

Title: Effect of the Covid pandemic on progestin-only and oestrogen -containing
Contraceptive Prescribing in General Practice: a Retrospective Analysis of English
Prescribing Data.

Word counts.

Abstract: 249

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Abstract

Objectives:

This paper looks at how trends in contraceptive prescribing by General Practices in England were affected by the Covid pandemic and lockdown. It compares English prescribing data from May14 to May21, including the period of 'lockdown', from April 20-June 20.

Design & Setting

A retrospective analysis of the English Prescribing Dataset which reports monthly on prescribed items from English General Practices was carried out. Data on all forms of prescribed contraceptive methods were extracted using BNF codes, and total quantities tabulated by method

Results

Prescription of the combined oral contraceptive pill reduced by 22% during the period of lockdown compared to the same three months in 2019. Prescriptions of Progesterone-Only pills remained stable. This continued a trend in oral contraceptive prescribing evident from May14, in which months of contraception provided by COCP declined, compared to a slight rise in months provided by POP.

Prescription of long-acting methods reduced during the period of lockdown, with the greatest reductions in implants (76% reduction from pre-lockdown levels), intra-uterine systems (79% reduction from pre-lockdown levels) and intrauterine devices (76% reduction from pre-lockdown levels). These rates of contraceptive provision recovered quickly after the period of lockdown ended.

Conclusions

The disruption of face-to-face contraceptive consultations in General Practice during a Covid-19 ‘lockdown’ has resulted in a reduction in oestrogen –containing methods compared to progesterone only methods, which require less face-to-face monitoring.

Implant and intrauterine contraceptive device prescription reduced by three quarters over the first three months of lockdown, but rebounded in the next year.

Abstract Word Count: 249

Keywords

- Prescriptions
- General Practice
- Contraception
- Covid -19
- England

Availability of Data and material

Data used in this analysis is publicly available at

<https://www.nhsbsa.nhs.uk/prescription-data/prescribing-data/english-prescribing-data-epd>

Introduction

The societal restrictions and service disruptions brought about by the Covid19 hampered women's access to contraception and safe abortion, potentially causing unwanted pregnancies and pregnancy-related deaths [1][2][3][4][5,6].

In the United Kingdom (UK) women access contraception free of charge through the National Health Service, and about 80% of women access contraception through their family doctor working in General Practices (GP) [7].

The Covid19 pandemic caused England and the rest of the UK to enter lockdown on 23rd March 2020. Although GP surgeries remained open throughout the lockdown, patterns of working changed, with face-to-face consultations initially reduced to those considered essential [8]. Patients were permitted to attend medical appointments throughout the period of lockdown, but anxiety about the safety of healthcare premises, problems with caring for children who were not in school, and difficulties with public transport are likely to have made attending GP surgeries for contraceptive provision more difficult. At the same time community contraceptive clinics were experiencing similar constraints and restrictions on access. As Personal Protective Equipment (PPE) became more readily available, and general practices adapted to working in a Covid safe manner, more routine services gradually resumed, but where possible remotely or virtually, with face-to-face appointments still reduced [9,10].

The Faculty of Sexual and Reproductive health (FSRH) produced guidance for supplying contraceptive services during the pandemic, and suggested changes that would allow routine provision to be provided online [11].

Guidance was issued regarding short-term measures to enable women to remain contracepted even when unable to access services face to face, including guidance on the safety of the progesterone-only-pill (POP) as a bridging method, how to manage

the need for blood pressure (BP) and body mass index (BMI) measurement for the combined oral contraceptive pill (COCP) and advice on instituting and renewing long-acting reversible contraceptive (LARC) methods[12,13].

Lack of access to face-to face consultations, and caution on behalf of healthcare professionals in regard to prescribing without examination will have caused a change in prescribing habits, and subsequent effects on the contraception used by women.

This paper used data for the English Prescribing Dataset [14] to look at changes in prescription of contraceptive methods, with a focus on oral contraceptive methods, between three 3 months periods before (Apr – Jun 19), during (Apr20-Jun20) and after (Apr21-Jun21) lockdown, to assess how contraceptive prescribing changed during this period. These changes were placed in the context of trends in oral contraceptive prescribing since 2014.

Materials & Methods

This paper draws on data from the English Prescribing Data (EPD) set published by the NHS Business Services Authority (<https://www.nhsbsa.nhs.uk/prescription-data/prescribing-data/english-prescribing-data-epd>)[14]. This database contains detailed information on prescriptions issued on a monthly basis by every General Practice in England, and dispensed in Great Britain, the Channel Islands and the Isle of Man. It can therefore be considered a comprehensive count of GP contraceptive prescribing at national level. It excludes items not submitted for dispensing, prescriptions issued in hospitals, and prison, and private prescriptions. It also excludes

any patient identifiable data, so this data can show practice level variations in prescribing, not individual level use of contraceptive methods.

The dataset provides numbers and details of prescribed items (e.g. desogestrel 75 microgms) and the quantity of drug dispensed (e.g. 84 tablets). It also supplies the total quantity prescribed, derived from the number of items multiplied by the quantity (e.g. 3 x 84 tablets of desogestrel 75mg = Total Quantity of 168). Drugs are listed by British National Formulary chapter, section and descriptions of ingredients, and by both generic drug names and tradenames.

Data for all prescriptions, from all practices in England, for April, May and June 2020, the first three months after lockdown, were compared with the same three months the previous year (April, May, June 2019), and with the same time period in the following year (Apr, May, June 21), when the period of strict lockdown had ended. In addition, data for oral contraception was extracted from May 2014.

Data on all forms of prescribed contraceptive methods were extracted using BNF codes and descriptions, and total quantities tabulated by individual method. Data was extracted from the database for each month, using an Excel Data Query, and by searching for items by truncated BNF code. The codes used are presented in Table 1. BNF Descriptions were used to further identify and separate the individual methods, using an Excel Pivot Table, extracting for each BNF description the name and total quantity prescribed for the month in question. Items were described either generically or by tradename, according to what the prescriber requested on the prescription, so these items were not counted twice.

To calculate the total number of months of contraception provided by each method from the total quantities prescribed, total quantities were divided or multiplied according the frequency with which the method is taken per month or the numbers of

months of contraception provided. For example the total quantity of a 21- day COCP is divided by 21 to calculate the numbers of months of contraception provided, whereas total prescriptions for a 5 year Intra-Uterine System (IUS) were multiplied by 60 months to calculate the number of months of contraception provided. This allowed the number of months of contraception from all methods, provided by prescriptions issued by all General Practices in England, to be compared.

Table 1 BNF Codes and Descriptions

Results

During the period of lockdown due to the Covid19 pandemic in England (April 20- June 20) the total number of months of contraceptive provision supplied by GP prescription fell to 65% of pre-pandemic levels from 12,959,664 total months Apr-Jun19 to 8,410,800 total months of contraception Apr-Jun20.

Short-acting pills (COCP and POP) were the methods prescribed most before, during and after the period of lockdown, in terms of total quantity of items, and in terms of numbers of months of provision (Table 2).

Table 2: Total months of contraceptive provision provided by method

Figure 1: All methods by Months of Contraceptive Provision April 19- Jun 21

Combined Oral Contraceptive pills (COCP) and Progesterone Only pills (POP) accounted for the bulk of Progesterone Only (PO) and combined hormonal(CHC) prescribing in both time periods (Figure 1).

Months of contraception provided by COCP prescription reduced by 22% from April-June 19 (4,216,694 months) to April-June 20 (3,297,106 months). This continued a trend already evident in the prescribing of the COCP from 2014.

Comparing the ratio of POP to COCP provision, the total number of months of provision by COCP was 24% higher (4,216,694 months) than that provided by the POP (3,410,842) prior to lockdown (April – Jun 19), but almost equivalent during lockdown (3,297,105 months COCP v. 3,375,245 months POP). The months of contraception provided by prescribing of the COCP did not rebound in the year after lockdown (See Figure 1 & 2)

The prescription of the POP remained at 99% of its pre-lockdown level in April-June 2020, and remained constant in 2021.

Since 2014 months of contraception provided by English GP prescriptions of COCP has been falling, in contrast to prescription of POP, with each method now providing an equivalent number of months of contraception (See Figure 2).

Figure 2: Trends in COCP and POP May 14 to May 21

The trend in months provided by COCP prescription has a significant downward trend since 2014 (Mann-Kendall=-58, $p>0.001$), where the trend for months of contraception by POP prescription has remained steady with no significant trend (Mann-Kendall=14, $p=0.108$)

Of the long-acting reversible contraceptive (LARC) methods (implant, injection, intrauterine system and intrauterine device), the intrauterine system (IUS) provided most months of contraception in May 2019 prior to lockdown (761,160 months in total), but this reduced during lockdown to a lowest point of 102,768 total months In May 20. During this time the contraceptive injection was the longer-acting method

providing most months of provision in May 2020 (193,961 months in total) (Figure1 & Table1).

Total Intra-uterine contraceptive provision fell by 78% from 46,969 prescribed items (3,255,060 months of provision) in April-June 19 to 10,393 items (730,428 months of provision) in April-June 20.

As General Practice re-organised in response to lockdown, provision of implants and intrauterine contraception began to recover from a low point in May 20. Months of contraception provided by implants were 24% of pre-lockdown levels in April-June 20, IUS 21% of pre-lockdown levels, and IUD at 24% of pre-lockdown levels respectively. By April – Jun 21 months of provision supplied by prescription of implants and intrauterine contraception had recovered to 94-95% of pre- pandemic levels (Figure 2).

Discussion

Findings & Interpretation

During the period of lockdown in 2020 when face-to-face consultations were restricted or hard to attend, overall prescribing of contraception in General practice was reduced by 35%, in terms of months of contraception provided, compared to the same 3-month period in 2019.

Prescribers reduced their supply of oestrogen-containing COCP, but maintained the quantity of POP prescribed. This may have been in response to the safer profile of the POP in situations where blood pressure and weight could not be measured at the time of prescription, or due to concerns around Covid infections and clotting[15]. However

the reduction months of contraception provided by COCP prescribing in contrast to POP prescribing was an acceleration of a trend evident since May 14, and did not change in 2021.

The POP may also have been provided to help women to bridge the time when their usual LARC method should have been replaced to when fitting a new device becomes possible.

Lockdown initially greatly restricted the provision of LARC methods, with those methods requiring fitting (implant and intrauterine contraception) most affected.

By June 2020 the supply of the implant, IUS and IUD had recovered to only a third of levels in the previous year, when measured by months of contraception provided.

Given the potential for LARCs to prevent unwanted pregnancy, and the recent evidence describing the reduction in abortions during the time that GPs were incentivised to supply LARC methods [16], this reduction may lead to increased abortion requests or unwanted pregnancies. However FSRH advice on extending the use of existing intrauterine methods from 5 years to 6 years in the case of 52mg LNG-IUS and up to 12 years for banded copper IUDs, and of the implant from 3 years to 4 years, may have mitigated this risk, and months of contraception provided by these LARC methods returned to usual levels in the next year [11].

This research has shown that POP prescribing was maintained without face-to-face consultations. In the UK the Medicines Act has been updated to allow the desogestrel POP to be supplied through pharmacies, without prescription [11]. Cameron et al. have found that women supplied by pharmacists with the POP after a consultation for emergency contraception are more likely to be on an effective contraception in four months later, and Eckhaus et al. in a review have found that both patients and

pharmacists believed pharmacy prescribed contraception improved access[17]. Novel guidelines and procedures for supplying contraceptive methods may persist, if found to be beneficial, after the Covid pandemic has ended[18].

Strengths & Limitations

This paper draws on General Practice prescribing data, so does not reflect the entire range of contraceptive providers. Women can also obtain contraception from community clinics, and emergency contraception from clinics and from community pharmacists. Due to the nature of the data, the alterations in GP prescribing of contraception in England have not been examined by age or by socio-economic status, and both of these affect the impact of such changes in the short and medium term. A strength of this paper is that it draws upon all contraceptive prescribing in general practice in England which accounts for 80% of contraceptive prescribing in England[7].

Similarities and Differences to other Research

The reduction in the provision of long-acting contraceptive methods during the early stages of the pandemic, with a subsequent rebound, is in keeping with other research on the effect of the pandemic on contraceptive supply both from community clinics in the UK, and in other countries[19–21].

The reduction of COCP in favour of POP in England, without a subsequent recovery, exacerbating a continuing trend over the last 8 years has not been previously reported and is an original finding of this research.

Open questions & Future research

The necessity of ‘light-touch’ contraceptive services during the pandemic may permanently alter the way in which contraceptive services are provided, allowing greater use of tele-health and other innovations [21], and more reliance on a ‘self-care’ model as described by Haddad et al.[22] Follow up studies are required to clarify the safety and efficacy of such approaches in the medium to long term.

Conclusions

The restriction of access to face-to-face contraceptive consultation in general practice in England during the period of Covid19 lockdown had an effect on contraceptive prescribing and provision during that time.

There was a profound reduction in the provision of LARC methods which, rebounded after lockdown ended.

Prescription and provision of the COCP reduced and provision of the POP remained stable, which is likely to be an effect of the need to monitor blood pressure and BMI for women on the COCP, and the fewer contraindications to the POP. This demonstrates that remote prescription of the POP is feasible, and this enforced change in prescribing habits may inform future guidelines for easing access to the POP without face-to-face consultation with a prescriber.

The reduction in prescription of COCP has persisted into 2021 and continues a trend in the decrease in the proportion of contraceptive pills containing oestrogen, in comparison to progestogen-only pills over the previous seven years.

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Declaration of Competing Interest

The author has previously received grant funding from Bayer PLC and has been a consultant for NaturalCycles, a company manufacturing a contraceptive app.

Tables

Table 1 BNF Codes and Descriptions

Truncated BNF code	Contraceptive method	Examples of BNF description
070301*	Combined Hormonal Contraceptive Methods	Mercilon 150microgram/20microgram tablets
		Ethinylest 33.9microg/Norelgestromin 203microg/24hours ptch
070302*	Progesterone Only methods	Medroxyprogesterone 150mg/1ml inj pre-filled syringes
		Levonorgestrel 20micrograms/24hours intrauterine device
		Desogestrel 75microgram tablets
210400*	Contraceptive devices	Copper T380 A intrauterine contraceptive device
		Nova-T 380 intrauterine contraceptive device
070305*	Emergency Contraceptive pills	Levonelle 1500microgram tablets
		Ulipristal 30mg tablets
Truncated BNF code	Contraceptive method	Examples of BNF description
070301*	Combined Hormonal Contraceptive Methods	Mercilon 150microgram/20microgram tablets
		Ethinylest 33.9microg/Norelgestromin 203microg/24hours ptch
070302*	Progesterone Only methods	Medroxyprogesterone 150mg/1ml inj pre-filled syringes
		Levonorgestrel 20micrograms/24hours intrauterine device
		Desogestrel 75microgram tablets
210400*	Contraceptive devices	Copper T380 A intrauterine contraceptive device
		Nova-T 380 intrauterine contraceptive device
070305*	Emergency Contraceptive pills	Levonelle 1500microgram tablets
		Ulipristal 30mg tablets

Table 2: Total months of contraceptive provision provided by method

	COCP	Patch	Ring	POP	Injection	Implant	IUS	IUD
<i>Total Months of Contraception provided</i>								
Apr19	1,336,916	28,894	6,322	1,087,609	241,678	389,340	670,152	341,280
May19	1,488,803	32,890	7,410	1,211,044	253,187	431,568	761,160	376,020
Jun19	1,390,976	31,541	6,645	1,112,190	235,464	412,128	740,808	365,640
Apr20	1,130,016	31,889	6,147	1,191,055	193,323	74,880	125,916	70,500
May20	1,040,898	29,394	5,541	1,063,629	193,961	67,284	102,768	64,860
Jun20	1,126,192	32,939	6,211	1,120,560	208,773	157,680	237,324	129,060
Apr21	1,117,598	35,732	5,845	1,128,530	218,486	367,632	643,392	321,780
May21	1,083,652	35,575	5,888	1,073,687	211,691	388,296	702,996	352,800
Jun21	1,158,555	37,313	8,017	1,177,832	217,565	398,124	727,548	348,300

Figures

Figure 1: All methods by Months of Contraceptive Provision April 19- Jun 21

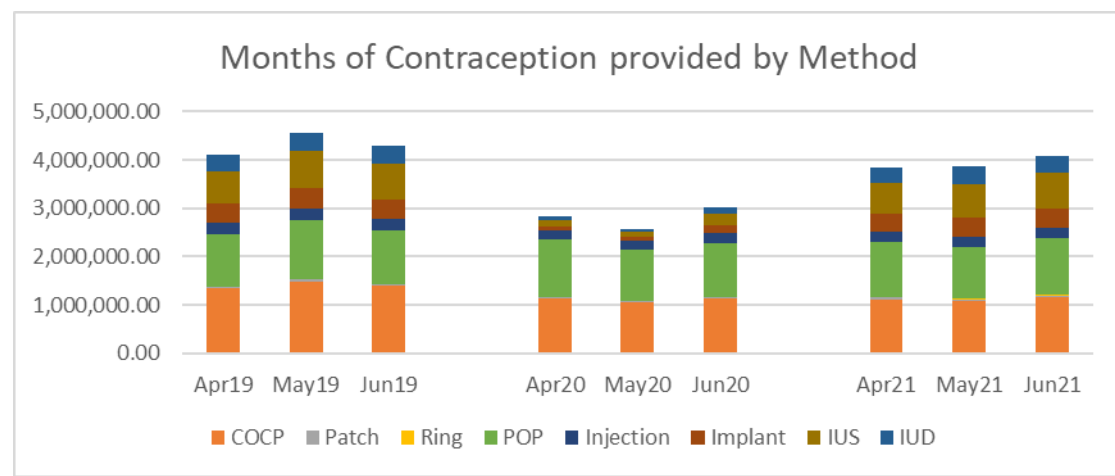


Figure 2: Trends in COCP and POP May 14 to May 21

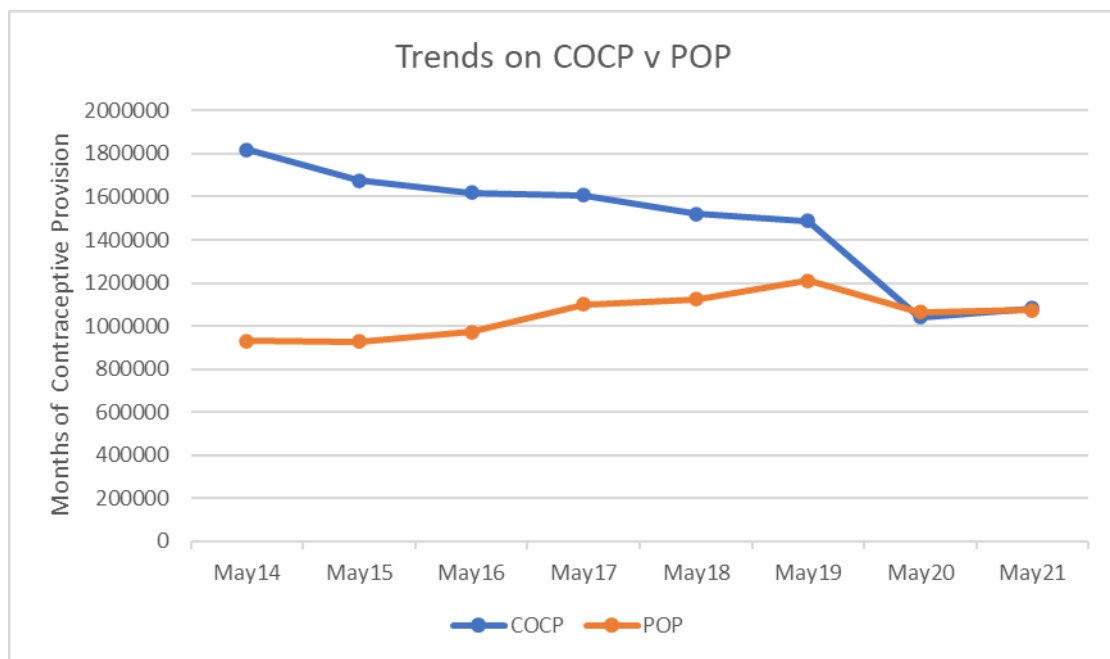


Figure and Table legends

Table 1: BNF Codes and Descriptions

Table 2: Total months of contraceptive provision by method

Figure 1: All methods by Months of Contraceptive Provision

Figure 2: Trends in COCP and POP May 14 to May 21

List of Abbreviations

CHC Combined Hormonal Contraception

PO Progesterone Only

COCP Combined Oral Contraceptive Pill

POP Progesterone Only Pill

LARC Long-Acting Reversible Contraceptive method

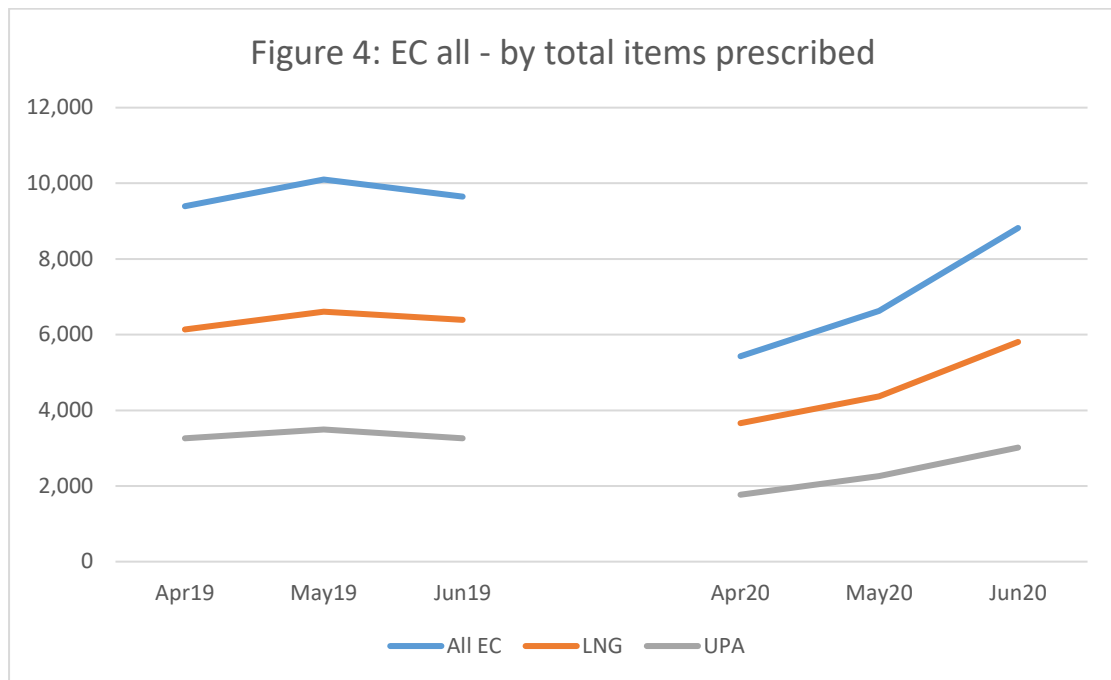
IUC Intrauterine Contraception

IUD Intrauterine Device (copper)

IUS Intrauterine System (hormonal progesterone only)

Total Months supply	CHC all	COCp	Patch	Ring	PO all	POP	Injection	Implant	IUC all	IUS	IUD
Apr19	1,372,132	1,336,916	28,894	6,322	2,388,779	1,087,609	241,678	389,340	1,011,432	670,152	341,280
May19	1,529,103	1,488,803	32,890	7,410	2,656,959	1,211,044	253,187	431,568	1,137,180	761,160	376,020
Jun19	1,429,162	1,390,976	31,541	6,645	2,500,590	1,112,190	235,464	412,128	1,106,448	740,808	365,640
Apr20	1,167,013	1,130,016	31,889	6,147	1,585,174	1,191,055	193,323	74,880	196,416	125,916	70,500
May20	1,075,833	1,040,898	29,394	5,541	1,427,642	1,063,629	193,961	67,284	167,628	102,768	64,860
Jun20	1,165,342	1,126,192	32,939	6,211	1,724,337	1,120,560	208,773	157,680	366,384	237,324	129,060
Apr21	1,160,091	1,118,513	35,732	5,845	2,358,040	1,128,530	218,486	367,632	965,172	643,392	321,780
May21	1,125,115	1,083,652	35,575	5,888	2,376,670	1,073,687	211,691	388,296	1,055,796	702,996	352,800
Jun21	1,203,885	1,158,555	37,313	8,017	2,521,069	1,177,832	217,565	398,124	1,075,848	727,548	348,300

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