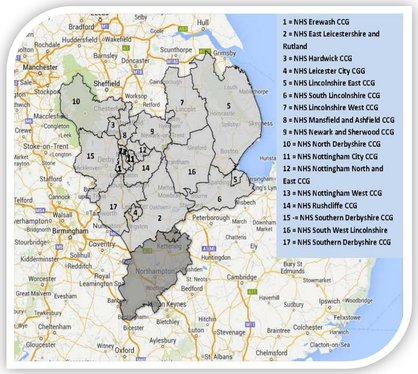
Improving prescribing safety in general practices in the East Midlands through the PINCER intervention

PINCER is a research proven pharmacist-led IT intervention that has been developed to reduce prescribing errors in primary care. The aim of the project is to spread this proven intervention to at least 150 general practices in the East Midlands region within two years, and to evaluate both the implementation and impact of this.



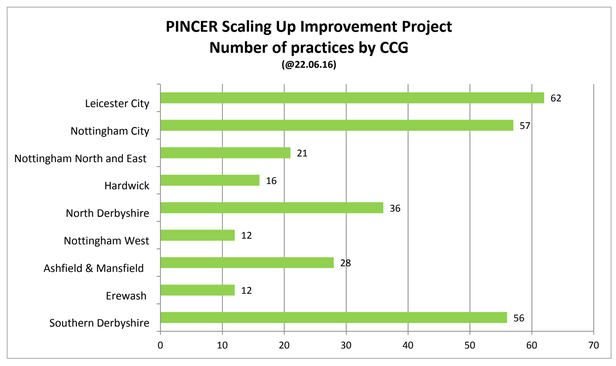
What does it involve?

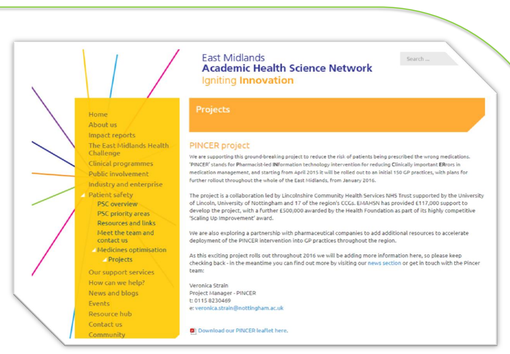
1. Searches conducted on GP computer systems to identify patients at risk from common and important prescribing errors
2. Pharmacists, specifically trained in the PINCER approach, working with each general practice to develop an action plan
3. Pharmacists (and pharmacy technicians) working with and supporting general practice staff to implement the action plan

PINCER

Implementation

Engagement with CCGs





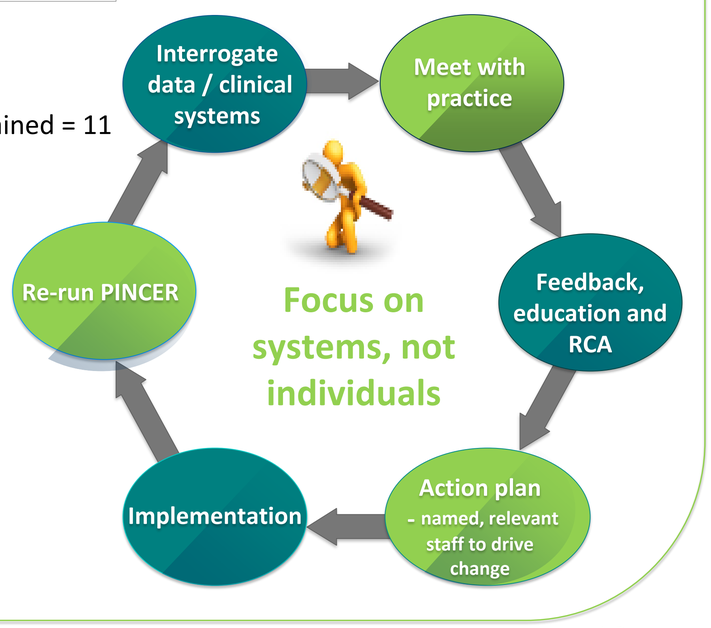
- Total number of CCGs = 9
- Two more CCGs coming on board July 2016
- Total number of participating practices = 207

Pharmacist training

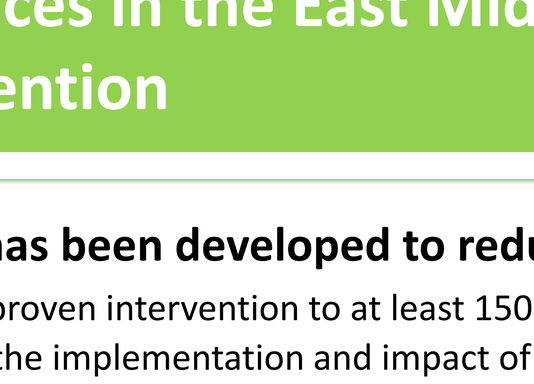
- Total number of pharmacists trained = 58
- Total number of pharmacy technicians trained = 11

FIVE WHYS

SHARE LEARNING



Evaluation



- Number of practices = 207
- Total list size = 1,664,735
- Mean list size = 8,042
- Total number of instances of potentially hazardous prescribing = 12,913
- Follow-up searches and retrospective data collection taken place in 34 GP practices

Number of "at-risk" patients identified at baseline in 9 CCGs for each prescribing safety indicator

Query	Prescribing safety indicator	Numerator/ denominator	(%)	Mean pts/practice*
Outcome: GI Bleed				
A	Patients aged ≥65 years prescribed an oral NSAID without co-prescription of an ulcer-healing drug/Patients aged ≥65 years without co-prescription of an ulcer-healing drug	4992/204709	2.4	24.1 *(25)*
B	Patients aged ≥18 years with a history of peptic ulceration prescribed an oral NSAID without co-prescription of an ulcer-healing drug/Patients aged ≥18 years with a history of peptic ulceration without co-prescription of an ulcer-healing drug	228/10011	2.3	1.1 *(<1)*
C	Patients aged ≥18 years with a history of peptic ulceration prescribed an antiplatelet drug without co-prescription of an ulcer-healing drug/Patients aged ≥18 years with a history of peptic ulceration without co-prescription of an ulcer-healing drug	773/10011	7.7	3.7 *(2)*
D	Patients aged ≥18 years prescribed warfarin or NOAC in combination with an oral NSAID/Patients aged ≥18 years prescribed warfarin or NOAC	354/28523	1.2	1.7 *(<1)*
E	Patients aged ≥18 years prescribed warfarin or NOAC and an antiplatelet drug in combination without co-prescription of an ulcer healing drug/Patients aged ≥18 years prescribed warfarin or NOAC without co-prescription of an ulcer healing drug	682/17882	3.8	3.3 *(2-3)*
F	Patients aged ≥18 years prescribed aspirin in combination with another antiplatelet drug without co-prescription of an ulcer-healing drug/Patients aged ≥18 years prescribed aspirin without co-prescription of an ulcer-healing drug	1735/37826	4.6	8.4 *(6-7)*
Outcome: Exacerbation of asthma				
G	Patients aged ≥18 years with a Read code for asthma prescribed a non-selective beta-blocker/ Patients aged ≥18 years with a Read code for asthma	1515/163149	0.9	7.3 *(2-3)*
H	Patients aged ≥18 years with a Read code for asthma prescribed a long-acting beta-2 agonist inhaler who is not also prescribed an inhaled corticosteroid / Patients aged ≥18 years with a Read code for asthma prescribed a LABA	622/3964	15.7	3.0 *(1)*
Outcome: Heart failure				
I	Patients aged ≥18 years who have a diagnosis of heart failure prescribed an oral NSAID / Patients aged ≥18 years who have a diagnosis of heart failure	275/13418	2.0	1.3 *(2)*
Outcome: Stroke				
J	Patients aged ≥65 years with a Read code for dementia but no Read code for psychosis prescribed antipsychotic drugs for >6weeks / Patients aged ≥65 years with a Read code for dementia but no Read code for psychosis	1275/12816	9.9	6.2 *(2)*
Outcome: Kidney Injury				
K	Patients aged ≥18 years with an eGFR <45 prescribed an oral NSAID / Patients aged ≥18 years with an eGFR <45	462/22592	2.0	2.2 *(<1)*

*Figure in brackets denotes number of patients expected in an average sized practice (n=6,000 patients) derived from CPRD work: Stocks SJ, Kontopantelis E, Akbarov A, Rodgers S, Avery AJ, Ashcroft DM. Examining variations in prescribing safety in UK general practice: a cross-sectional study using the Clinical Practice Research Datalink. *British Medical Journal* 2015;**351**:h5501

Resources

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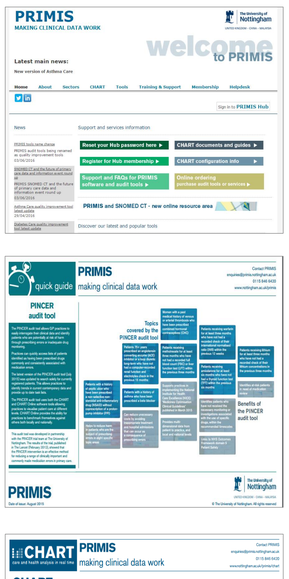
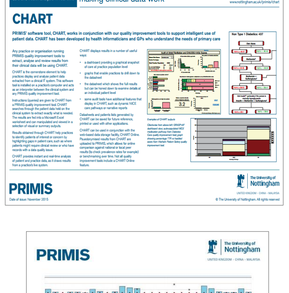
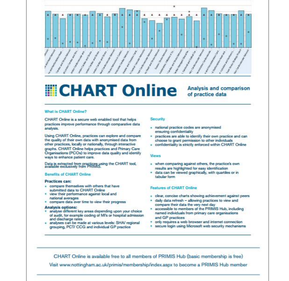






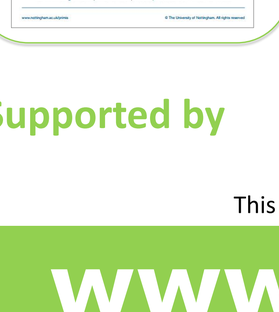


CHART practice level data

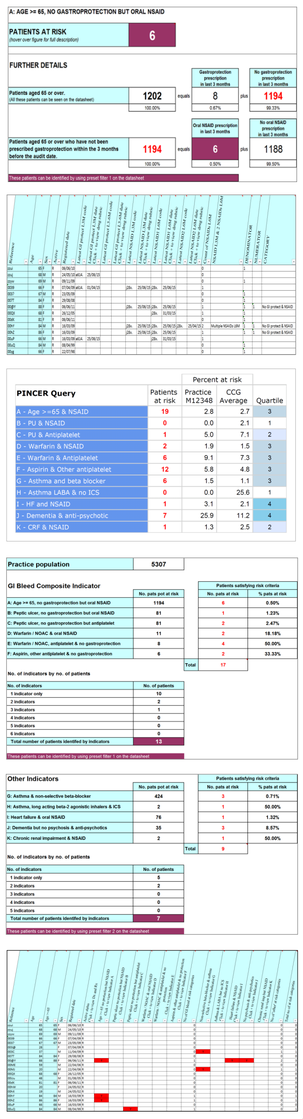
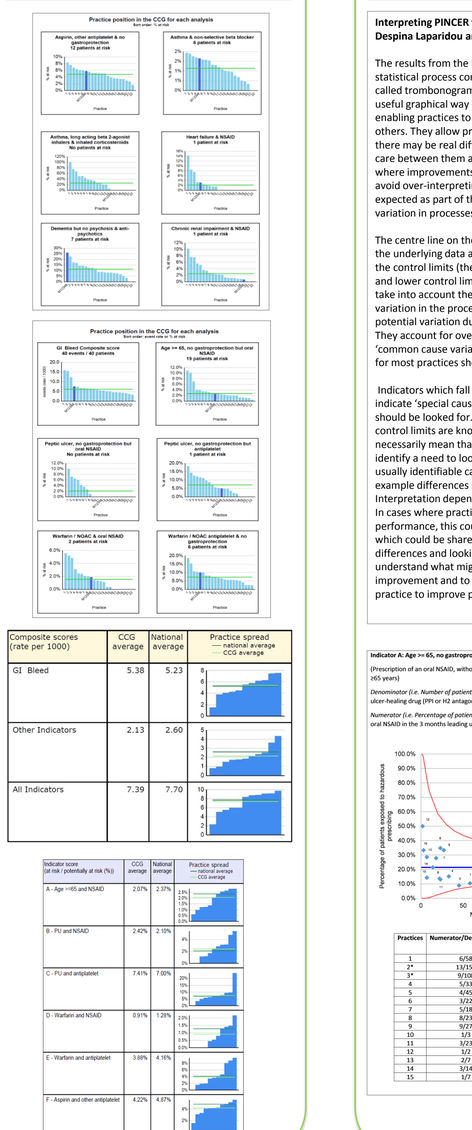


CHART Online GP practice/CCG level data



Control charts (Funnel plots)

Interpreting PINCER funnel plots
Despina Laparidou and Niro Siriwardena

The results from the PINCER scale up are set out in statistical process control (SPC) funnel plots (sometimes called trombonograms) and data tables. Funnel plots are a useful graphical way of comparing practice performance, enabling practices to compare their performance against others. They allow practices (and others) to see where there may be real differences in systems or processes of care between them and by doing so can help to show where improvements can be gained. They also help to avoid over-interpreting differences which could be expected as part of the naturally occurring or expected variation in processes of care.

The centre line on the chart shows the mean (average) of the underlying data and the outer curved lines delineate the control limits (the bell of the 'trombone'). The upper and lower control limits (indicated in red on the charts) take into account the natural, random or expected variation in the process being measured as well as potential variation due to differences in numbers of cases. They account for over 99.9% of the data (known as 'common cause variation') and therefore the performance for most practices should fall within those limits.

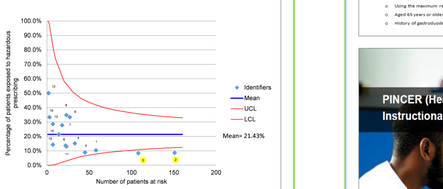
Indicators which fall above or below the control limits indicate 'special cause variation' for which an explanation should be looked for. Points which fall above or below the control limits are known as outliers. Outliers do not necessarily mean that there is good or bad practice but do identify a need to look further for special causes. There are usually identifiable causes for special cause variation, for example differences in practice systems or data quality. Interpretation depends on the indicator being measured. In cases where practices are outliers showing better performance, this could identify areas of good practice which could be shared with others. By identifying these differences and looking for explanations we can begin to understand what might be possible in terms of improvement and to look at further ways of changing practice to improve performance.

Indicator A: Age >= 65, no gastroprotection but oral NSAID

(Prescription of an oral NSAID, without co-prescription of an ulcer healing drug, to a patient aged ≥65 years)

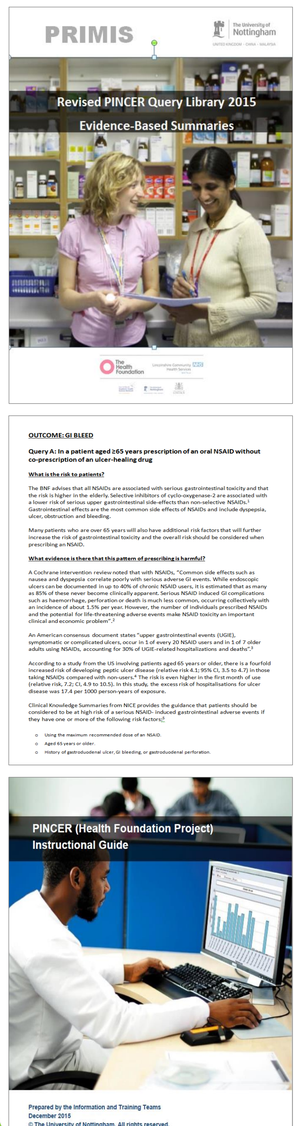
Denominator (i.e. Number of patients at risk): Patients aged ≥65 years without co-prescription of an ulcer-healing drug (PPI or H2 antagonist) in the 3 months leading up to the audit date

Numerator (i.e. Percentage of patients exposed to hazardous prescribing): Patients prescribed an oral NSAID in the 3 months leading up to the audit date



Practices	Numerator/Denominator	Percentage of patients exposed to hazardous prescribing
1	6/58	10.34
2*	13/151	8.61
3*	9/108	8.33
4	5/33	15.15
5	4/45	8.89
6	3/22	13.64
7	5/18	27.78
8	8/23	34.78
9	9/27	33.33
10	1/3	33.33
11	3/23	13.04
12	1/2	50
13	2/7	28.57
14	3/14	21.43
15	1/7	14.29

Evidence based summary



Published PINCER papers

Communication

Supported by The Health Foundation

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