

# Investigating the relationship between community pharmacy and GP Emergency Hormonal Contraception (EHC) provision: A linear regression analysis

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## Introduction

Emergency Hormonal Contraception (EHC) is contracted by Local Authorities to be provided free-of-charge from 46% of community pharmacies in England. (1) There is no difference in EHC consultation outcomes between community pharmacy and GP surgeries. Introducing EHC to a rural area can reduce GP EHC prescribing rates by approximately 41%, without influencing Family Planning Clinics or Accident and Emergency departments. (2) However, it is not known whether this relationship is universally present, and this relationship has not previously been quantified.

## Aim

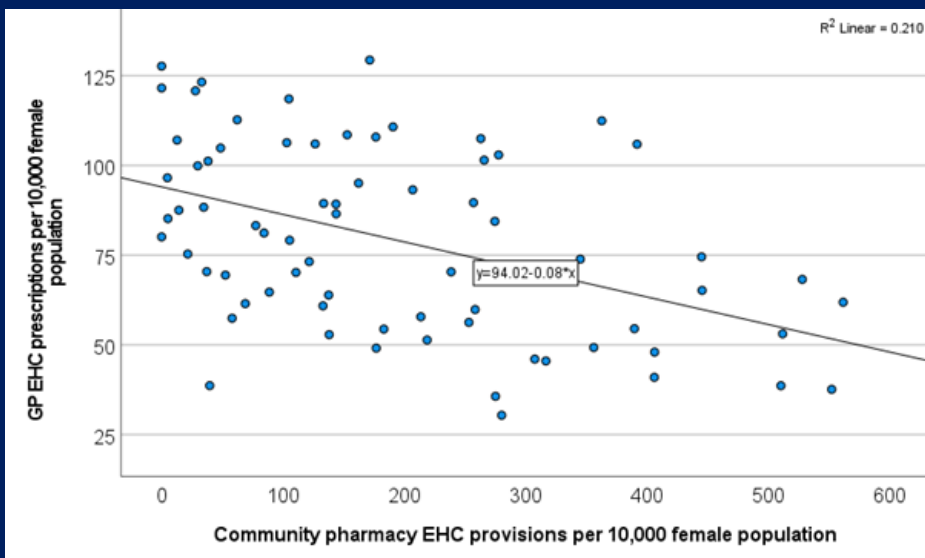
To describe the relationship between rates of GP EHC prescribing and commissioned community pharmacy EHC provision.

## Method

Freedom of Information requests were submitted to all Local Authorities in England for numbers of EHC provisions between March 19 and April 20. Data were matched to GP prescribing data, obtained from openprescribing.net. Using population estimates from the Office of National Statistics, rates of supply per 10,000 female population (aged 12-55) were determined. The data indicated small numbers of outliers, which can distort linear regression; boxplots allowed the removal of data points outside 1.5 times the Inter Quartile Range from the 1<sup>st</sup> or 3<sup>rd</sup> quarter. Using SPSS v24, linear regressions were calculated between GP prescribing rates and community pharmacy EHC provision rates. This was repeated for community pharmacy EHC provision rates and the proportion of commissioned pharmacies.

## Results

Of the 147 Local Authority commissioners identified across England, 113 (76.9%) responded to the FOI request. Of these, 5 did not commission EHC services from community pharmacy. Local Authority and CCG boundaries were compared, 86 areas were identified as 'co-terminus' (i.e., greater than 95% overlap). These 86 areas included 82,822 GP prescriptions and 207,731 community pharmacy provisions. The data reflected an estimated female population aged 12-55 of 9,380,153 (Local Authority mean 109,072, SD 83,899), 60% of the total English female (12-55) population. Removing outliers left 92.5% of the data for analysis. The mean GP prescribing rate was 79.3/10,000 (SD 26.3) and the mean community pharmacy provision rate was 200.2/10,000 (SD 154.9). Linear regression indicated a negative correlation between GP prescribing rates and community pharmacy provision rates ( $R^2=0.21$ ) and a positive correlation between community pharmacy provision rates and the proportion of commissioned pharmacies ( $R^2=0.21$ ).



## References

- (1) Mackridge AJ, Gray NJ, Krska J. A cross-sectional study using freedom of information requests to evaluate variation in local authority commissioning of community pharmacy public health services in England. *BMJ Open*. 2017;7(7):e015511
- (2) Lloyd K, Gale E. Provision of emergency hormonal contraception through community pharmacies in a rural area. *J Fam Plann Reprod Health Care*. 2005;31(4):297-300

## Conclusion

This study shows that increasing the community pharmacy provision rate by 100/10,000 decreases the GP prescribing rate by 8/10,000. Increasing the proportion of commissioned pharmacies to 100%, through a national service may change GP prescribing rates. This regression analysis predicts this would decrease the GP EHC prescribing rate by 15% to 66.3/10,000. Whilst this data is not fully representative of commissioning in England, this single commissioning change could move 20,706 GP consultations to community pharmacy annually across England. Comparisons with Wales and Scotland (who have national services) suggest this impact could potentially even be doubled. The strength of this study is its use of routine data facilitating replication, however local commissioning arrangements mean the conclusions are not necessarily applicable beyond England.