

# Background Quality Report

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## Mefloquine Prescribing in the UK Armed Forces

### Introduction

1. This biannual Official Statistic provides information on the number of mefloquine prescriptions given to UK Armed Forces personnel at MOD medical facilities. This report uses prescription data covering the period 12 September 2016 to 31 March 2017. This first edition of the statistic also presents the results of a clinical audit (carried out in June and July 2015) of UK Armed Forces personnel prescribed mefloquine hydrochloride (mefloquine) for deployment on Op HERRICK (Afghanistan). This can be found in Annex A.
2. 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.

### Background

3. 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.
4. Following coverage in national media in 2015, MOD carried out an audit of UK Armed Forces personnel prescribed mefloquine for deployment on Op HERRICK (Afghanistan) between 1 April 2007 and 31 December 2014. The aim of the audit was to assess whether the rationale for prescribing mefloquine was documented within the patient's electronic medical record.
5. In 2015 the House of Commons Defence Committee (HCDC) conducted an inquiry into the use of mefloquine (Lariam) in the UK Armed Forces. The information gathered from the audit was used to support the Government's response. 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>1</sup>.
6. 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>2</sup>.
7. 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.

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<sup>1</sup> <https://www.publications.parliament.uk/pa/cm201516/cmselect/cmdfence/567/567.pdf>

<sup>2</sup> <https://www.publications.parliament.uk/pa/cm201617/cmselect/cmdfence/648/648.pdf>

Publication of this Official Statistic is to meet this requirement, support the MOD's commitment to release information where possible and ensure that the public has equal access to the information.

## **Methodology**

### ***Prescription data – mefloquine prescriptions 12 September 2016 to 31 March 2017***

8. Data on prescriptions for mefloquine were extracted from the electronic patient record (DMICP) data warehouse. Data were extracted as at 21 April 2017. 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 this data warehouse, medical records were kept locally, at each individual medical centre. By 2010, DMICP was in place for the UK and the majority of Germany. Rollout to other overseas locations commenced in November 2011.
9. Information presented relates to the number of antimalarial drug prescriptions. Individuals may have received more than one prescription during the reporting period. Please note it is not possible to identify from the prescription data whether the drug was prescribed as a chemoprophylaxis to prevent malaria or if it was prescribed to treat malaria. All prescriptions for antimalarial drugs have been included and categorised as chemoprophylaxis.
10. A patient was categorised as having received a face to face risk assessment if codes were entered into their electronic record on the day of the prescription or prior to the mefloquine prescription.
11. A sample of records were reviewed by clinicians in December 2016. Clinicians who gave a prescription of mefloquine were asked to review the individual medical record if no coded data could be found to identify a risk assessment or alternative drug offered. Having checked the record, the clinician then completed a spreadsheet to indicate whether or not a face to face assessment was completed and alternative drug offered. If a clinician confirmed that a face to face risk assessment was carried out or alternative drug offered then these records have been categorised as such, even if there is no centrally coded data. No clinician review of individual electronic records has been conducted since December 2016.
12. The data on mefloquine presented is based on personnel who have been prescribed the drug; it does not ensure the individual has taken the drug.

### ***Prescription data – Op Herrick audit***

13. Data on prescriptions for mefloquine were extracted from the electronic patient record data warehouse. Data were extracted as at 18 August 2015.
14. To identify whether personnel were prescribed chemoprophylaxis for their deployment in Afghanistan on Op HERRICK, Defence Statistics sought advice

from Permanent Joint Headquarters (PJHQ) with regards to how long prior to deployment they would be prescribed the drug. The time between prescription and deployment was indicated between 2 days and 6 weeks prior to deployment. This has been used to establish who has been prescribed antimalarials for their specific deployment. Personnel who had not been prescribed an antimalarial within 43 days prior to deployment or whilst on deployment, have not been included in the numbers presented.

15. The number of prescriptions presented should be treated as minimum for the following reasons:
  - UK Armed Forces personnel who leave the Armed Forces and subsequently register at a MOD medical centre as a civilian were not included in the numbers presented.
  - It is possible that UK Armed Forces personnel were prescribed mefloquine prior to their medical record being held in DMICP, therefore these records were not available centrally.
  - If mefloquine prescriptions were recorded as free text only in the patient medical record they have not been included in the data.
  - It may also have been possible to prescribe mefloquine to UK Armed Forces personnel through a Patient Specific Direction. In these cases the name of the drug prescribed was not recorded in the data warehouse therefore these have not been included in the data.
16. In addition if mefloquine was prescribed by the NHS it has not been included in the numbers presented.
17. The data on mefloquine presented is based on personnel who have been prescribed the drug; it does not ensure the individual has taken the drug.

### ***Deployment***

18. Deployment on Op HERRICK includes deployments to a number of locations. In order to audit a relevant cohort of people for prescription of mefloquine, MOD only considered personnel who were deployed on Op HERRICK in Afghanistan. Therefore there may be other locations on Op HERRICK where personnel were prescribed mefloquine which were not included in this publication.
19. Personnel prescribed mefloquine for a deployment were identified if they were prescribed the drug either up to 43 days prior to deployment or whilst on deployment.
20. Data on deployment was derived from the JPA 'Move and Track' system which was introduced in April 2007. Due to on-going validation, some data may be provisional.
21. Please note, DMICP and Move and Track are live systems, and thus figures may change as a result.

### ***Audit***

22. The mefloquine audit for personnel deployed to Afghanistan on Op HERRICK was conducted in June/July 2015.
23. The audit represents a subset of UK Service personnel prescribed mefloquine between 01 April 2007 and 31 December 2014 (only those deployed on Op HERRICK). To conduct the same audit for all Service personnel prescribed mefloquine in this time period would be prohibitive within existing resources.
24. Defence Statistics identified the cohort of UK Service personnel who deployed on Op HERRICK in Afghanistan with a prescription for mefloquine and the current Defence Medical Service (DMS) medical practice of these patients from the electronic patient record data warehouse. For those personnel who had left Service the last known DMS medical practice was identified.
25. Personal identifying numbers (Service numbers) and current practice details were provided to each of the Regional Clinical Directors (RCD) for personnel within their region. The RCD directed the relevant Senior Medical Officers (SMO) to undertake the audit of individual patient records at their practice.
26. The SMO recorded in the medical record of each patient that the audit had taken place both in the form of a unique read code and through free text in the notes.
27. The audit information was collated by RCD's for their Region and passed back to DS in a pseudo-anonymised format in order to collate the overall results.
28. To ensure patient confidentiality was maintained throughout the audit the data were managed following a strict pseudo-anonymised process as outlined in MOD Policy (Joint Service Publication 950).

## **Relevance**

### **Coverage**

29. The report refers to mefloquine prescriptions and risk assessments to UK Armed Forces personnel between 12 September 2016 (release of updated policy) and 31 March 2017. The Annex presents results from an audit (carried out in June and July 2015) of mefloquine prescriptions to UK Armed Forces personnel who served as part of Op HERRICK between 1 April 2007 and 31 December 2014.
30. Doxycycline, atovaquone/proguanil (Malarone), proguanil, chloroquine/proguanil and chloroquine can be supplied to UK Armed Forces personnel through a Patient Group Direction. A Patient Group Direction (PGD) is a specific and detailed written direction for the administration or supply of named medicines, including those classified as Prescription Only Medicines (POM), by a named nurse, pharmacist or other authorised healthcare professional, in a specific clinical situation. A PGD is not a form of prescribing or an authority to prescribe. It is an authority to supply or administer.
31. In some cases it is possible that a patient has been supplied antimalarial drugs with the appropriate authorisations, but because of the separate process of

authorisation and supply, the name of the drug was not always captured in the electronic patient record. Therefore Defence Statistics were unable to identify which drug was given from the data warehouse, therefore these cases have not been included in the total numbers of antimalarials given. The information may have been included as free text in the patient's record.

## **User Needs**

32. The HCDC stated that they will monitor the MOD's policy in relation to malaria protection by requesting six monthly updates on the MOD's use of mefloquine. In addition MOD continues to receive requests for information from the media and members of the public; 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.
33. The information gathered from the audit was used to support the response to the HCDC's inquiry into the use of Lariam/mefloquine in the UK Armed Forces. The results from the audit have been released to ensure that MOD is open and transparent about the methodology and quality of the statistics and that equal access is given to all, as required by the Code of Practice for Official Statistics.

## **Accuracy**

34. Individual MOD medical centres are responsible for ensuring the accuracy of clinical information in the electronic patient record. All coded (not free text) information is saved into the central data warehouse at regular intervals; usually every three days. The electronic patient record system is a large clinical and administrative database and is subject to the data quality issues of any large administrative system with data collated by a large number of medical and administrative staff for clinical delivery purposes.
35. The main sources of potential error in the mefloquine official statistic are as follows:
  - Incomplete or inaccurate data from the data warehouse
  - Manual error during production of report
  - Data entered as free text are not available from the data warehouse
36. To ensure that potential errors are identified and resolved, Defence Statistics (Health) implement a series of data quality checks throughout the report production. When required, these checks involve close liaison with personnel in Defence Primary Health Care headquarters who are responsible for providing service delivery, to ensure the accuracy of the figures published.

## **Timeliness and Punctuality**

### **Timeliness**

37. Data are entered into the electronic patient record in real time and the data warehouse is updated every three days. Defence Statistics (Health) extract data, and publish mefloquine prescribing figures on a biannual basis.
38. Figures are published seven weeks after the end of the reporting period. This is due to the time lag in data availability and to allow time for the production of the statistic.

### **Punctuality**

39. The Official Statistics reports have been published on time to meet preannounced release dates. A one year release schedule outlining the following financial year's publication date is published on the Defence Statistics website. Future publication dates will also be announced on the UK Statistics Authority hub at least one month in advance.

## **Accessibility and Clarity**

### **Accessibility**

40. Mefloquine prescribing statistics are published on the GOV.UK website. The publications are available from 0930 hours on the day of release.

### **Clarity**

41. Users with an interest in the key findings can read a short summary of main messages immediately on the front page.
42. The report refers to mefloquine prescriptions and risk assessments to UK Armed Forces personnel between 12 September 2016 (release of updated policy) and 31 March 2017. Annex A presents results from an audit (carried out in June and July 2015) of mefloquine prescriptions to UK Armed Forces personnel who served as part of Op Herrick between 1 April 2007 and 31 December 2014.

## **Coherence and Comparability**

### **Coherence**

43. At the time of publication it was not possible to identify information relating to the numbers of prescriptions for antimalarial drugs including mefloquine for UK personnel or other foreign militaries.

### **Comparability Over Time**

44. This is the first release in a series. Comparisons over time will be made in future editions of this statistic.

## **Trade-offs between output quality components**

45. Where possible Defence Statistics (Health) minimise the cost to Government of producing these statistics by using data already collated for operational delivery purposes within MOD. The main source of data used for compiling these statistics is the electronic patient record (DMICP) data warehouse. DMICP data was cross referenced with the MOD's Joint Personnel Administration (JPA) system to identify UK Armed Forces personnel and remove civilians. Both data systems are large administrative databases, and as such, data quality across fields is of varying quality and completeness.

### **Assessment of User Needs and Perceptions**

46. In reference to the UK Statistics Authority report, The use made of Official Statistics, the Mefloquine Prescribing Statistic is used for:
- (i) Policy making and monitoring
  - (ii) Inform general public of the performance of government
47. External organisations such as the House of Commons Defence Committee use the reports for monitoring the numbers of prescriptions of mefloquine to UK Armed Forces and whether a face to face risk assessment was conducted prior to prescription, and an alternative antimalarial drug offered.

### **Description of Users and Usage of Statistics**

48. The Mefloquine Prescribing Statistic has been published in response to recommendations by the HCDC following an inquiry into the use of mefloquine in the UK Armed Forces.
49. The publication of the statistic also plays an important part in ensuring the Department's accountability to the British public.

### **Strengths and Weakness in Relation to User Needs**

50. Users external to the MOD are encouraged to give feedback via the MOD website. The publication provides details of how to give feedback.
51. The key strength of the Mefloquine Prescribing data is that the prescription data used is the information held at each MOD medical centre. The timeliness of this data and the regular updates to the data model mean the most up to date information is available for analysis.
52. The key weakness is that Defence Statistics (Health) have no control over the quality of the raw data in the data warehouse that was used to collate figures. The prescription and associated risk assessment data in DMICP are input by medical centre staff. Information may be recorded in a patient's medical record as free text which is not available in the data warehouse. It is possible that for some patients they have received a risk assessment however it was not entered into the medical record as coded information and therefore was not available for analysis. In order to partially overcome this problem, Defence Statistics engaged with Defence Primary Healthcare (DPHC) to investigate missing information relating to face to face risk assessments and alternative drug offered in medical

records, and to address the prescribing workforce about the importance of entering coded data to provide central assurance.

## **Performance cost and respondent burden**

### **Operational Cost**

53. The production of the Mefloquine Prescribing Official Statistic requires 0.2 FTE per year.
54. The Mefloquine Prescribing report uses administrative data sources already collected by the MOD. As such, there is no respondent burden, and the main operational cost to production of the statistics is for quality assurance and data interpretation.

## **Confidentiality, Transparency and Security**

55. All Defence Statistics (Health) staff involved in the production of Mefloquine Prescribing Official Statistic have signed a declaration that they have completed the Government wide Responsible for Information training and they understand their responsibilities under the Data Protection Act and the Official Statistics Code of Practice. All staff involved in the production process have signed the Data Protection Act, and all MOD, Civil Service and data protection regulations are adhered to.
56. Defence Statistics (Health) also adhere to Joint Service Publication 200 (March 2016). Defence Statistics (Health) ensure that the Mefloquine Prescribing data is kept confidential by holding this data on a secure server. Only individuals who work on the reports have access to the data.
57. Defence Statistics (Health) adhere to the principles and protocols laid out in the Code of Practice for Official Statistics and comply with pre-release access arrangements. The Defence Statistics Pre-Release Access lists are available on the GOV.UK website (<https://www.gov.uk/government/statistics/defence-statistics-pre-release-access-list>).