



High risk prescribing indicators: prevalence and quantifying risk

Dr Daniel R Morales

CSO Clinical Academic Fellow



High risk prescribing

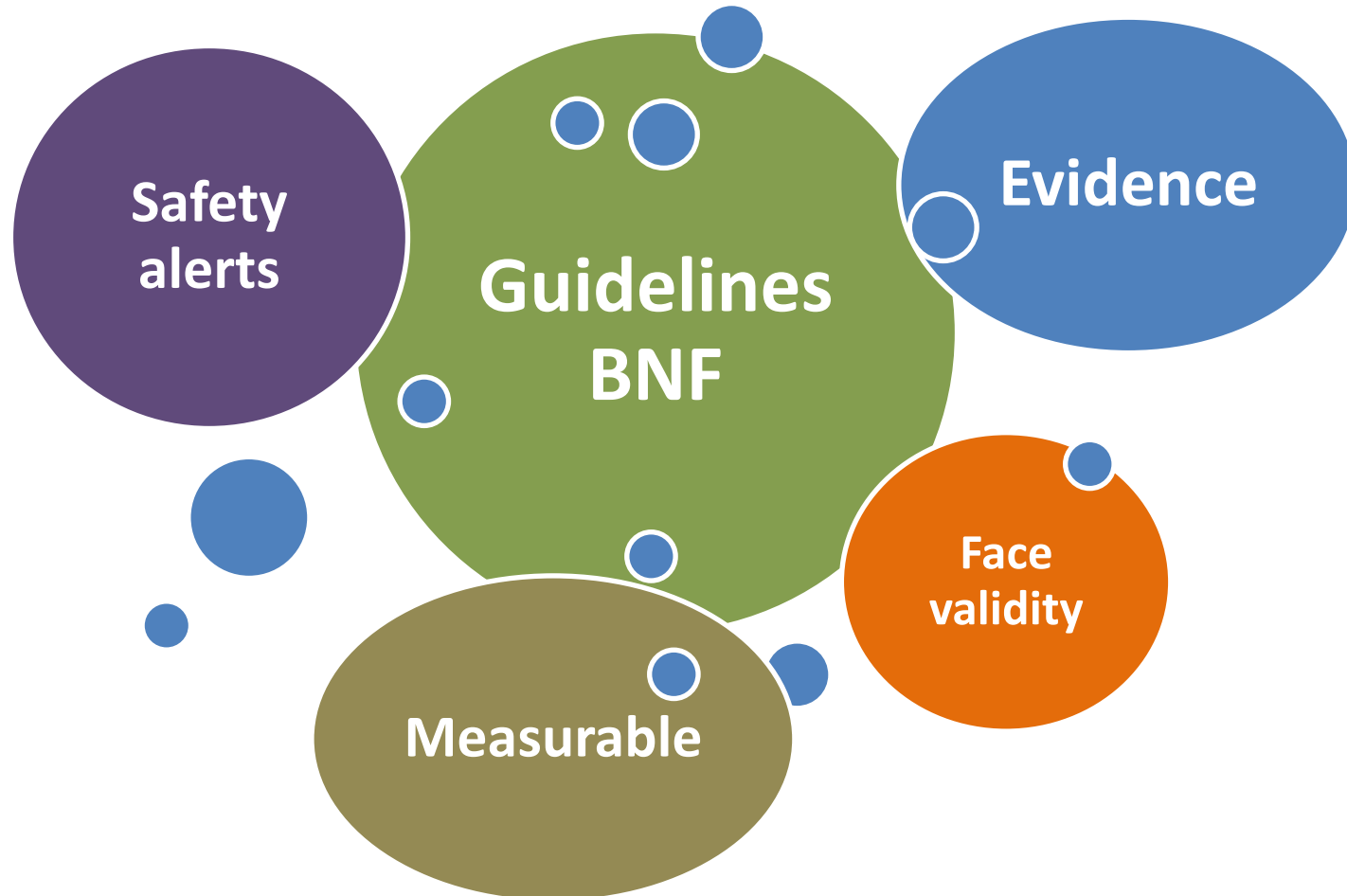
- **Importance**
 - Quality & safety
 - Patient centred
 - Efficient
- **Challenges**
 - Multimorbidity
 - Polypharmacy
 - Complexity of healthcare

What is high risk prescribing?

“A measurable element of prescribing for which there is evidence or consensus that it can result in serious harm to the patient”



Choosing a high risk indicator





BMJ

RESEARCH

High risk prescribing in primary care patients particularly vulnerable to adverse drug events: cross sectional population database analysis in Scottish general practice

Bruce Guthrie *professor of primary care medicine*¹, Colin McCowan *lecturer in health informatics*¹, Peter Davey *lead clinician for undergraduate clinical quality improvement*¹, Colin R Simpson *senior research fellow*², Tobias Dreischulte *research pharmacist*³, Karen Barnett *research assistant*¹

¹Quality, Safety and Informatics Research Group, Centre for Primary Care and Population Research, University of Dundee, Kirsty Semple Way, Dundee DD2 4BF, UK; ²Centre for Population Health Sciences, University of Edinburgh Medical School, Edinburgh, UK; ³Tayside Medicines Unit, NHS Tayside, Dundee, UK

Frequency of high risk prescribing

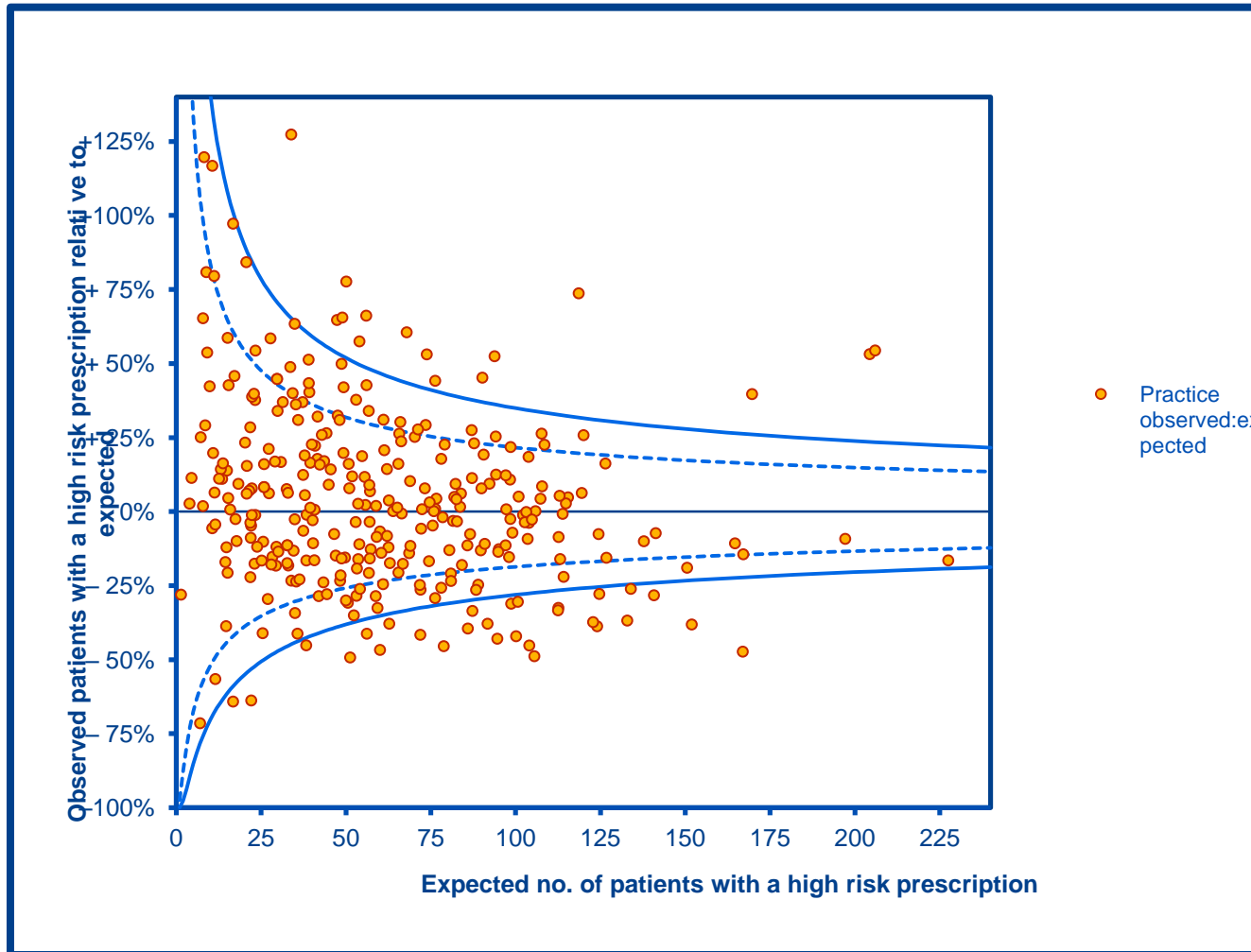
- 15 high risk indicators
- Overall % patients with at least one high risk prescription (all indicators)
 - 13.9%
- Significant variation in the rates of individual high risk indicators



Associations with high risk prescribing

Variable	% receiving any high-risk prescription (95%CI)
No of active repeat drugs:	
0 (19 082)	4.3 (4.1 to 4.7)
1 or 2 (21 709)	11.0 (10.5 to 11.4)
3 or 4 (30 460)	12.7 (12.3 to 13.1)
5 or 6 (30 345)	14.5 (14.1 to 14.9)
7 or 8 (20 445)	18.3 (17.8 to 18.8)
9 or 10 (10 372)	21.5 (20.7 to 22.3)
≥11 (6991)	26.6 (25.5 to 27.6)

Variation in high risk prescribing





Beta-blockers and asthma

BTS guidelines

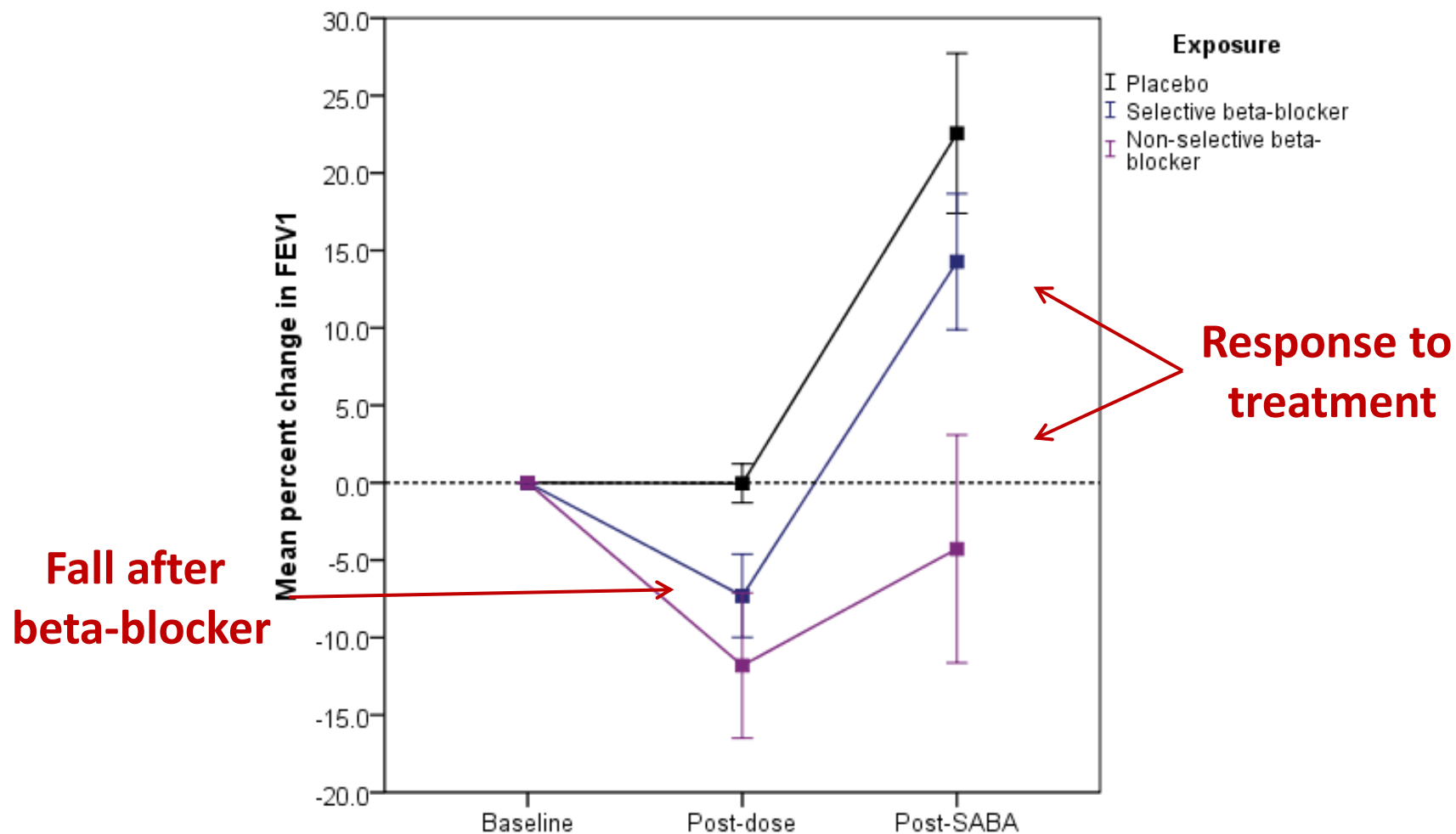
4.7.7: *“Beta-blocker, including eye drops, are contraindicated in patients with asthma.”*

6.1.2: *“Deaths continue to be reported following inappropriate prescription of β -blockers and NSAIDs;”*

BNF

“Beta-blockers including those considered to be cardioselective, should not be given to patients with a history of asthma or bronchospams.”

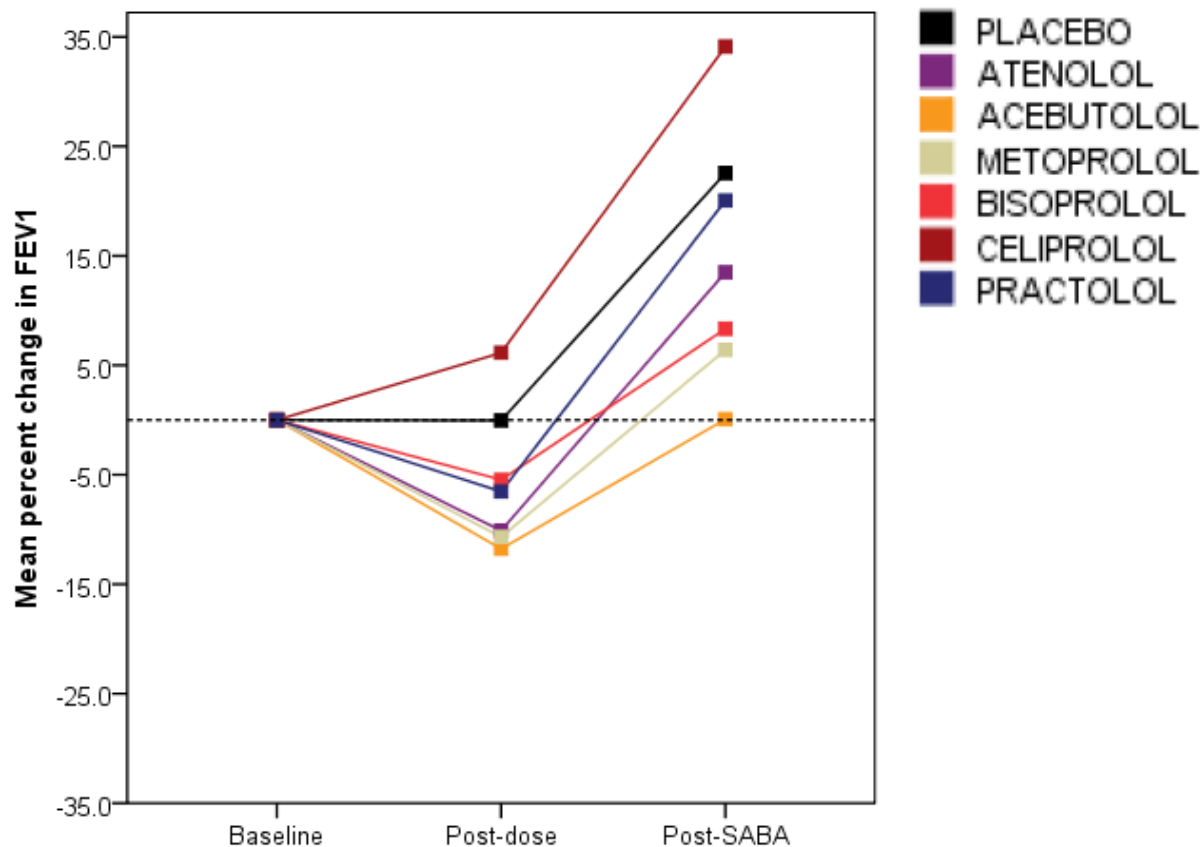
How risky are beta-blockers in asthma?





Not all beta-blockers have the same risk

Selective beta-blockers





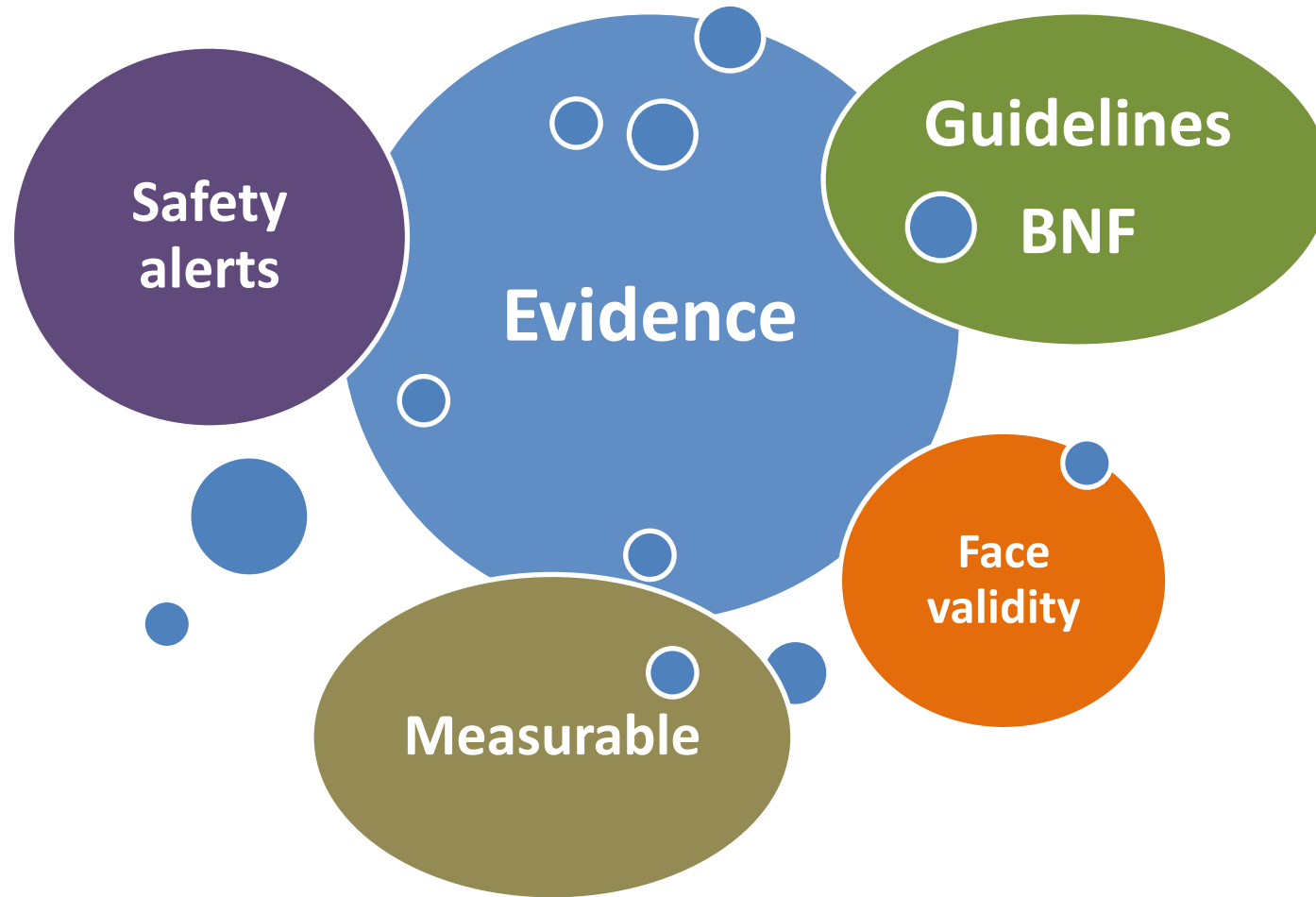
Respiratory symptoms following selective beta-blockade

- Risk difference 0.03 (-0.01 to 0.06)
- NNH 1 in 35
- Majority asymptomatic following moderate to high doses of selective beta-blockers



Challenges to using the evidence

- Generalizability
- Changing risks
- Competing risks
- Appreciation of risks
- Predicting those at risk





Acknowledgments

- Chief Scientist Office
- Bruce Guthrie, Professor of Primary Care
- Peter Donnan, Professor of Biostatistics
- Cathy Jackson, Professor of Primary Care (St.Andrews)
- Brian Lipworth, Professor of Respiratory Medicine

