

Development of a potential antibiotic prescribing composite measure in primary care



Joanna Johnson, Prescribing Support Pharmacist
South Sector, NHS Greater Glasgow & Clyde

Optimising antibiotic prescribing in primary care



- Important to accurately measure and understand the quality of prescribing
- Engage prescribers in quality improvement initiatives
- Scotland: rich dataset of primary care prescribing information on PIS and PRISMS
- > 60 national prescribing indicators which each give a single measure of antibiotic prescribing

Limitations of current approach



- Large amount of data which doesn't always give a clear picture of overall prescribing quality
- Provides an overview of the pattern of antibiotic use in primary care
- No single measure of antibiotic prescribing is helpful to measure overall prescribing quality

What did we hope to achieve?



- Modernise the presentation of antibiotic prescribing information
- Make data more easily interpreted
- Provide a simple, pragmatic measure of the quality of antibiotic use in primary care
- Allow more accurate targeting of antimicrobial stewardship resources at board, HSCP and practice level

Modified Delphi Study



- Identify the current prescribing indicators most relevant to clinical practice
- Inform the development of a pragmatic composite measure of antibiotic prescribing quality in primary care in Scotland
- Allow the people who will ultimately use the composite measure to help create and shape its development

Modified Delphi Study



- Designed to develop:
 - Abbreviated set of weighted key indicators of antibiotic prescribing quality
 - For use within primary care in Scotland
- Expert panel:
 - 26 representatives from a variety of disciplines
 - Expertise in antibiotic stewardship and infection control

Expert panel members	Number of participants
General practitioners	4
Consultant microbiologists	3
Infectious disease consultants	3
Antimicrobial pharmacists	3
Prescribing support pharmacists	3
Nurse independent prescribers	2
Representatives of NHS National Services Scotland	2
Paediatrician	1
SAPG public representative	1
Chair of SAPG	1
Project Lead for SAPG	1
Director of Pharmacy	1
Medical Director	1
Scottish Government HAI Policy Lead	1

Surveys



Four web surveys at monthly intervals between November 2015 and February 2016:

- Two Delphi surveys
- Two weighting surveys

Indicators scored on the relevance of each indicator to three domains:

- Reducing antibiotic resistance
- Improving infection outcomes
- Cost effectiveness

Results



- Response rate for the four surveys was 77%
- After two Delphi surveys, eight of the 63 antibiotic prescribing indicators from PIS/PRISMS were identified as appropriate (UCLA/RAND appropriateness method)
- Final eight key indicators were assigned weightings to reflect relative importance as a measure of prescribing quality

Results



Key antibiotic prescribing indicators

**Weighting
(out of 100)**

Total antibiotics: items/1000 patients/day

26

Antibiotics associated with higher risk of CDI:
DDD/1000 patients /day

17

Total antibiotics: DDD/1000 patients/day

16

Recommended antibiotics as a proportion of total antibiotic DDD

12

Trimethoprim: number of items with a three day duration as a
percentage of total items

11

Co-amoxiclav: DDD/1000 patients/day

7

Recommended antibiotics: Items/1000 patients/day

6

Recommended antibiotics: DDD/1000 patients/day

5

Implications for clinical practice



- Key indicators of antibiotic prescribing quality in primary care in Scotland
 - Methodology allowed identification of key indicators
 - Key indicators assigned relative weightings
- Composite measure
 - compliment other approaches for targeted antimicrobial stewardship interventions
 - reduce unnecessary use of antibiotics in primary care

Composite measure of AB prescribing quality



- Allocation of points using quintiles:

For example:

Top quintile	=	100% of score
Second quintile	=	80% of score
Third quintile	=	60% of score
Fourth quintile	=	40% of score
Fifth quintile	=	20% of score

Practice level example



Indicator	Quintile	% of points	Allocation	Final points
1	2 nd	80%	26	20.8
2	3 rd	60%	17	10.2
3	1 st	100%	16	16
4	1 st	100%	12	12
5	2 nd	80%	11	8.8
6	3 rd	60%	7	4.2
7	2 nd	80%	6	4.8
8	2 nd	80%	5	4
		Total	100	80.8

Next steps



- Operationalise composite measure
- Validation of measure in practice
- Make composite measure available to clinicians
- Further discussions regarding the practical application of the composite measure for general practices
- Regular update of key indicators

Thank you



A huge thank you to all the expert panel members for
your time and expertise

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