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**Title: Effect of a general practice collaborative for modelling a novel approach for management of sleep problems presenting to primary care**

**Brief outline of context:**

Lincolnshire is a large rural county in the East Midlands region of England with 102 general practices, 733,230 patients and high prescribing rates of hypnotic drugs.

**Brief outline of problem:**

Hypnotic prescribing rates are high in Lincolnshire compared to the rest of England. Evidence from published studies shows that hypnotics have limited therapeutic value and potential for significant adverse cognitive and psychiatric effects which may persist for several months after stopping the drug. Psychological methods for managing sleep problems, including cognitive behavioural therapy for insomnia (CBTi) have been shown to be effective and cost effective but have not been widely implemented or evaluated in a general practice setting where they are most likely to be needed and most appropriately delivered.

**Assessment of problem and analysis of its causes:**

Previous attempts to improve the quality and safety of sleep management were hampered because of practitioner and patient attitudes, lack of organisational support or inadequate systems for change. We surveyed patients and GPs in order to understand barriers to improving prescribing. There were high rates of inappropriate long term prescribing of hypnotics (benzodiazepines and Z drugs). Many patients had attempted (unsuccessfully) to stop medication (Z-drugs vs. benzodiazepine; 52.4% vs. 41.0%) or wished to stop hypnotics (Z-drugs vs. benzodiazepines; 22.7% vs. 12.3%). Practitioners held a negative perception of hypnotics and welcomed methods and strategies for reducing prescribing. Based on these findings we decided to undertake a modelling study of sleep assessment tools and a non-pharmacological intervention, modified cognitive behavioural therapy for insomnia (CBTi), for insomnia in primary care setting and its effects on prescribing rates.

**Strategy for change:**

We used a collaborative approach to model the feasibility and practicability of implementing a novel approach for management of primary and secondary (comorbid) insomnia. Practitioners (doctors and nurses) from participating practices were asked to introduce sleep assessment (using Sleep Diaries, the

Pittsburgh Sleep Quality Index and Insomnia Severity Index) and non-pharmacological interventions (CBTi) for insomnia.

The research group met monthly with practice teams to share learning. We used academic detailing techniques, rapid experimentation (Plan, Do, Check, Act) cycles, process redesign and monthly feedback of prescribing rates and costs of hypnotic drugs using statistical process control charts. The study involved practitioners and patients from 8 volunteer general practices (selected according to geographical location and size) in Lincolnshire over a period of 6 months.

**Measurement of improvement:**

Measurement of improvement was by analysis of prescribing rates using statistical process control charts and interrupted time series analysis.

**Effects of changes:**

Routine sleep assessment and non-pharmacological treatment of insomnia was implementable in routine primary care consultations and resulted in enhanced skills of practitioners. We analysed number of prescriptions before and during the intervention period using a mixed effects model with Poisson family and log link and fitting linear effects of time during each period. We found that the 8 practices in the intervention group reduced their prescribing of benzodiazepines by 2.2% per month (95% CI reduction of 4.6 to increase of 0.2) more than the other 94 practices during the six month intervention period. They reduced their Z-drug prescription by 3.7% per month (95% CI 5.9 to 1.4) more over the same period.

**Lessons learnt:**

Some practices had difficulty engaging all members of their team in the change process which led to variable effects in individual practices. By involving both clinical and administrative members in change projects greater engagement is anticipated.

**Message for others:**

Where possible, engage all practice teams in change research projects and not just practitioners. A collaborative was used to model a sleep intervention and led to significant reductions in hypnotic prescribing.