The nine processes to achieve Asthma Right Care (ARC)

Noel Baxter describes the nine good care processes developed by a multidisciplinary and integrated respiratory team in Lambeth and Southwark with a novel way to disseminate the measures and show improvement.

One of the biggest challenges for a Primary Care Network (https://www.england.nhs.uk/gp/investment/gp-contract/) is how to ensure accurate diagnosis for the suspected asthma population and then to deliver the right care processes.

Why? Well currently asthma is the 4th largest long-term condition register using UK QOF records with a prevalence of 6.0% behind Tobacco dependency (14.8%), Hypertension (14.0%) and Obesity (7.9%). (http://www.gpcontract.co.uk). Anyone working in general practice will know that it can be difficult to ensure an annual review with all asthma patients. In 2018, 75.6% of people with asthma (who had also been prescribed inhalers in the previous year) had codes entered for 'review' and the three RCP asthma questions.

In order to get through this volume of call and recall, practices will see people face to face, review opportunistically when they attend for other reasons and also use telephone calls for those considered low risk. Though some positive findings about identifying high risk patients were noted in the ARISSA trial[1] we still however lack a standardised and validated risk tool in general practice.

So how do we know that our limited resource and effort is being applied to those who need it most?

The National Review of Asthma Deaths 2014 (NRAD) sought to provide health professionals with some key factors that may predict for the worst outcomes. (https://www.rc-plondon.ac.uk/projects/national-review-asthma-deaths).

Over reliance on short acting beta agonists (SABA)

NRAD stated: *All asthma patients who have been prescribed more than 12 short-acting reliever inhalers in the previous 12 months should be invited for urgent review of their asthma control, with the aim of improving their asthma through education and change of treatment if required.*

In theory anyone using more than six puffs per week is over-reliant – that is equal to about 300 puffs per year or put another way 150 breathless moments. There are 200 puffs per device so only two devices per year should be needed if asthma is controlled. So it could be said that the 12 devices per year that should cause alert is already 6x over generous. The ARC slide rule is a tool that helps communicate to colleagues and patients the message that even at fewer issues than 12 devices per year there are problems with their asthma control.

Detecting people who overuse SABA

GP software systems and the reliability of electronic prescribing data allows us to easily search for

Asthma Slide Rule

1. Questions for prescriber to ask themselves and a person with asthma

Using this slide rule, how much short-acting beta$_2$ agonist (SABA) also known as reliever/rescue/salbutamol/"blue" inhaler would you think was acceptable for a person with asthma to take in a year, week or day before you thought a review was necessary? What made you choose that?

ASTHMA RIGHT CARE

Increasing SABA use

Number of SABA inhalers Rx per year	1	2	3	4	5	6	7	8	9	10	11	12
*Puffs of SABA used per year**	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400
Puffs of SABA used per week	4	8	12	15	19	23	27	31	35	39	42	46
Puffs of SABA used per day	< 1	1	2	2	3	>3	4	>4	5	6	>6	7

Symptoms

**Some devices do not contain 200 puffs. Check the number in the devices you prescribe/dispense or use, and modify these messages accordingly*

Suggestion: Try asking a person with asthma the following question before asking question 1 :
'In the past 4 weeks, how often have you used your reliever / blue inhaler each day?'

Asthma Right Care Guidance Notes available at www.pcrs-uk.org/asthmarightcare

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apparent excess use and to proactively warn the professional reviewing a patient currently overusing.

Here we will look at what has been developed both nationally and locally (highlighting EMIS Web tools) to assist general practice and we share some local adaptations that can be further modified with the help of your local IT teams according to local agreements.

The desktop alert

In 2015 Asthma UK in conjunction with EMIS Web released a number of tools to assist general practice to achieve better outcomes for people with asthma. This included a prescribing alert and an online personal asthma action plan (PAAP).

In the high risk prescribing alert tool they have utilised the 'protocol alert' function to highlight in a pink pop up box when patients are using excess SABA or when using long acting bronchodilators without inhaled steroids.

This alert will activate if there are three prescriptions for SABA within a 3-month episode. This assumes that only one device is issued per prescription but in some practices SABA issues are for two devices. This could mean that in those practices that prescribe two devices per issue, 24 devices could be issued before the alert is raised.

Therefore it is also useful to be able to design protocol alerts for your own population and prescribing habits. Also, as tighter control of SABA develops it is useful if you can alter the sensitivity of the alert. We know that health professionals in general practice get 'Alert Fatigue' and can then underuse the system so set your range based on what people have agreed locally to do and think is relevant. In my local area we modified the SABA alert based on the principles of the AUK/EMIS alert. It differed by being activated if three or more issues of SABA occurred in a 6-month period as most local prescribers when asked said they were providing two inhalers per prescription for patient convenience.

The high-risk SABA search

As well as checking for over-reliance on SABA when issuing repeat prescriptions and reviewing SABA use at consultations, locally our practices also agreed to run a search proactively in order to identify these patients with six issues of SABA in the last year. This SABA over-reliance search was one of the standards in a 'Good asthma pyramid' improvement project.

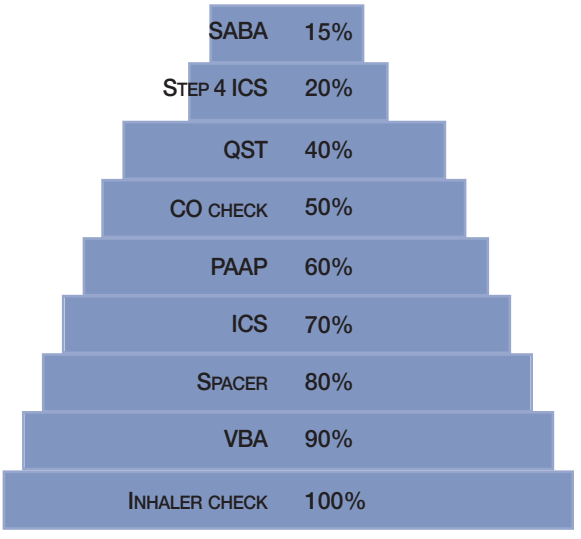
Creating the high value asthma review pyramid for your practice or locality using EMIS Web reporting

Our asthma improvement group agreed that the following 9 ARC processes were the right things to measure to indicate a good asthma review. We reached a consensus based on evidence, cost effectiveness and what best care could look like allowing for current resource pressures. This provided us with an easy to view and comprehend visual a little like the pyramid developed by the London Respiratory Network that represented QALY measured cost effectiveness in COPD.

You can see below what we consider to be a target pyramid for any organisation or system looking after people with asthma.

Code	Numbers
SABA	Number who are prescribed >4 SABA inhalers per year
Step 4 ICS	Number who are currently on high-dose ICS (Step 4)
QST	Number who are current smokers and have been prescribed a quit smoking medicine in the last year
CO Check	Number who have had an exhaled carbon monoxide check in the last year
PAAP	Number with at least one PAAP issued (ever)
ICS	Number with more than four issues of inhaled corticosteroids (ICS) in the last year
Spacer	Number who prefer a pMDI and have also been issued a spacer device
VBA	Number who are currently smokers and have been provided with Very Brief Advice (VBA)
Inhaler check	Number who have had an inhaler technique check in the last year

What good asthma care (at population level) might look like



How to create your own good asthma care pyramid

The nine processes are described above. You will first need to decide i) what codes you are going to use or currently use for these indicators in your asthma consultation template and ii) any modifications you make based on local decisions e.g. What do your colleagues locally think represents over-reliance on SABA or good enough ICS adherence, 60%, 75%, 100%?

You can then build your searches within your GP software

Figure 1 - Recommended Read or SNOMED codes

Recommended diagnostic codes					
Read Code	v2 Term30	SNOMED conceptid	SNOMED descriptionid	Relates to question	
H3...00	Chronic obstructive pulm.dis.	13645005	475431013	Q1-Q22	
H33	Asthma	195967001	301485011	Q1-Q22	
H3122	Acute exacerbation of chronic obstructive airways disease	195951007	301453013	Q10	
H333	Acute exacerbation of asthma	304527002	446841017	Q10, Q11	
Section 2: Getting the diagnosis right					
Read Code	v2 Term30	SNOMED conceptid	SNOMED descriptionid	Relates to question	Further explanation and information
339m	FEV1/FVC ratio after bronchdil	407603001	2163855015	Q1, Q4	Use decimal numerics for the ratio code ie 0.7 not 70%. Use these codes also for ratios calculated using slow or relaxed VC as an appropriate code does not exist in the Read system for FEV1/VC. Use 339M for pre or no bronchodilator testing.
339M	FEV1/FVC ratio	251944000	1224805016		
339A	PEFR - before bronchodilation	313276007	457145014		
339B	PEFR - after bronchodilation	313232000	457090015	Q2, Q4	
66YY	PEFR monitoring using diary	401011001	1780218011		
3C...	Exhaled nitric oxide test	444642008	1650981000000113	Q3, Q4	
535	Standard chest X-ray	168731009	261962011	Q5	
7P040	Computed tomography of chest	169069000	2619379011	Q5	Use this code if the patient has had a CT that includes views of the chest
Section 3: Assessing severity and future risk					
Read Code	v2 Term30	SNOMED conceptid	SNOMED descriptionid	Relates to question	Further explanation and information
173H.	MRC Breathless Scale: grade 1	391120009	1485144011		
173I.	MRC Breathless Scale: grade 2	391123006	1485147016		We recommend using the original MRC scoring system which these codes relate to and NOT mMRC as described by the GOLD strategy
173J.	MRC Breathless Scale: grade 3	391124000	1485148014	Q6	
173K.	MRC Breathless Scale: grade 4	391125004	1485149018		
173L.	MRC Breathless Scale: grade 5	391126003	1485150018		
339S	Percent predicted FEV1	313223002	457081010	Q7	These figures must be percentages and not absolute values. Either a pre or post value is all that is required.
339S0	Percent pred FEV1 bronchodiln	447254005	2884301017		
137R	Current smoker	77176002	503483019		
137S	Ex smoker	8517006	15047015	Q8	
1371	Never smoked tobacco	266919005	397732011		
13WF4	Passive smoking risk	161080002	251159011	Q9	
137U	Not a passive smoker	315213009	459702016		
66Yf	Numb COPD exacer in past year	723245007	3335171010	Q10	Insert the number. These are numeric value codes
663y.	Num asthm exacs in past year	366874008	490425015		
8HTT.	Referral to asthma clinic	415265005	2533402016	Q11	
8Hke.	Referral to home oxygen servce	759441000000108	1677491000000116	Q12	
44YA0	Oxygen saturation at periphery	250554003	373621010	Q12	
Section 4: Providing high value care					
Read Code	v2 Term30	SNOMED conceptid	SNOMED descriptionid	Relates to question	Further explanation and information
661M1	Asthma self-manage plan agreed	811921000000103	2117771000000110	Q13	
661N1	Asthma self-manage plan review	810901000000102	2115631000000110		
388t	RCP asthma assessment	302331000000106	1626681000006110	Q14	
663H.	Inhaler technique - good	170625000	264534013		
663I.	Inhaler technique - poor	170626004	264535014	Q15	
6637	Inhaler technique observed	170614009	264516014		
65E	Influenza vaccination	86198006	142934010	Q16	
8H7i.	Referral: smok cessatn advisor	395700008	1489355012	Q17	Use this code if stop smoking pharmacotherapy has been issued or dispensed outwith practice prescribing
745H4	Smoking cessation drug therapy	713700008	3297364011		
8H7u.	Referral to pulmonary rehab	24461000000105	61911000000113	Q18	

search and reporting module. Many practices, health boards and CCGs now have support to develop these quality improvement data searches.

Need help with choosing ideal codes?

The RCP National asthma and COPD audit programme (NACAP) has developed a resource that suggests the preferred Read or SNOMED codes (Figure 1) for asthma and COPD templates. The codes were selected based on i) what described the activity or outcome with most accuracy and ii) the codes that were most commonly used in the UK already by looking at GP activity from the Clinical Practice Research Database.

Once you have your results enter your results into the good asthma review excel template available via http://bit.ly/37HKQXR.

Review your good / needs improvement asthma review pyramid

Real examples from one practice and one CCG are shown in Figure 2 and 3.

In our area we then worked within our virtual clinic model (https://www.pcrs-uk.org/resource/multidisciplinary-respiratory-virtual-clinics) to reflect on the results and plan quality improvement projects.

You can then look at how you are improving at practice and CCG level and compare yourself to the rest of England using the open prescribing website (https://openprescribing.net/).

See Figure 4 for examples of falling rates of salbutamol and high dose steroids in one of our CCGs – Lambeth.

Figure 2 - Real Examples - SE London practice - May 2015

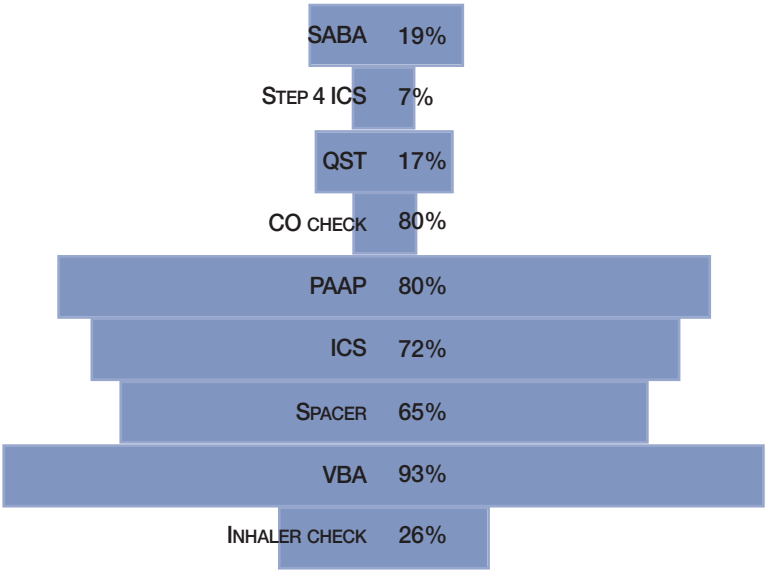


Figure 3 - Real Examples - SE London CCG - May 2015

43 Practices

Population: 293,483

Asthma register: 12,677 (4%)

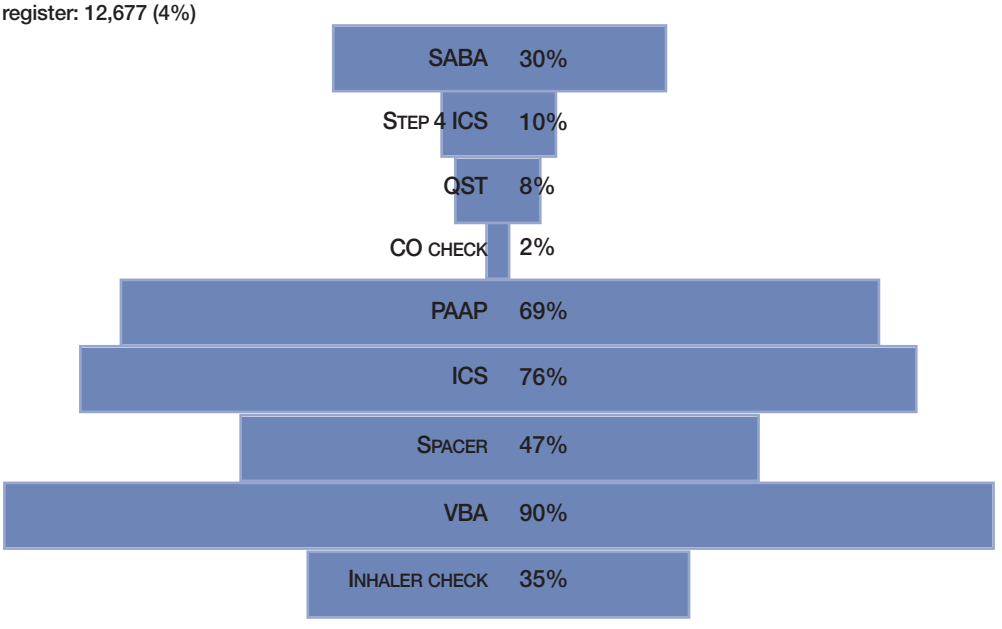
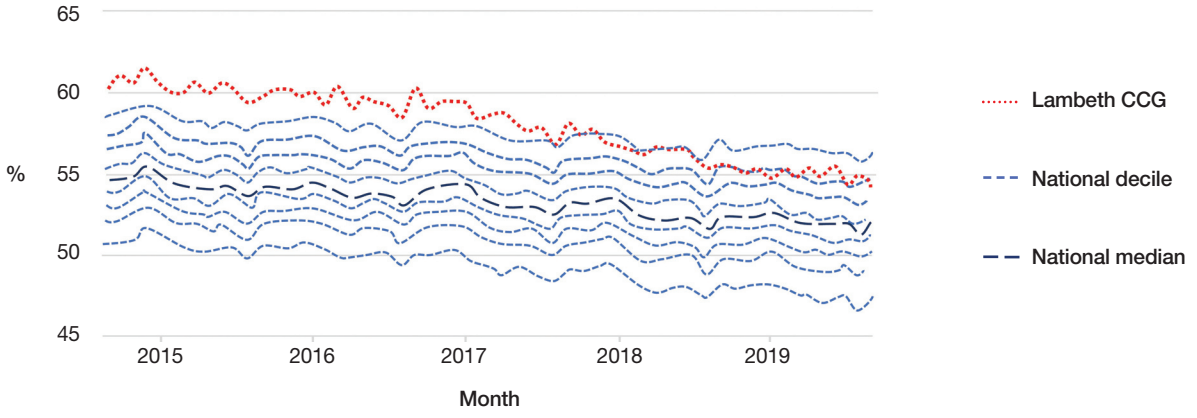


Figure 4 - Falling rates of salbutamol and high dose steroids
Source: https://OpenPrescribing.net. The Health Foundation – see https://openprescribing.net/ccg/08K/measures/?tags=respiratory

Short acting beta agonist inhalers

Prescribing of short acting beta agonist (SABA) inhalers - salbutamol and terbutaline compared with prescribing of inhaled corticosteroid inhalers and SABA inhalers

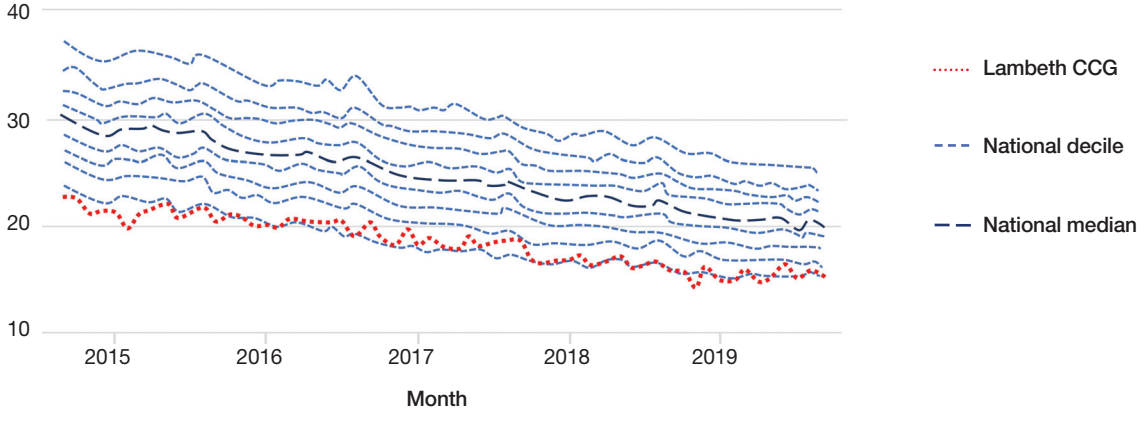


Why it matters:

Why Asthma Still Kills reports that high use of short acting beta agonists (salbutamol and terbutaline) and poor adherence in the use of inhaled corticosteroids in asthma suggests poor control, and these patients should be reviewed regularly to ensure good control.

High dose inhaled corticosteroids

Prescribing of high dose inhaled corticosteroids compared with prescribing of all inhaled corticosteroids



Why it matters:

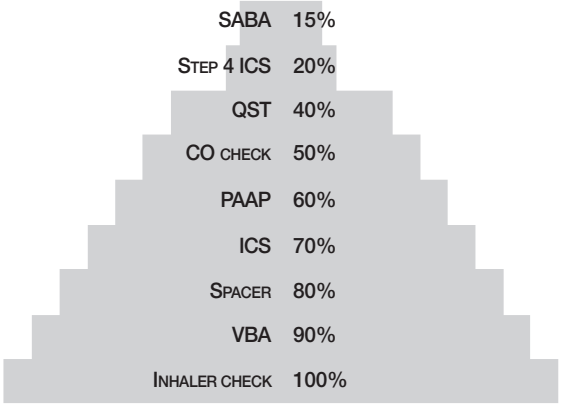
Latest BTS/SIGN guidance on the treatment of asthma recommends that patients should be maintained at the lowest possible dose of inhaled corticosteroid. Reduction in inhaled corticosteroid dose should be slow as patients deteriorate at different rates. Reductions should be considered every three months, decreasing the dose by approximately 25–50% each time. 'High-dose' inhaled corticosteroids are listed at step 4 of the guidelines. The latest guidance for treatment of COPD now recommends use of another treatment in preference to inhaled corticosteroids. There is some evidence that inhaled corticosteroids increases the risk of pneumonia. This risk appears to increase with dose.

Creating the searches to populate your ARC pyramid for your Primary Care Network

There are a number of primary care software systems and therefore search building processes so this page describes the principles for developing the search that will help you visualise whether people living with asthma are getting the right care. The UK is currently undergoing a shift from Read coding to SNOMED coding so where you are choosing clinical codes rather than prescribing codes to build your search you should refer to the NHS Digital SNOMED CT Browser to decide which code to use and once agreed to ensure that the consultation or review template for asthma makes it easy to use these agreed codes as this will help you track any asthma quality improvement.
https://termbrowser.nhs.uk/?perspective=full&conceptId1=404684003&edition=uk-edition&release=v20190601&server=https://termbrowser.nhs.uk/sct-browser-api/snomed&langRefset=999001261000000100,999000691000001104

You can see below what we consider to be a target pyramid for any organisation or system looking after people with asthma.

What good asthma care (at population level) might look like



The criteria for a good asthma review

A: Your denominator population is the proportion of people with a diagnosis of asthma who have been prescribed a respiratory inhaler in the last 12 months. You won't have to create this search because it will already exist for QOF purposes as it is the foundation of your QOF asthma register.

B: Develop the following nine searches using your denominator population as above. So, this will be people living with asthma:

1. **Who are prescribed >4 SABA inhalers per year (Prescribing code search)**
   You should agree locally what number you want to start with. In Lambeth and Southwark, we agreed four per year was a trigger for review. You may want to set the bar higher and anything up to 12 per year would fall within NRAD standards. You will probably want to change your search over time as you start to resolve your SABA over reliance problem.

2. **Who are currently on high-dose ICS (Prescribing code search)**
   Anyone prescribed more than 800mcg of BDP equivalent inhaled steroids per day is receiving a high dose. In the vast majority of people doses above this provide no additional symptom relief or reduction in attacks yet side effects will increase beyond this level. When developing your search, you will need to specifically select those products that can deliver this dose. E.g. you would include products that contain Fluticasone Propionate 250 and 500 where twice daily dosing is the norm but you wouldn't include products with Beclometasone dipropionate 100mcg (Standard particle). The NICE asthma guideline has a section that defines low, medium and high dose. (https://www.nice.org.uk/guidance/ng80/resources/inhaled-corticosteroid-doses-pdf-4731528781).

3. **Who are current smokers and have been prescribed a quit smoking medicine in the last year (Prescribing and clinical code search)**
   Behavioural and pharmacological interventions in combination are the most effective way to help people quit smoking. We created this search using medicines data as in 1&2 because the action of prescribing ensures a code is entered and is the most reliable way of running a search. Codes exist for recording that tobacco cessation behavioural and pharmacological interventions have occurred also and you may want to include these. We were concerned about the underuse of pharmacological interventions and so chose to use only prescribing codes here. You may also decide to include in the denominator ex-smokers within the last one, two, or three years because of their high risk of relapse in order to show that your clinicians are checking on and managing relapse during this highest risk 3-year period.

4. **Who have had an exhaled carbon monoxide check in the last year (Clinical code search)**
   We wanted to normalise the exhaled CO check in any respiratory setting because of the impact that tobacco smoking has on respiratory illness outcomes. As well as included here in the routine asthma review we also made it a routine part of COPD review and for anyone having respiratory diagnostics that included spirometry or FENO. We wanted people with respiratory symptoms or problems to 'know their level' as we know that this can motivate change. Therefore, this test is not just for current smok-

ers. Information about how to interpret and discuss exhaled CO readings can be found on the PCRS tobacco page (https://www.pcrs-uk.org/resource/tobacco-dependency-pragmatic-guide).

5. **With at least one PAAP issued (ever) (Clinical code search)**
   A written personal asthma action plan is commonly coded and usually present already in most asthma templates. This is a single code search that tells us about quantity but not quality so virtual clinic support to review results of the pyramid was important here.

6. **With more than four issues of inhaled corticosteroids (ICS) in the last year (Prescribing based search)**
   You should agree locally what number you want to start with. In Lambeth and Southwark, we agreed four per year was the minimum prevention adherence standard. You will probably want to change your search over time as you start to improve adherence.

7. **Who prefer a pMDI and have also been issued a spacer device (Prescribing based search)**
   The SE London Responsible Respiratory Prescribing guideline expected a spacer device to be issued with any pMDI prescription in both children and adults because of the importance in improving both prevention and acute attack outcomes.

8. **Who have been provided with Very Brief Advice (VBA) (Clinical code search)**
   Anyone coming into contact with health services should be asked about their smoking status and this is particularly important in respiratory illness and should be part of any annual respiratory review. This is a single code search that tells us about quantity but not quality so virtual clinic support to review whether health professionals are trained to deliver VBA is important.

9. **Who have had an inhaler technique check in the last year (Clinical code search)**
   Inhaler technique must be checked annually and when any new device is used and ideally every time they present with an asthma related symptom or problem. There are a number of code options that indicate what type of inhaler review has been done and what the outcome was e.g. technique can be demonstrated by the HCP or seen by the HCP and the outcome can be good or poor. Presence of the code tells us about quantity but not quality so virtual clinic support to review whether health professionals are trained to deliver an inhaler technique check is important.

Once you have your search, and run it you can input your results into the asthma pyramid excel template to create a visual for your clinicians to discuss and decide what quality improvement opportunities there may be and which to prioritise.

Reference
1. Smith JR, Noble MJ, Musgrave S, *et al*. The at-risk registers in severe asthma (ARRISA) study: a cluster-randomised controlled trial examining effectiveness and costs in primary care. *Thorax* 2012;**67**(12):1052-60. doi: 10.1136/thoraxjnl-2012-202093. Epub 2012 Aug 31.

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