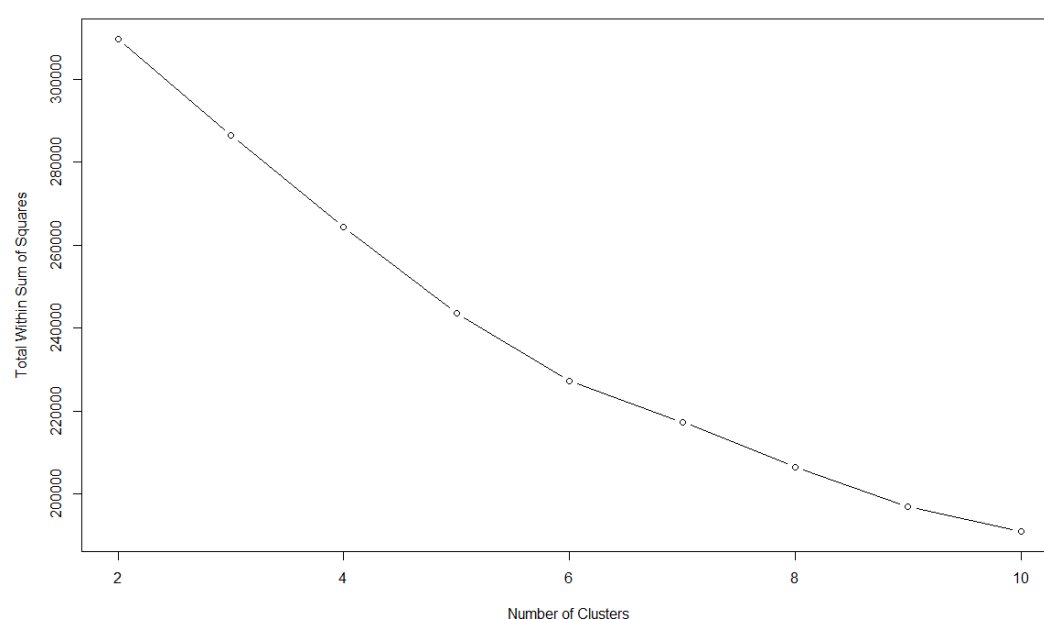


Figure C.1: Scree plot showing the Total within sum of squares for differing numbers of clusters used in the K-prototypes clustering model. There is an elbow point for 6 clusters and so this was investigated for population segmentation. The models used 50 nstarts (repetitive computations with random initialisations with selection of the result with minimum distance) and 100,000 iterations to produce this plot.

7 Clusters

Cluster	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Total Population
Total	5066	1874	6772	8649	5684	1241	168	29,454
Proportion of population	17.20%	6.36%	22.99%	29.36%	19.30%	4.21%	0.57%	100.00%
Clustering Variables								
Age	52	61	69	73	68	77	58	68
Median, (IQR)	35-65	49-71	57-77	65-80	56-76	68-84	49.75-70.25	55-77
Sex								
-Female	3760 (74.22)	1420 (75.77)	4725 (69.77)	2856 (33.02)	1626 (28.61)	782 (63.01)	105 (62.5)	15274 (51.86)
-Male	1306 (25.78)	454 (24.23)	2047 (30.23)	5793 (66.98)	4058 (71.39)	459 (36.99)	63 (37.5)	14180 (48.14)
Primary Care (GP) and Community contacts	4	6	4	5	4	54	10	5
Median, (IQR)	2-9	2.25-13	2-8	2-9	1-7	29-87	5-20.25	2-10
Mental health attendances	0	0	0	0	0	0	46	0
Median, (IQR)	0-0	0-0	0-0	0-0	0-0	0-0	34-62.5	0-0
Secondary care elective (outpatient and elective in patient appointments)	5	42	6	3	11	10	6	6
Median, (IQR)	1-11	32-54	3-12	0-7	5-17	5-19	2-13	2-14
Secondary care non-elective (accident and emergency and non-elective in patient appointments)	0	1	0	0	0	6	2	0
Median, (IQR)	0-2	0-3	0-1	0-1	0-1	3-9	0-3	0-2
Cardiovascular condition (current)	449 (8.86)	209 (11.15)	1082 (15.98)	2492 (28.81)	923 (16.24)	567 (45.69)	27 (16.07)	5749 (19.52)
Cancer diagnosed in the past 5 years	260 (5.13)	1397 (74.55)	198 (2.92)	360 (4.16)	4641 (81.65)	200 (16.12)	25 (14.88)	7081 (24.04)
Mental Health	1131 (22.33)	311 (16.6)	1034 (15.27)	1417 (16.38)	661 (11.63)	286 (23.05)	132 (78.57)	4972 (16.88)
Diabetes	734 (14.49)	259 (13.82)	1368 (20.2)	1959 (22.65)	1108 (19.49)	387 (31.18)	39 (23.21)	5854 (19.88)
Dementia	39 (0.77)	8 (0.43)	190 (2.81)	337 (3.9)	81 (1.43)	104 (8.38)	18 (10.71)	777 (2.64)
Asthma	3969 (78.35)	186 (9.93)	492 (7.27)	1331 (15.39)	240 (4.22)	297 (23.93)	54 (32.14)	6569 (22.3)
COPD	1076 (21.24)	134 (7.15)	400 (5.91)	7617 (88.07)	247 (4.35)	739 (59.55)	76 (45.24)	10289 (34.93)
Drugs that require monitoring	644 (12.71)	185 (9.87)	5330 (78.71)	404 (4.67)	241 (4.24)	229 (18.45)	67 (39.88)	7100 (24.11)
Smoking								
-Non smoker	4204 (82.98)	1691 (90.23)	6105 (90.15)	6442 (74.48)	5066 (89.13)	1056 (85.09)	106 (63.1)	24670 (83.76)
-Current smoker	862 (17.02)	183 (9.77)	667 (9.85)	2207 (25.52)	618 (10.87)	185 (14.91)	62 (36.9)	4784 (16.24)
Non Clustering Variables								
Urban/Rural								
-Rural town and fringe	125 (2.47)	60 (3.2)	227 (3.35)	226 (2.61)	191 (3.36)	38 (3.06)	6 (3.57)	873 (2.96)

-Rural village and dispersed	200 (3.95)	124 (6.62)	399 (5.89)	339 (3.92)	320 (5.63)	33 (2.66)	5 (2.98)	1420 (4.82)
-Urban city and town	4741 (93.58)	1690 (90.18)	6146 (90.76)	8084 (93.47)	5173 (91.01)	1170 (94.28)	157 (93.45)	27161 (92.21)
IMD Decile	5	7	7	5	7	5	4	6
Median, (IQR)	3-8	4-9	4-9	2-8	4-9	3-8	2-7	3-8
Learning disabilities and autism	100 (1.97)	9 (0.48)	30 (0.44)	31 (0.36)	34 (0.6)	19 (1.53)	7 (4.17)	230 (0.78)
Housebound	59 (1.16)	19 (1.01)	181 (2.67)	396 (4.58)	86 (1.51)	321 (25.87)	19 (11.31)	1081 (3.67)
Has a carer	75 (1.48)	40 (2.13)	146 (2.16)	340 (3.93)	107 (1.88)	127 (10.23)	10 (5.95)	845 (2.87)
Is a carer	161 (3.18)	64 (3.42)	266 (3.93)	331 (3.83)	169 (2.97)	63 (5.08)	3 (1.79)	1057 (3.59)
Charlson Score	2	4	4	5	5	6	3	4
Median, (IQR)	(1-4)	(2-6)	(2-5)	(4-6)	(3-6)	(4-7)	(2-5)	(3-6)

Table C.4: Segmentation of high-risk cohort ($n=29,454$) into 7 clusters.

8 Clusters

Cluster	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8	Total Population
Total	5853	1925	1038	5917	4893	172	4113	5543	29,454
Proportion of population	19.87%	6.54%	3.52%	20.09%	16.61%	0.58%	13.96%	18.82%	100.00%
Clustering Variables									
Age	74	60	77	64	72	58	39	73	68
Median, (IQR)	67-81	49-71	68-84	54-73	63-79	49.75-70.25	26-49	65-80	55-77
Sex									
-Female	5853 (100)	1503 (78.08)	623 (60.02)	4358 (73.65)	1558 (31.84)	106 (61.63)	1273 (30.95)	0 (0)	15274 (51.86)
-Male	0 (0)	422 (21.92)	415 (39.98)	1559 (26.35)	3335 (68.16)	66 (38.37)	2840 (69.05)	5543 (100)	14180 (48.14)
Primary Care (GP) and Community contacts	6	7	61	4	4	10	3	4	5
Median, (IQR)	2-12	3-12	34-94.75	2-8	2-8	5-20.25	1-6	2-9	2-10
Mental health attendances	0	0	0	0	0	45	0	0	0
Median, (IQR)	0-0	0-0	0-0	0-0	0-0	32.75-62	0-0	0-0	0-0
Secondary care elective (outpatient and elective in patient appointments)	3	41	10.5	7	11	6	6	3	6
Median, (IQR)	0-8	31-53	5-19	3-13	6-18	2-13	2-12	0-7	2-14
Secondary care non-elective (accident and emergency and non-elective in patient appointments)	0	1	6	0	0	2	0	0	0
Median, (IQR)	0-2	0-3	3-10	0-1	0-1	0-3	0-2	0-1	0-2
Cardiovascular condition (current)	1307 (22.33)	202 (10.49)	566 (54.53)	798 (13.49)	884 (18.07)	28 (16.28)	246 (5.98)	1718 (30.99)	5749 (19.52)
Cancer diagnosed in the past 5 years	284 (4.85)	1435 (74.55)	169 (16.28)	189 (3.19)	4459 (91.13)	25 (14.53)	327 (7.95)	193 (3.48)	7081 (24.04)
Mental Health	1135 (19.39)	344 (17.87)	241 (23.22)	1084 (18.32)	473 (9.67)	136 (79.07)	740 (17.99)	819 (14.78)	4972 (16.88)
Diabetes	1112 (19)	280 (14.55)	340 (32.76)	1192 (20.15)	881 (18.01)	40 (23.26)	678 (16.48)	1331 (24.01)	5854 (19.88)
Dementia	276 (4.72)	8 (0.42)	88 (8.48)	90 (1.52)	88 (1.8)	18 (10.47)	4 (0.1)	205 (3.7)	777 (2.64)
Asthma	1698 (29.01)	257 (13.35)	249 (23.99)	1347 (22.76)	418 (8.54)	55 (31.98)	1304 (31.7)	1241 (22.39)	6569 (22.3)
COPD	4346 (74.25)	116 (6.03)	584 (56.26)	199 (3.36)	224 (4.58)	79 (45.93)	22 (0.53)	4719 (85.13)	10289 (34.93)
Drugs that require monitoring	247 (4.22)	174 (9.04)	210 (20.23)	4975 (84.08)	243 (4.97)	67 (38.95)	784 (19.06)	400 (7.22)	7100 (24.11)
Smoking									
-Non smoker	4573 (78.13)	1741 (90.44)	887 (85.45)	5244 (88.63)	4464 (91.23)	108 (62.79)	3453 (83.95)	4200 (75.77)	24670 (83.76)
-Current smoker	1280 (21.87)	184 (9.56)	151 (14.55)	673 (11.37)	429 (8.77)	64 (37.21)	660 (16.05)	1343 (24.23)	4784 (16.24)
Non Clustering Variables									
Urban/Rural									

-Rural town and fringe	143 (2.44)	60 (3.12)	35 (3.37)	190 (3.21)	183 (3.74)	6 (3.49)	93 (2.26)	163 (2.94)	873 (2.96)
-Rural village and dispersed	239 (4.08)	123 (6.39)	30 (2.89)	332 (5.61)	304 (6.21)	5 (2.91)	145 (3.53)	242 (4.37)	1420 (4.82)
-Urban city and town	5471 (93.47)	1742 (90.49)	973 (93.74)	5395 (91.18)	4406 (90.05)	161 (93.6)	3875 (94.21)	5138 (92.69)	27161 (92.21)
IMD Decile	5	7	5	6	7	4	5	5	6
Median, (IQR)	2-8	4-9	3-8	4-9	4-9	2-7	3-8	2-8	3-8
Learning disabilities and autism	9 (0.15)	8 (0.42)	15 (1.45)	28 (0.47)	12 (0.25)	7 (4.07)	125 (3.04)	26 (0.47)	230 (0.78)
Housebound	363 (6.2)	19 (0.99)	283 (27.26)	79 (1.34)	90 (1.84)	19 (11.05)	19 (0.46)	209 (3.77)	1081 (3.67)
Has a carer	230 (3.93)	40 (2.08)	111 (10.69)	89 (1.5)	113 (2.31)	10 (5.81)	36 (0.88)	216 (3.9)	845 (2.87)
Is a carer	289 (4.94)	68 (3.53)	53 (5.11)	225 (3.8)	168 (3.43)	4 (2.33)	60 (1.46)	190 (3.43)	1057 (3.59)
Charlson Score	5	4	6	3	5	3	1	5	4
Median, (IQR)	(4-6)	(2-6)	(5-7)	(2-5)	(4-7)	(2-5)	(0-2)	(4-6)	(3-6)

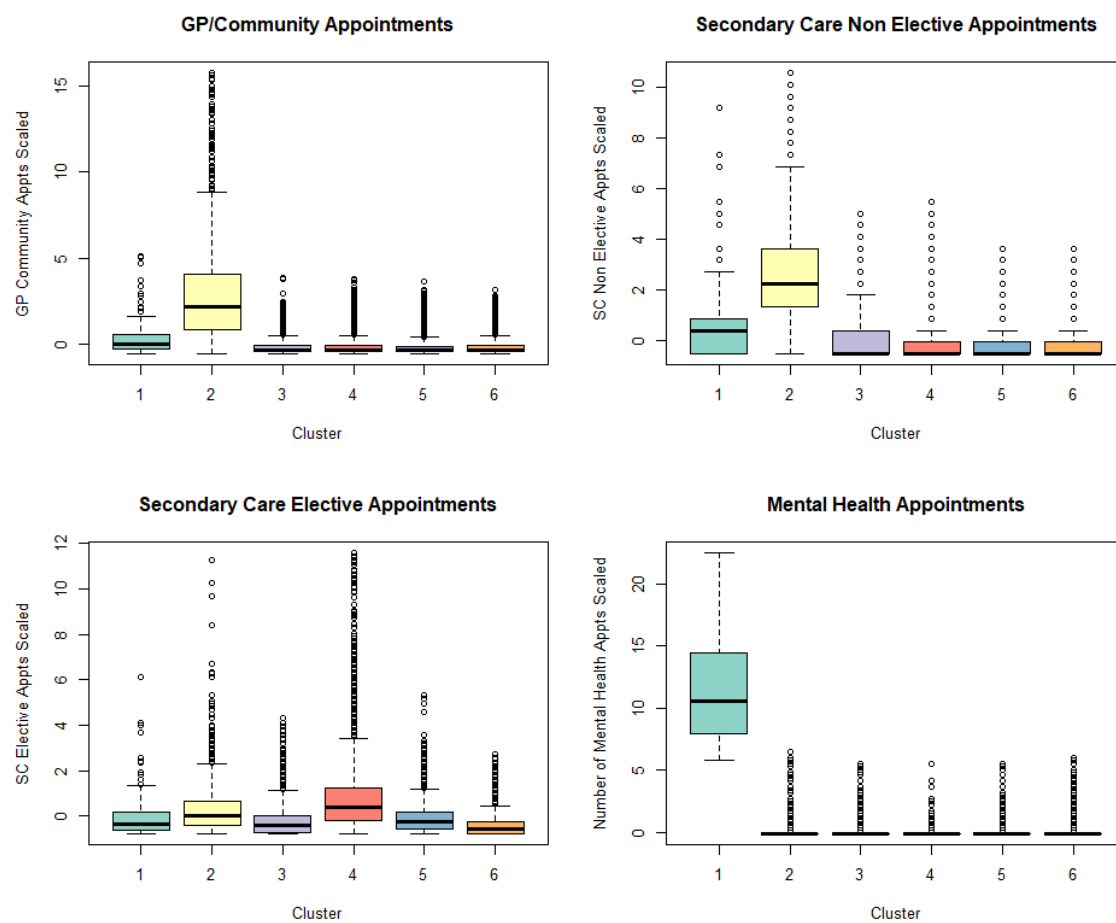
Table C.5: Segmentation of high-risk cohort ($n=29,454$) into 8 clusters.

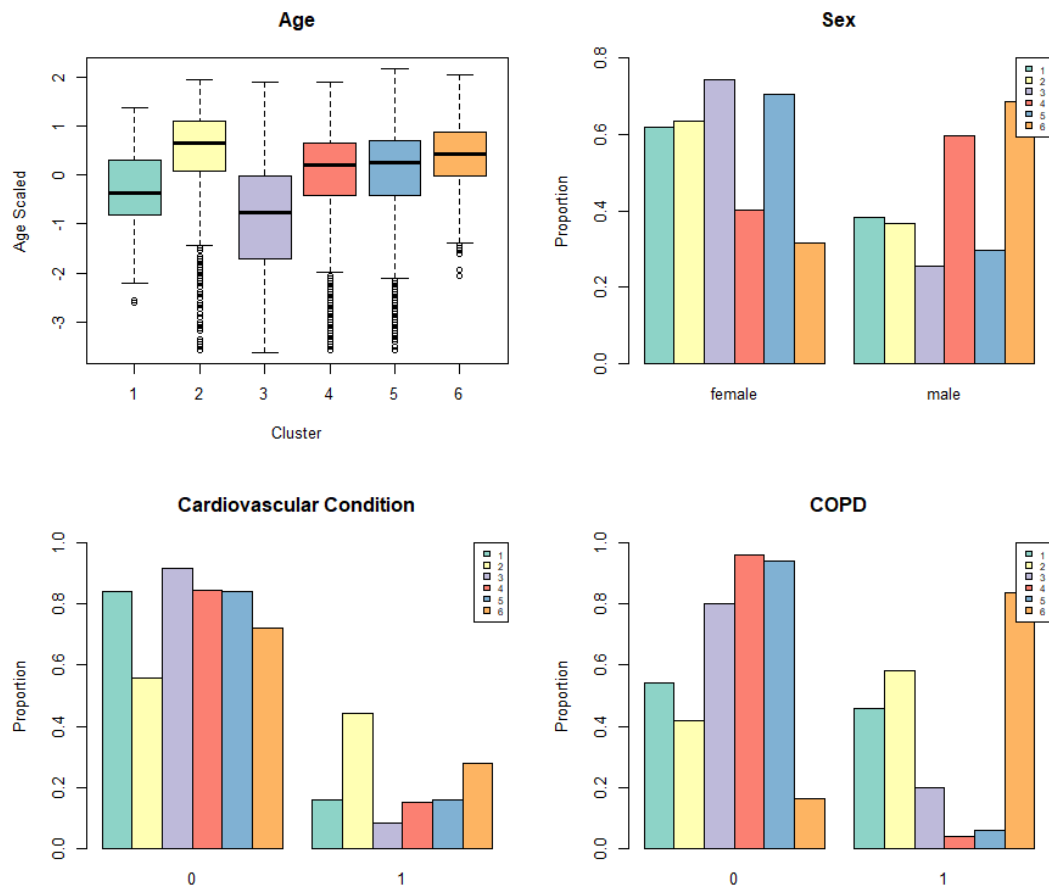
9 Clusters

Variables	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8	Cluster 9	Total Population
Total	170	1744	3028	990	4890	3483	4857	4815	5477	29,454
Proportion of population	0.58%	5.92%	10.28%	3.36%	16.60%	11.83%	16.49%	16.35%	18.60%	100.00%
Clustering Variables										
Age	58	61	35	77	68	56	75	71	73	68
Median, (IQR)	50.25-70	49-71	22-45	68-85	58-75	48-65	69-82	63-78	65-79	55-77
Sex										
-Female	105 (61.76)	1332 (76.38)	720 (23.78)	583 (58.89)	3400 (69.53)	2774 (79.64)	4857 (100)	1503 (31.21)	0 (0)	15274 (51.86)
-Male	65 (38.24)	412 (23.62)	2308 (76.22)	407 (41.11)	1490 (30.47)	709 (20.36)	0 (0)	3312 (68.79)	5477 (100)	14180 (48.14)
Primary Care (GP) and Community contacts	10	6	2	64	4	5	6	4	4	5
Median, (IQR)	5-20	3-13	1-5	36-96	2-8	2-11	2-12	2-8	1-9	2-10
Mental health attendances	45.5	0	0	0	0	0	0	0	0	0
Median, (IQR)	34-62	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0
Secondary care elective (outpatient and elective in patient appointments)	6	43	6	11	7	5	3	12	3	6
Median, (IQR)	2-13	33-55	2-13	5-20	4-13	1-11	0-8	6-18	0-7	2-14
Secondary care non-elective (accident and emergency and non-elective in patient appointments)	2	1	0	6	0	0	0	0	0	0
Median, (IQR)	0-3	0-3	0-2	3-10	0-1	0-2	0-2	0-1	0-1	0-2
Cardiovascular condition (current)	27 (15.88)	187 (10.72)	172 (5.68)	542 (54.75)	763 (15.6)	335 (9.62)	1161 (23.9)	864 (17.94)	1698 (31)	5749 (19.52)
Cancer diagnosed in the past 5 years	25 (14.71)	1320 (75.69)	312 (10.3)	169 (17.07)	186 (3.8)	202 (5.8)	262 (5.39)	4409 (91.57)	196 (3.58)	7081 (24.04)
Mental Health	134 (78.82)	295 (16.92)	460 (15.19)	229 (23.13)	783 (16.01)	904 (25.95)	880 (18.12)	461 (9.57)	826 (15.08)	4972 (16.88)
Diabetes	39 (22.94)	242 (13.88)	476 (15.72)	331 (33.43)	1033 (21.12)	610 (17.51)	927 (19.09)	866 (17.99)	1330 (24.28)	5854 (19.88)
Dementia	18 (10.59)	5 (0.29)	2 (0.07)	86 (8.69)	92 (1.88)	29 (0.83)	256 (5.27)	89 (1.85)	200 (3.65)	777 (2.64)
Asthma	54 (31.76)	175 (10.03)	399 (13.18)	227 (22.93)	396 (8.1)	3192 (91.65)	807 (16.62)	231 (4.8)	1088 (19.86)	6569 (22.3)
COPD	78 (45.88)	112 (6.42)	22 (0.73)	562 (56.77)	175 (3.58)	531 (15.25)	3860 (79.47)	221 (4.59)	4728 (86.32)	10289 (34.93)
Drugs that require monitoring	67 (39.41)	169 (9.69)	763 (25.2)	203 (20.51)	4488 (91.78)	545 (15.65)	222 (4.57)	243 (5.05)	400 (7.3)	7100 (24.11)
Smoking										
-Non smoker	107 (62.94)	1577 (90.42)	2589 (85.5)	843 (85.15)	4391 (89.8)	2855 (81.97)	3793 (78.09)	4388 (91.13)	4127 (75.35)	24670 (83.76)
-Current smoker	63 (37.06)	167 (9.58)	439 (14.5)	147 (14.85)	499 (10.2)	628 (18.03)	1064 (21.91)	427 (8.87)	1350 (24.65)	4784 (16.24)
Non Clustering Variables										
Urban/Rural										

-Rural town and fringe	6 (3.53)	56 (3.21)	72 (2.38)	34 (3.43)	164 (3.35)	91 (2.61)	113 (2.33)	177 (3.68)	160 (2.92)	873 (2.96)
-Rural village and dispersed	5 (2.94)	118 (6.77)	108 (3.57)	27 (2.73)	295 (6.03)	143 (4.11)	200 (4.12)	294 (6.11)	230 (4.2)	1420 (4.82)
-Urban city and town	159 (93.53)	1570 (90.02)	2848 (94.06)	929 (93.84)	4431 (90.61)	3249 (93.28)	4544 (93.56)	4344 (90.22)	5087 (92.88)	27161 (92.21)
IMD Decile	4	7	5	5	7	5	5	7	5	6
Median, (IQR)	2-7	4-9	3-8	3-8	4-9	3-8	3-8	4-9	2-8	3-8
Learning disabilities and autism	7 (4.12)	8 (0.46)	110 (3.63)	15 (1.52)	19 (0.39)	27 (0.78)	6 (0.12)	12 (0.25)	26 (0.47)	230 (0.78)
Housebound	19 (11.18)	17 (0.97)	13 (0.43)	276 (27.88)	73 (1.49)	45 (1.29)	342 (7.04)	90 (1.87)	206 (3.76)	1081 (3.67)
Has a carer	10 (5.88)	38 (2.18)	27 (0.89)	109 (11.01)	78 (1.6)	54 (1.55)	202 (4.16)	112 (2.33)	215 (3.93)	845 (2.87)
Is a carer	3 (1.76)	59 (3.38)	35 (1.16)	53 (5.35)	196 (4.01)	124 (3.56)	236 (4.86)	163 (3.39)	188 (3.43)	1057 (3.59)
Charlson Score	3	4	1	6	4	3	5	5	5	4
Median, (IQR)	(2-5)	(2-6)	(0-2)	(5-7)	(2-5)	(2-4)	(4-6)	(4-7)	(4-6)	(3-6)

Table C.6: Segmentation of high-risk cohort ($n=29,454$) into 9 clusters.





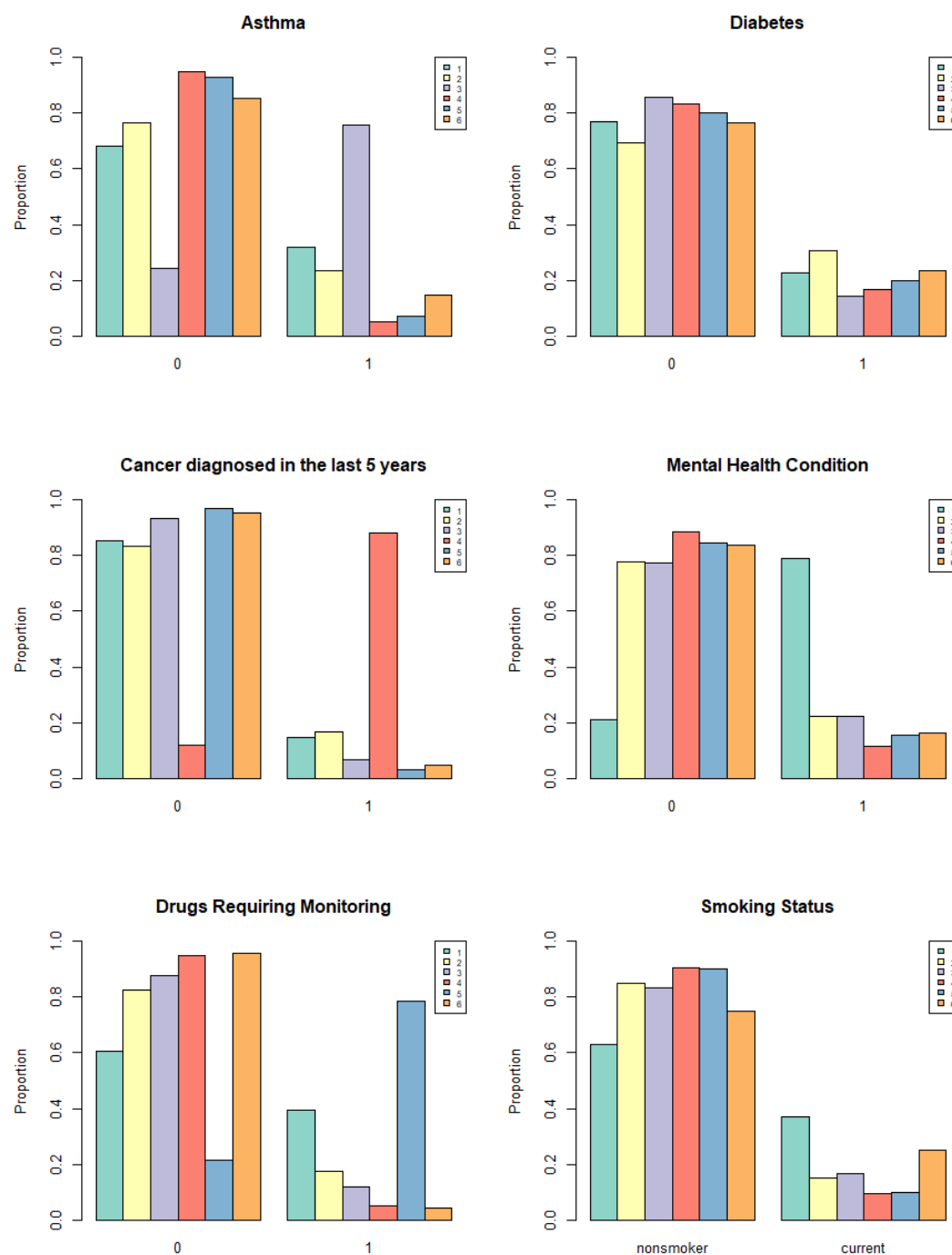


Figure C.2: Cluster profiles produced for the 6 cluster solution to aid interpretability and differentiation of segments. The proportions are shown for binary variables and boxplots for continuous variables.

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Supplementary Material D: Comparison of the low, moderate and high risk groups

Age Group	Female			Male		
	% at high risk in this group	% at moderate risk in this group	% at low risk in this group	% at high risk in this group	% at moderate risk in this group	% at low risk in this group
0-4	0.3	43	56.8	0.3	42.7	57
5-9	0.3	5.8	93.9	0.4	7.3	92.3
10-14	0.4	8.2	91.4	0.4	10.1	89.6
15-19	0.4	9.7	89.8	0.4	9.4	90.2
20-24	0.4	11.6	88	0.4	8.4	91.2
25-29	0.6	15.8	83.6	0.5	9.4	90
30-34	0.9	18.8	80.3	0.5	9.8	89.6
35-39	1.2	19.4	79.5	0.8	12	87.2
40-44	1.6	20	78.4	1.2	15	83.7
45-49	2.4	23.6	74	1.7	19.4	78.9
50-54	3.3	27	69.8	2.5	23.7	73.8
55-59	4.3	30.8	64.8	3.9	29.7	66.4
60-64	6.1	35.8	58.1	5.6	36.9	57.5
65-69	7.6	92.3	0.1	7.9	92	0.1
70-74	10.3	89.5	0.1	11	88.8	0.1
75-79	10.5	89.4	0.2	13.3	86.4	0.3
80-84	12.2	87.5	0.3	14.5	85.1	0.4
85-89	10.8	88.5	0.6	14	85.2	0.8
90-94	8.3	90.4	1.3	11.7	86.6	1.7
95+	5.3	92.1	2.6	11	86.3	2.7

Table D.1: Percentage of high, moderate and low risk individuals by age group and sex.

Plots comparing the distribution of age and Charlson Score for low, moderate and high risk groups

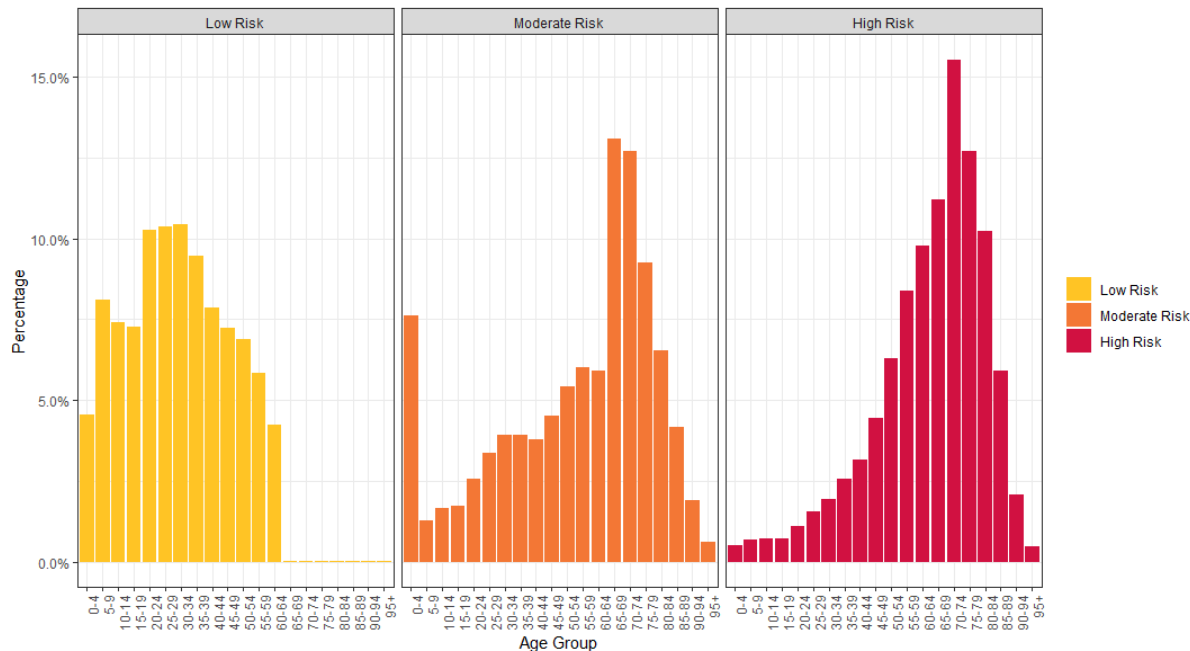


Figure D.1: Distribution of age groups by high, moderate and low risk groups.

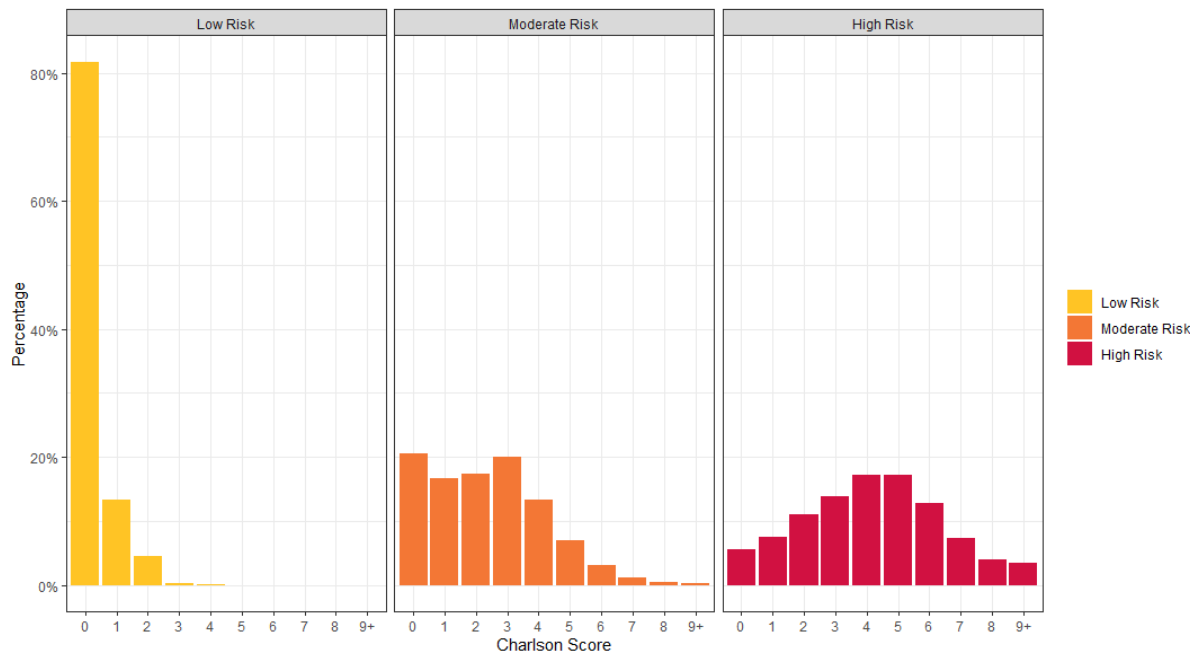


Figure D.2: Distribution of Charlson Score by high, moderate and low risk groups.