

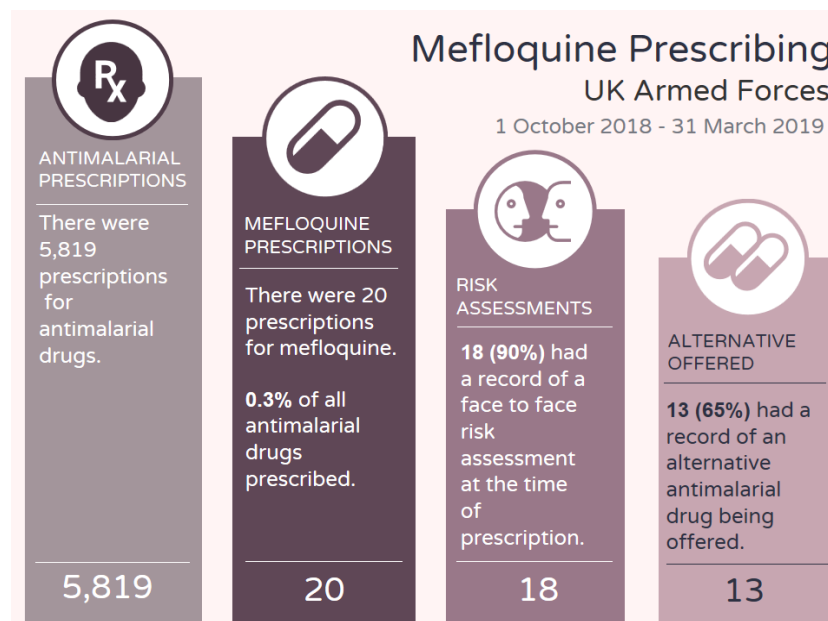


Mefloquine (also known as Lariam) is used to prevent or treat malaria. It may be prescribed as one of a number of alternative chemoprophylactic drugs for military personnel deployed to areas where there is a high risk of chloroquine resistant malaria. This biannual Official Statistic provides information on the number of mefloquine prescriptions given to UK Armed Forces personnel at MOD medical facilities covering the period 12 September 2016 to 31 March 2019 with the focus on the latest six-month period (1 October 2018 to 31 March 2019).

### Key Points

The MOD introduced a new policy on prescribing antimalarial drugs on 12 September 2016. This new policy was produced following the House of Commons Defence Committee inquiry into use of mefloquine in the UK Armed Forces.

Between 1 October 2018 and 31 March 2019, mefloquine prescriptions accounted for 0.3% (n=20) of all antimalarials prescribed. This increased from 0.2% (n=11) in the previous six months (1 April 2018 to 30 September 2018). There were some mefloquine prescriptions without a record of a face to face risk assessment (n=2) or an alternative drug offered (n=7). Risk assessments and offers of alternative antimalarial drugs may have been made, however this information was not coded into the central data warehouse and therefore was not available for analysis.



Source: Defence Medical Information Capability Programme (DMICP) data warehouse.  
Please note the numbers of risk assessments and cases where an alternative was offered are a minimum. Risk assessments and offers of alternative antimalarials may have been done however the information was not coded into the central data warehouse and therefore was not available for this analysis.

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**Background quality report:** <https://www.gov.uk/government/collections/mefloquine-lariam-prescribing-in-the-uk-armed-forces-statistics-index>

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## Contents

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Key Points	Page 1
Introduction	Page 2
Main Findings - Mefloquine prescriptions	Page 4
Methodology	Page 5
Glossary	Page 6
Further Information	Page 7

## Introduction

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Malaria is an acute febrile illness. If malaria is not prevented it can be fatal, specifically if the strain *Plasmodium falciparum* is contracted. The Government has a duty of care to provide members of the Armed Forces with effective methods of chemoprophylaxis. Chemoprophylaxis refers to the taking of medication to prevent disease rather than treat it. Mefloquine is one of the main chemoprophylaxis drugs that are available for prescription in UK to prevent malaria. Others include doxycycline; chloroquine; proguanil; and atovaquone (when combined with proguanil it is marketed as Malarone).

Taking antimalarial chemoprophylaxis when visiting an area where there is a malaria risk is part of a suite of preventive actions which include bite avoidance, covering up with long clothing, wearing insect repellent and sleeping under mosquito nets etc. For members of the UK Armed Forces who are prescribed antimalarial drugs, information relating to the consultation is entered in the patient's electronic health record. All clinical information can be entered as free text in the record or as coded data. Only coded data can be exploited for analysis in the electronic health record data warehouse (DMICP). This bulletin focuses on coded data, and information provided by clinicians following a review of prescriptions given between 12 September 2016 and 31 March 2019. To routinely search for information entered as free text requires the manual review of the patient record; thus, any additional information entered as free text has not been included in this statistic.

A number of individuals including former Service personnel and their families, members of the public and MPs have campaigned to prevent the use of mefloquine in the UK Armed Forces due to the reported neuropsychological adverse reactions of the drug.

In 2015 the House of Commons Defence Committee (HCDC) conducted an inquiry into the use of mefloquine (also known by the trade name Lariam) in the UK Armed Forces. The information gathered from an audit carried out at this time was used to support the Government's response. This audit was for mefloquine prescriptions given to personnel who went on to deploy on Op HERRICK to Afghanistan and results were released as part of the official statistic published in May 2017<sup>1</sup>. The HCDC published its report into the use of mefloquine by the Armed Forces in May 2016 and made a number of recommendations concerning the future prescribing of the drug<sup>2</sup>. Amongst these were recommendations that:

- the MOD cease conducting risk assessments based solely on patients' records and prescribe Lariam, if at all, only after detailed face-to-face individual risk assessments
- Records of face-to-face assessments should be recorded in individual's medical notes

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<sup>1</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/615532/20170512-Official\\_Statistic-Mefloquine\\_prescribing\\_in\\_the\\_UK\\_armed\\_forces.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/615532/20170512-Official_Statistic-Mefloquine_prescribing_in_the_UK_armed_forces.pdf)

<sup>2</sup> <https://www.publications.parliament.uk/pa/cm201516/cmselect/cmdfence/567/567.pdf>

## Introduction (Cont.)

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- In addition to the need for a face-to-face interview MOD ensures that each individual, when made aware of the risks of Lariam, must be offered the option of receiving an alternative anti-malarial drug.

In response to the inquiry and these recommendations, the MOD amended its policy on preventing malaria in military personnel which was implemented on 12 September 2016. In addition, the Government response to the HCDC report was published in September 2016<sup>3</sup>.

The HCDC stated that they would monitor the MOD's policy in relation to malaria protection by requesting six monthly updates on the MOD's use of mefloquine. Publication of this Official Statistic is to meet this requirement, to support the MOD's commitment to release information where possible and ensure that the public has equal access to the information.

In order to assess the impact of the revised anti-malarial policy, a new method of data capture through electronic templates in the primary care medical record was introduced. This allowed better recording of the processes undertaken when prescribing antimalarial drugs at MOD medical facilities. The new process enabled the collection of coded data on risk assessments for antimalarial drugs and confirmation that an alternative drug had been offered in place of mefloquine. Previously, to identify whether a risk assessment had taken place, a manual review of the record was required. This new process has enabled MOD to provide assurances that the policy is being followed. In addition, the new process also acted as a guide to clinicians to ensure the appropriate prescribing of mefloquine.

Regular feedback from users allowed refinement and improvement of the process to ensure the clinicians followed the policy prior to the prescription of antimalarial drugs. This was an iterative process which progressively developed to deliver a more usable and efficient format for clinicians.

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<sup>3</sup> <https://www.publications.parliament.uk/pa/cm201617/cmselect/cmdfence/648/648.pdf>

## Main Findings

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In the latest six month period there were **5,819** antimalarial drug prescriptions given to UK Armed Forces personnel. Of these, **20** prescriptions were for mefloquine, accounting for **0.3%** of the antimalarial drug prescriptions during this period. This is an **82%** increase in the number of mefloquine prescriptions compared with **11** prescriptions in the previous six months. Please note, due to the small numbers of mefloquine prescriptions, the associated percentages are susceptible to large changes.

Please note, information presented for this six-month period focuses on coded data from the data warehouse and is therefore a minimum. This is because risk assessments and offers of alternative antimalarial drugs may have been done however the information was not coded into the central data warehouse and therefore was not available for this analysis.

Of the **20** prescriptions for mefloquine:

- **18 (90%)** had a record of a face to face risk assessment prior to, or at the time of prescription.
- **13 (65%)** had an alternative antimalarial drug offered during the consultation but the patient declined it. In addition, **three patients** (accounting for four of the prescriptions) were contraindicated against alternatives and therefore mefloquine was the only option for an antimalarial drug.

Between 12 September 2016 (the introduction of the new policy and data capture techniques) and 31 March 2019, there was a total of **31,799<sup>4</sup>** antimalarial prescriptions given to UK Armed Forces personnel, of which **217 (0.7%)** were for mefloquine.

Please note the following numbers used both coded data and data collated manually through a clinical audit of prescriptions by a clinician confirming that a risk assessment was completed, or alternative drug was offered for the period 12 September 2016 to 31 December 2016.

Of the **217** mefloquine prescriptions:

- **190 (88%)** had a record of a face to face risk assessment prior to, or at the time of prescription.
- **159 (73%)** had an alternative antimalarial drug offered during the consultation but the patient declined it. In addition, **five patients** (accounting for six prescriptions) were contraindicated against alternatives and therefore mefloquine was the only option for an antimalarial drug.

Please note that these figures are a minimum. It is possible that risk assessments were completed, and alternatives to mefloquine offered, that were recorded as free text in the medical records instead of coded data. Defence Primary Health Care (DPHC) are continuing to carefully monitor prescriptions of mefloquine and are requesting that clinicians provide assurance that prescriptions were given according to policy.

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<sup>4</sup> DMICP is a live data source and is subject to change due to late reporting. Therefore, the total number of antimalarial prescriptions cannot simply be derived by adding together the total number of prescriptions in the previous Official Statistic to the total number of prescriptions in the latest six months of monitoring (1 October 2018 to 31 March 2019). If you require the total number of antimalarial prescriptions made between 12 September 2016 and 31 March 2019, use the figures presented in this report.

## Methodology

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**This section provides a brief summary of the methodology and data sources; more detailed information is available in the Background Quality Report<sup>5</sup> for this bulletin.**

Data on prescriptions for mefloquine were extracted from the electronic patient record data warehouse (DMICP). Data were extracted as at 1 May 2019. The rollout of DMICP commenced during 2007 and comprises an integrated primary Health Record (iHR) for clinical use and a pseudo-anonymised central data warehouse. Prior to DMICP medical records were kept locally at each individual medical centre. By 2010 DMICP was fully available in the UK and the majority of Germany. Rollout to other overseas locations commenced in November 2011.

The information presented relates to the number of antimalarial drug prescriptions. Individuals may have received more than one prescription during the reporting period.

A patient was categorised as having received a face to face risk assessment prior to the prescription of mefloquine if coded data denoting this was entered into DMICP on the day of the prescription or at some other point previously.

In December 2016 a three-month review was carried out for records where a prescription of mefloquine was identified but there was no coded data relating to a risk assessment or alternative drug offered. When a clinician confirmed that a face to face risk assessment had been carried out or alternative drug offered, these records were counted towards the number of prescriptions which had a face to face risk assessment and/or alternative drug offered.

The prescription data presented was based on personnel who have been prescribed the drug; it does not reflect whether the individual has taken the drug.

The data presented was reviewed in line with Statistical Disclosure Control, JSP200 – Statistics. Following a risk assessment, it was concluded that there was a low risk for disclosure of medical information and high demand from the public for the release of small numbers, hence the decision to present all the numbers without Statistical Disclosure Control processes.

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<sup>5</sup>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/659401/20171110\\_Background\\_Quality\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/659401/20171110_Background_Quality_Report.pdf)

## Glossary

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**Adverse reactions** – Also known as side effects, are unwanted symptoms caused by medical treatment<sup>6</sup>.

**Chemoprophylaxis** – Taking of medication to prevent disease rather than treat it.

**Contraindication**<sup>7</sup> - A contraindication is a specific situation in which a drug, procedure, or surgery should not be used because it may be harmful to the person.

**Defence Medical Information Capability Programme (DMICP)** - The DMICP programme commenced during 2007 and comprises an integrated primary Health Record (iHR) for clinical use and a pseudo-anonymised central data warehouse.

**Febrile Illness** – Fever; a fever is the body's way of reacting to something abnormal in the body. Fevers can be caused by a number of conditions including: infections, reactions to medications, reactions to blood transfusions, cancer, or autoimmune diseases, or in the case of malaria, a protozoan parasite called Plasmodium.

**Intolerance** - an inability to take a drug without adverse effects.

**Malaria** – Malaria is a mosquito-borne infectious disease of humans and other animals caused by parasitic protozoans (a group of single-celled microorganisms) belonging to the genus Plasmodium.

**Mefloquine Hydrochloride** - Mefloquine is used to prevent or treat certain types of malaria. It is used to prevent malaria where there is a high risk of chloroquine resistant malaria.

**Pseudo-anonymisation** - refers to a process that replaces clear identifiers (e.g. name, subject number) with alternative identifiers that bear no overt relationship to the true values. As a consequence, linkage back to the original data or to another de-identified copy from the same source can be achieved with, and only with, knowledge of the de-identification key or algorithm. This allows legitimate linking of data sets and other information but prevents inappropriate or unauthorised access to the identifiable records.

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<sup>6</sup> NHS, <http://www.nhs.uk/chq/pages/997.aspx?categoryid=73&subcategoryid=108>, accessed 9 May 2017.

<sup>7</sup> Medline Plus, Medical Encyclopaedia, <https://medlineplus.gov/ency/article/002314.htm>, accessed 15 August 2016.

## Further Information

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### **Audit of mefloquine prescriptions for Op HERRICK, Afghanistan**

The results of an audit of mefloquine prescriptions given to personnel deployed on Op HERRICK to Afghanistan were released as part of a previous official statistic published in May 2017. The results of this audit are available at the following link:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/615532/20170512-Official\\_Statistic-Mefloquine\\_prescribing\\_in\\_the\\_UK\\_armed\\_forces.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/615532/20170512-Official_Statistic-Mefloquine_prescribing_in_the_UK_armed_forces.pdf)

### **ACMP**

The Advisory Committee on Malaria Prevention provides guidelines for health professionals on the prevention of malaria for travellers from the UK. More information can be found on the following link: <https://www.gov.uk/government/collections/advisory-committee-on-malaria-prevention-acmp>

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