

Search criteria for highest risk patients for shielding

Version 4.0

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Version history

Version	Date	Summary of changes
V1.0	03/04/2020	Initial Version
V2.0	16/04/2020	Correction of error to COPD medications and addition of Interstitial Lung Disease / Sarcoidosis to Group4 and patients on Oxygen therapy to Group3.
V3.0	28/04/2020	Inclusion of Bronchiectasis and Pulmonary Hypertension to Group 3.
V4.0	11/05/2020	Updated to include splenectomy, renal dialysis and more detail on cancer search techniques.

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Introduction

This document sets out details of the groups considered to be at highest risk should they contract Covid-19. Patients identified are sent a detailed letter advising them of the need to take Shielding advice and for the support mechanisms available to them.

The broad categories for the Shielding population aim to be uniform across the 4 Countries of the UK. However, there will be some variation in the finer search specifications due to the differences in methodology for identifying patients for these groups, and in the clinical guidance received. There may also be adjustments necessary as the categories are refined over time. Following the learning from England, who started this process at an earlier date, wherever possible we looked to identify this group utilising data sources held centrally at Public Health Scotland (PHS). In Scotland there is no complete central collection of GP data and it was felt complex and workload intensive to ask all practices in Scotland to individually collect data for this purpose. The following Public Health Scotland (PHS), centrally held data sources, were utilised in the searches.

- Database of dispensed GP medications. Data available up to **December 2019**. Some of the searches for immunosuppression prescriptions used data available up to end of January 2020.
- Database of Hospital events which includes ICD10 coded diagnoses and OPCS coded procedures.

Where information was considered to be absent or incomplete in these data sources, outside agencies were contacted to create lists of the highest risk patients. This applied in particular to Transplant patients, Cancer diagnosed patients, patients at risk of immunosuppression, Pregnant women with cardiac problems and people receiving renal dialysis.

All patients identified by the various mechanisms were checked against Death Registers and also cross referenced against other searches so try and ensure individuals received only one letter.

Solid organ transplant recipients

NHS Blood and Transplant based in Bristol provided a list of Transplant patients and this was merged with a code search of Scottish Hospital records (for code list see Appendix 1). In addition, letters were sent to patients on the following immunosuppression medications

- Azathioprine
- Mycophenolate Mofetil
- Mycophenolic Sodium
- Ciclosporin
- Sirolimus
- Tacrolimus

People with specific cancers

- People with cancer who are undergoing active chemotherapy.
- Patients who have received radical radiotherapy for lung cancer (searched since 2006).
- People with cancers of the blood or bone marrow such as leukaemia, lymphoma or myeloma who are at any stage of treatment.
- People having immunotherapy or other continuing antibody treatments for cancer.
- People having other targeted cancer treatments which can affect the immune system, such as protein kinase inhibitors or PARP inhibitors.
- People who have had bone marrow or stem cell transplants in the last 6 months, or who are still taking immunosuppression drugs.
-

After consultation with Cancer care specialists in Scotland the definition for 'active' therapy was taken as 'currently receiving or has had in the previous 3 months'.

Chemotherapy and Radiotherapy data is not readily available from GP or PHS held data. Patients for the above groups were identified directly from the Cancer data systems in the Regions in Scotland.

For haematological cancers, the regional cancer centres used the following criteria to interpret 'at any stage of treatment', as a guide:

- **Diffuse large B-cell Lymphoma (DLBCL), Follicular Lymphoma, Hodgkins Lymphoma** – include patients on active treatment since **January 2018** – present
- **Acute Myeloid Leukaemia (AML)** – include patients from **January 2015** - present
- **Myeloma, Chronic Lymphocytic Leukaemia (CLL), Acute Lymphocytic Leukaemia (ALL)** - except Transplant, dealt with separately, **and all other Miscellaneous haem-oncology malignancies** – include all patients on Chemocare database from January 2014
- Patients currently prescribed ruxolitinib included
- **Watch & Wait patients – individual assessment, particularly Lymphoma patients where this recorded since January 2018 as a first treatment**
- **Chronic Myeloid Leukaemia** – exclude all patients
- Excluded those patients treated solely with hydroxycarbamide, zoledronic acid, anagrelide and pamidronate.

For Patients who have had Bone Marrow or Stem Cell transplant, NICE have issued guidance, see:- <https://www.nice.org.uk/guidance/ng164/resources/covid19-rapid-guideline-haematopoietic-stem-cell-transplantation-pdf-66141900749509>

This states that people who have had haematopoietic stem cell transplantation (HSCT) should be shielding if they had an autologous HSCT within the last year or if they had an allogeneic HSCT within the last 2 years, or they are having continuous immunosuppressive

therapy, they have chronic graft versus host disease (GvHD) or there is evidence of ongoing immunodeficiency (or for other extremely vulnerable groups based on clinical assessment).

We are reviewing the patients who have been sent Shielding letters in this group to align with NICE guidance.

People with severe respiratory conditions

All patients with cystic fibrosis

Searches made through PHS database of hospital coded data searching on ICD10 codes for Cystic Fibrosis. (E84 Cystic Fibrosis)

Patients with severe asthma

PHS Prescription data was used as a proxy for asthma diagnosis and the severity (on Leukotriene or LABA), patients were defined as severe if they were also prescribed long term oral steroids.

See Appendix 2 for list of Medications.

Oral Steroid tablets – prednisolone.

From the prescribing data there is some difficulty in determining patients on long term courses of tablets and differentiating this from repeated short courses of a high dose. Knowing that it is usual for prescriptions to be on a 56-day length in Scotland we agreed a definition of:

- 3 or more prescriptions for prednisolone in the previous 6 months
- OR
- Prescriptions for prednisolone in last 6 months where total amount supplied equated to 5mg / day or more.

We accepted that this may mean that patients receiving multiple short high doses of steroid would be included, but this may also be an indicator of unstable asthma.

In addition, Respiratory Physicians were asked to identify other patients with severe asthma, particularly those on biologic therapies.

Patients with severe COPD

Patients were identified if they had been prescribed Roflumilast or had received prescriptions for inhaler medications that included two long acting preventers (LABA and LAMA) and a steroid inhaler. See Appendix 3 for details of medications.

Patients on home Oxygen

This group of patients were added in Scotland as they represent a group of people likely to suffer from significant lung disease. There may be a small group of patients who will be erroneously asked to shield in this group, where they receive home oxygen for reasons other than respiratory diseases, such as for Cluster Headache. Patients were identified from the centrally held register for the supply of Oxygen.

Patients with severe Bronchiectasis and Pulmonary Hypertension

This group was added following the release of guidance by the British Thoracic Society. Specialist Physicians were approached to identify people for shielding.

People with rare diseases

Including inborn errors of metabolism that significantly increase the risk of infections (such as Severe Combined Immunodeficiency (SCID), homozygous sickle cell disease (not trait)). Patients with Interstitial Lung Disease (ILD) and Sarcoidosis added to this group.

Searches via ISD data, utilising code lists developed in England, gave a high number of people, raising concerns this would lead to many people being erroneously advised to shield. Therefore, an alternative approach was taken, and Specialist centres in Scotland were approached to directly identify patients. Central searches of hospital data over the last 10 years were utilised to identify patients with ILD or Sarcoidosis. The following ICD10 codes were used for this search: -

- J84.0 Alveolar and parieto-alveolar conditions
- J84.1 Other interstitial pulmonary diseases with fibrosis
- J84.8 Other specified interstitial pulmonary diseases
- J84.9 Interstitial pulmonary disease, unspecified
- D86.0 Sarcoidosis of lung
- D86.2 Sarcoidosis of lung with sarcoidosis of lymph nodes
- D86.8 Sarcoidosis of other and combined sites
- D86.9 Sarcoidosis, unspecified

People on immunosuppression therapies sufficient to significantly increase risk of infection

This was a complex area to find patients, particularly as Primary Care and Secondary Care take responsibility for certain types of medication. The PHS prescription data only contained primary care derived medications.

Patients on immunosuppression drugs as for transplants were sent letters. These drugs were:

- Azathioprine
- Mycophenolate Mofetil
- Mycophenolic Sodium
- Ciclosporin
- Sirolimus
- Tacrolimus

The professional bodies for different specialities have recently circulated more detailed guidance and it is likely therefore that some patients in this group have been erroneously sent Shielding letters.

Following the advice from the Professional bodies a schema was developed for the different possible scenarios, to indicate a high risk of immunosuppression. **Data is to be collected from Hospital Specialities**, and where necessary will be amalgamated with PHS prescribing data to check against GP prescriptions and proxies for co-morbidities. See Appendix 4 for Flow Chart. See Appendix 5 for medication lists.

In some cases, details of patients were sent in from specialities where an assumption had to be made that the patients should be considered for Shielding.

The recently published advice from the following professional bodies were consulted in devising criteria for this population:

- Dermatology:
www.bad.org.uk/shared/get-file.ashx?itemtype=document&id=6648
- Rheumatology:
www.rheumatology.org.uk/Portals/0/Documents/COVID19_risk_scoring_guide.pdf?ver=2020-03-23-165634-597
- Renal:
www.renal.org/stratified-risk-prolonged-self-isolation-adults-children-receiving-immunosuppression-disease-native-kidneys/
- Gastroenterology:
www.bsg.org.uk/covid-19-advice/bsg-rcp-advice-for-ibd-liver-clinicians-on-identifying-immunosuppressed-patients-for-shielding/
- Neurology:
www.theabn.org/news/495261/ABN-Guidance-on-COVID-19-for-people-with-neurological-conditions.htm

Patients included in Shielding population if they met one of the following criteria:

- Corticosteroid equivalent to Prednisolone 20mg per day for 4 weeks or more.
- On a single agent that has high risk of causing immunosuppression e.g. Cyclophosphamide, rituximab, Infliximab, Cladribine, Alemtuzumab. These medications prescribed through secondary care. Specialist services were asked to identify these patients.
- On corticosteroid equivalent of Prednisolone $\geq 5\text{mg/day}$ for 4 weeks or more AND on other immunosuppressive therapy.
- On two immunosuppressant medications and with a relevant co-morbidity. Centrally held hospital data was unlikely to have good records for the co-morbidities as they are often diagnosed and managed in primary care. Prescription data was used as a proxy for diagnoses.

For list of medications and Co-Morbidities, see Appendix 5.

People who are pregnant with significant heart disease, congenital or acquired.

The Clinical Lead of the Scottish Obstetric Cardiology Network collated details from each of the boards in Scotland and provided this to PHS.

Additional Conditions

Renal Dialysis

Patients have been identified via the Scottish Renal Registry. This list will be updated for new patients on a weekly basis

Splenectomy

Patients who have a total absence of spleen have been added to the Shielding criteria.

Patients have initially been identified from searches of Scottish hospital discharge data going back to January 2000. The ICD10 codes utilised for this search were:-

- J69.1 Total excision of spleen and replantation of fragments of spleen

- J69.2 Total splenectomy

- J69.8 Other specified total excision of spleen

- J69.9 Unspecified total excision of spleen

It is appreciated that some patients may be missed by this process, if they had been recorded before 2000 or had a splenectomy performed outside of Scotland. To identify these missed cases we are providing an ESCRO search tool to assist GP's in identifying additional patients. There are two searches provided. The first utilises the following Read codes as definite indicators of an absent spleen:-

- 14N7. H/O: splenectomy

- 7840. Total splenectomy

- 78401 Total splenectomy

- 78403 Splenectomy NEC

- 78404 Laparoscopic total splenectomy

- 7840y Other specified total excision of spleen

- 7840z Total excision of spleen NOS

- D415B Acquired absence of spleen

- PK01. Absent spleen

The second search indicates possible coding of an absent spleen but may have been used for partial excision of spleen. These require review of Medical Records to determine if was a full excision of spleen. Shielding is currently only recommended for those with total Splenectomy.

7841. Other excision of spleen

7841y Other specified other excision of spleen

7841z Other excision of spleen NOS

Appendices

Appendix 1 – Transplants

Codes used to identify people who have had solid organ or haematological transplants in Scotland.

Definition for inclusion; any individual who had a hospital admission in Scotland with any of the procedure codes in the following list OR any of the following diagnostic codes in the 10 years prior to March 2020. Note that this would not include patients admitted to hospital in the last 6 weeks and that delays in data submission in NHS Forth Valley mean that the data are incomplete for a much longer period for residents in that board area.

OPCS Procedure Codes

E53.1	double lung transplant
E53.2	single lung transplant
E53.3	single lobe lung transplant
E53.8	other specified transplantation of lung
E53.9	unspecified transplantation of lung
G26.1	allotransplantation of stomach
G26.8	other specified transplantation of stomach
G26.9	unspecified transplantation of stomach
J01.1	orthotopic transplantation of liver nec
J01.2	heterotopic transplantation of liver
J01.3	replacement of previous liver transplant
J01.4	transplantation of liver cells
J01.5	orthotopic transplantation of whole liver
J01.8	other specified transplantation of liver
J01.9	unspecified transplantation of liver
J54.1	transplantation of pancreas and duodenum
J54.2	transplantation of whole pancreas
J54.3	transplantation of tail of pancreas
J54.4	transplantation of islet of langerhans
J54.5	renewal of transplanted pancreatic tissue
J54.8	other specified transplantation of pancreas
J54.9	unspecified transplantation of pancreas
J72.1	transplantation of spleen
K01.1	allotransplantation of heart and lung
K01.2	revision of transplantation of heart and lung
K01.8	other specified transplantation of heart and lung
K01.9	unspecified transplantation of heart and lung
K02.1	allotransplantation of heart nec
K02.2	xenotransplantation of heart
K02.3	implantation of prosthetic heart
K02.4	piggy back transplantation of heart
K02.5	revision of implantation of prosthetic heart
K02.6	revision of transplantation of heart nec
K02.8	other specified other transplantation of heart
K02.9	unspecified other transplantation of heart

M01.1	autotransplantation of kidney
M01.2	allotransplantation of kidney from live donor
M01.3	allotransplantation of kidney from cadaver nec
M01.4	allotransplantation of kidney from cadaver heart-beating
M01.5	allotransplantation of kidney from cadaver non-heart-beating
M01.8	other specified transplantation of kidney
M01.9	unspecified transplantation of kidney
G68.1	allotransplantation of ileum
B17.1	allotransplantation of thymus gland
Y27.2	allograft to organ noc
Y27.3	xenograft to organ noc

ICD Diagnostic Codes

Z94.0	kidney transplant status
Z94.1	heart transplant status
Z94.2	lung transplant status
Z94.3	heart and lungs transplant status
Z94.8	other transplanted organ and tissue status
Z94.9	transplanted organ and tissue status, unspecified

Haematology Transplants

X33.4	autologous peripheral blood stem cell transplant
X33.5	syngeneic peripheral blood stem cell transplant
X33.6	allogeneic peripheral blood stem cell transplant
W34	graft of bone marrow
W34.1	autograft of bone marrow
W34.2	allograft of bone marrow NEC
W34.3	allograft of bone marrow from sibling donor
W34.4	allograft of bone marrow from matched unrelated donor
W34.5	allograft of bone marrow from haploidentical donor
W34.6	allograft of bone marrow from unmatched unrelated donor
W34.8	other specified
W34.9	unspecified
W99	graft of cord blood stem cells to bone marrow
W99.1	allograft of cord blood stem cells to bone marrow
W99.8	other specified
W99.9	unspecified
	Bone marrow harvest (patient as the potential recipient – autologous)
W35.8	other specified therapeutic puncture of bone
with	
Y66.7	harvest of bone marrow

Other Transplants (non-solid organ, non-haematological)

C43.7	transplantation of conjunctiva
C46.2	lamellar graft to cornea nec
C46.3	penetrating graft to cornea
C46.5	deep lamellar graft to cornea
C46.6	amniotic membrane graft to cornea
C43.7	transplantation of conjunctiva
C46.7	transplant of corneal limbal cells

Codes included in error

Measures have been taken to identify patients who had been erroneously detected using the following codes. These patients have been contacted to explain the error.

Y99	donor status
Y99.2	live related donor nec
Y99.3	live unrelated donor
Y99.4	abo incompatible donor
Y99.5	live matched related donor
Y99.6	live unmatched related donor
Y99.8	other specified donor status
Y99.9	unspecified donor status

Appendix 2 – Asthma medications

Patients required one medication from following two groups (defined as one prescription in the previous 6 months).

1. **Montelukast (also known as Singulair)**
2. **Long Acting Beta2-agonist (LABA):** Bambeterol, Formeterol, Salmeterol

Combination inhalers for Steroid and LABA

	Other names include
Beclometasone with formeterol	Fostair,
Budesonide with formeterol	Duoresp Spiromax, Fobumix Easyhaler, Symbicort
Fluticasone with formeterol	Flutiform
Fluticasone with salmeterol	AirFluSal, Seretide, Sereflo,
Fluticasone with Vilanterol	Relvar Ellipta

To define ‘Severe’:

- 3 prescriptions of Prednisolone in the previous 6 months
- OR
- Prednisolone tablets at average daily dose of 5mg or more in the previous 6 months.

Appendix 3 – COPD medications

- Roflumilast oral tablets (prescribed in previous 6 months)
- OR
- One from each of the following 3 groups in the previous 6 months. Combination inhalers accounted for also.

1. Inhaled Steroid

	Other names include
Beclometasone Dipropionate	Clenil Modulite, Kelhale, Qvar, Soprobec
Budesonide	Budelin, Easyhaler (Budesonide), Pulmicort
Ciclesonide	Alvesco
Fluticasone	Flixotide
Mometasone	Asmanex

2. Long Acting Beta2-agonist (LABA)

	Other names include
Bambuterol	Bambec
Indacaterol	Onbrez Breezhaler
Olodaterol	Striverdi Respimat
Formeterol	Easihaler (Formeterol), Foradil, Oxis Turbohaler, Atimos Modulite
Salmeterol	Serevent Accuhaler, Neovent, Serevent Evohaler, Soltel

3. Anti-Muscarinic

	Other names include
Aclidinium Bromide	Eklira
Glycopyrronium bromide	Seebri Breezhaler
Ipratropium bromide	Atrovent
Tiotropium bromide	Spiriva, Braltus
Umeclidinium	Incruse Ellipta

Combinations

1&2 Inhaled Steroid with LABA

	Other names include
Beclometasone with Formeterol	Fostair
Beclometasone with Formoterol and Glycopyrronium	Trimbow
Budesonide with Formeterol	Duoresp Spiromax, Fobumix Easyhaler, Symbicort
Fluticasone with salmeterol	AirFluSal, Seretide, Sereflo,
Fluticasone with Vilanterol	Relvar Ellipta

1&2&3 Inhaled Steroid with anti-Muscarinic and LABA

	Other names include
Fluticasone with Umeclidinium and Vilanterol	Trelegy Ellipta

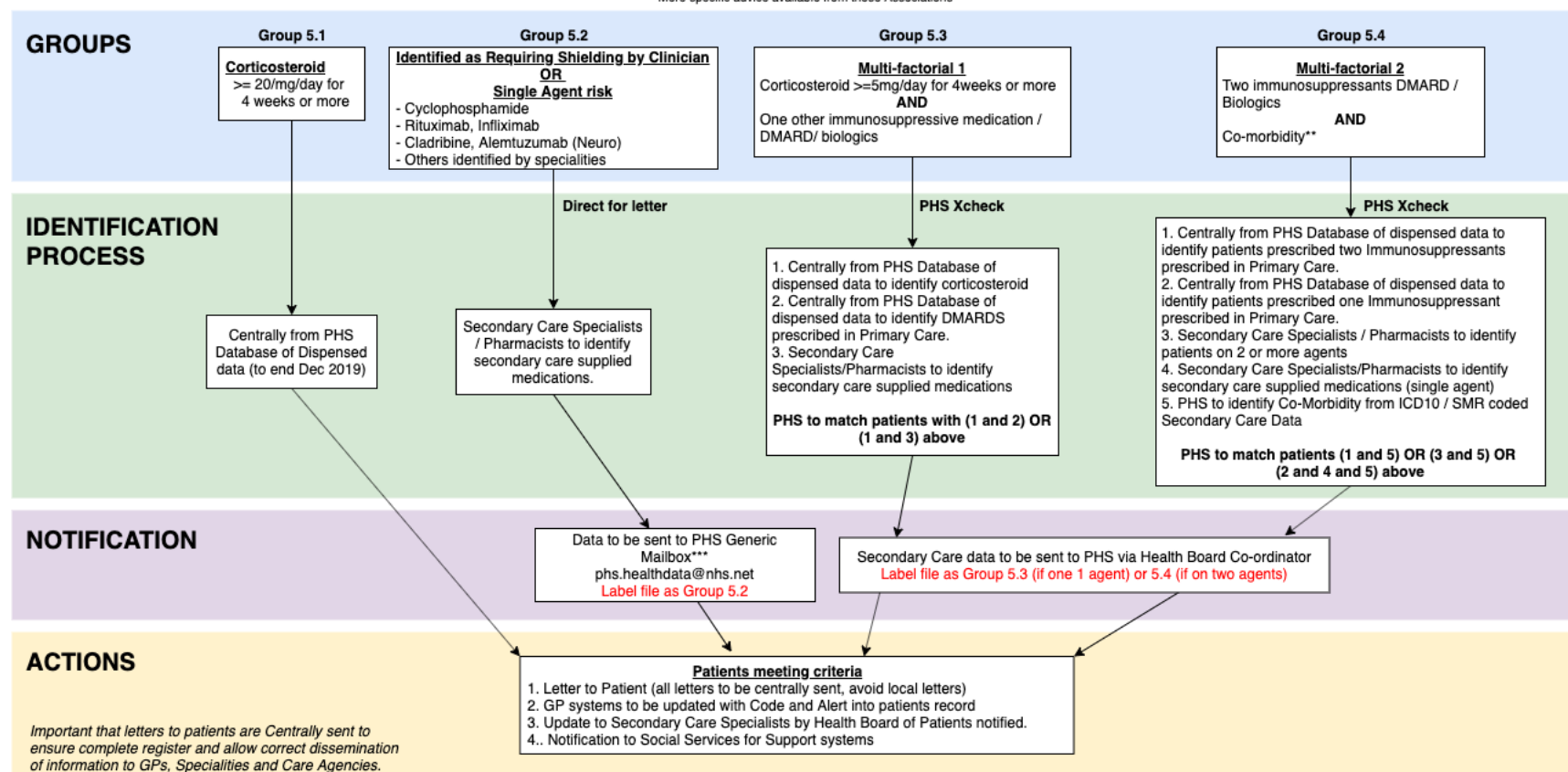
2&3 LABA with Antimuscarinic

	Other names include
Acclidinium bromide with Formeterol	Duaklir
Glycopyrronium with Indacaterol	Ultibro
Tiotropium with Olodaterol	Spiolto
Umeclidinium with Vilanterol	Anoro Ellipta

Appendix 4 – Immunosuppressive therapy flowchart

Process for Identification of Patients on Immunosuppression therapy, at Highest Risk if Covid-19 exposure.

Groups amalgamated from advice published by British Society for Rheumatology, The Renal Association, British Association of Dermatologists, British Society of Gastroenterology, Association of British Neurologists.
More specific advice available from these Associations



* Medications:

- **Immunosuppressants** – include: methotrexate, azathioprine, mycophenolate (mycophenolate mofetil or mycophenolic acid), ciclosporin, fumaric acid esters (or dimethyl fumarate), hydroxycarbamide, 6-mercaptopurine, leflunomide, cyclophosphamide, tacrolimus, sirolimus. It does **NOT** include hydroxychloroquine, dapsone, acitretin, alitretinoin or sulfasalazine either alone or in combination with each other.
- **Biologics** – include: all anti-TNF drugs (etanercept, adalimumab, infliximab, golimumab, certolizumab pegol and biosimilar variants of all of these, where applicable); IL17/IL17Ra agents (secukinumab; ixekizumab; brodalumab); P40/P19 (ustekinumab; guselkumab, tildrakizumab, risankizumab) anti B cell (rituximab in last 12 months, belimumab); IL6 agents (sarilumab, tocilizumab); abatacept; IL1 (canakinumab, anakinra); dupilumab (possibly lower infection risk than other drugs); omalizumab (possibly lower infection risk than other drugs).
- **Novel Small Molecule** – include: apremilast; all JAK inhibitors (e.g.) baricitinib, tofacitinib etc.

** Co-Morbidities- Age>70, Diabetes Mellitus, Lung Disease, Renal Impairment, IHD / Hypertension

*** The process for sending CHI numbers to NSS is:

1. Please ensure the file is formatted to retain the leading CHI '0's (zeros). Patient details will be matched on CHI number and extracted using the national CHI database.
2. Please only send data from an **NHS e-mail address** (not University e-mail addresses).
3. Please create an Excel file with a list of CHI numbers. **It is important to label the File or Patients individually, with the group they relate to.**
4. Please add a password to the Excel file and then save this file.
5. Please e-mail a specific address at NHS National Services Scotland (phs.healthdata@nhs.net) with your password protected Excel file as an attachment.
6. Please then send a **second** (separate) e-mail to the same e-mail address (phs.healthdata@nhs.net) which contains only the password you chose.

Appendix 5 – Immunosuppressants

High Dose Corticosteroids

Prednisolone	>20mg/day for 4+ weeks
Betamethasone	>3mg/day for 4+ weeks
Deflazacort	>24mg/day for 4+ weeks
Dexamethasone	>3mg/day for 4+ weeks
Hydrocortisone	>80mg/day for 4+ weeks
Methylprednisolone	>16mg/day for 4+ weeks
Prednisone	>20mg/day for 4+ weeks
Triamcinolone	>16mg/day for 4+ weeks

Corticosteroid as Dual therapy

Prednisolone	>5mg/day for 4+ weeks
Betamethasone	>0.75mg/day for 4+ weeks
Deflazacort	>6mg/day for 4+ weeks
Dexamethasone	>0.75mg/day for 4+ weeks
Hydrocortisone	>20mg/day for 4+ weeks
Methylprednisolone	>4mg/day for 4+ weeks
Prednisone	>5mg/day for 4+ weeks
Triamcinolone	>4mg/day for 4+ weeks

DMARDS

- Methotrexate
- Azathioprine
- Mycophenolate mofetil
- Mycophenolic acid
- Ciclosporin
- Sirolimus
- Tacrolimus (not topical)
- Dimethyl Fumarate
- Hydroxycarbamide
- 6-mercaptopurine
- Leflunomide

Biologics includes

- Rituximab
- All anti-TNF drugs (etanercept, adalimumab, infliximab, golimumab, certolizumab and biosimilar variants of all of these)
- Tocilizumab
- Abatacept
- Belimumab
- Anakinra
- Seukinumab
- Ixekizumab
- Ustekinumab
- Sarilumumab
- All JAK inhibitors – baracitinib, tofacitinib etc.
- Cladribine
- Alemtuzumab
- Others identified by Specialists

Co-morbidity

- age >70,
- Diabetes Mellitus,
- any pre-existing lung disease,
- renal impairment,
- Ischaemic Heart Disease
- Hypertension

Medication Proxies for Co-Morbidities

- Insulin or oral hypoglycaemic
- Bronchodilators or inhaled corticosteroid
- Thiazide Diuretic
- Beta-blocker (but not propranolol or sotalol)
- ACE Inhibitor
- ARB's
- Calcium channel blockers
- Nitrates (including spray)