*Epidemiology and Infection*

**A Comparison of Interview Methods to Ascertain Fluoroquinolone Exposure Before Tuberculosis Diagnosis**

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**Supplementary Material**

Supplementary Appendix 1: Fluoroquinolone Exposure Assessment (FQ-Form)

Supplementary Appendix 2: Description of Interview Forms

Supplementary Appendix 3: In Home Questionnaire (In-home interview)

Supplementary Appendix 4: Expanded Figure

**Fluoroquinolone Exposure Assessment**

Instructions: Complete this form for *each* tuberculosis (TB) suspect or case, regardless of age, at the initiation of anti-TB treatment. Fax a copy to the Central Office, and file the original form in the patient’s medical record.

**Patient Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Date of birth:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**PTBMIS #:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Age:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ yrs

**A. HOSPITALIZATIONS**

Has the patient been hospitalized in the 6 months

before starting TB treatment? 🞏 Yes 🞏 No 🞏 Don’t know

**B. TUBERCULOSIS (TB) INFORMATION**

Start date of anti-TB medications: \_\_\_\_/\_\_\_\_/\_\_\_\_

Did the patient receive *any antibiotics* in the 6 months

before starting TB treatment? 🞏 Yes 🞏 No 🞏 Don’t know

 [continue below] [stop here] [stop here]

**C. FLUOROQUINOLONE EXPOSURES**

Please provide the following information for *each time* the patient received any of the following antibiotics

in the 6 months prior to starting TB treatment:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  **Name of Antibiotic** **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**Generic name / (Trade name) | **Received in the****past 6 months?****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (Circle **Y**es, **N**o, or **D**on’t **K**now) | **Start date of** **antibiotic \_\_\_\_\_\_\_\_\_\_\_\_\_\_** (MM/DD/YY) | **# of days patient****took this medicine****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (Indicate number, if unknown, circle **DK**) | **Reason for taking** **antibiotic\***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(Circle number correspondingto the reason listed below) |
| Ciprofloxacin / (Cipro)  |  Y N DK | \_\_\_/\_\_\_/\_\_\_ | \_\_\_\_\_ days DK | 1 2 3 4 5 6 |
| Gatifloxacin / (Tequin)  |  Y N DK | \_\_\_/\_\_\_/\_\_\_ | \_\_\_\_\_ days DK | 1 2 3 4 5 6 |
| Levofloxacin / (Levaquin)  |  Y N DK | \_\_\_/\_\_\_/\_\_\_ | \_\_\_\_\_ days DK | 1 2 3 4 5 6 |
| Moxifloxacin / (Avelox)  |  Y N DK | \_\_\_/\_\_\_/\_\_\_ | \_\_\_\_\_ days DK | 1 2 3 4 5 6 |
| Ofloxacin / (Floxin)  |  Y N DK | \_\_\_/\_\_\_/\_\_\_ | \_\_\_\_\_ days DK | 1 2 3 4 5 6 |

\*Code (reason for antibiotic): **1**=bronchitis, **2**=pneumonia, **3**=sinusitis, **4**=urinary tract infection, **5**=diarrhea, **6**=other

**Completed by:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, MD / RN **Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**Public Health Region:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Supplementary Appendix 2

**Description of Interview Forms**

1. **Fluoroquinolone Exposure Assessment Form** (FQ-Form, see Supplementary Appendix 1 for the actual form): During the study period, staff at all 11 regional public health tuberculosis clinics in Tennessee were instructed to complete the FQ-Form as part of the initial visit for tuberculosis care. The staff completed the form by interviewing the patient, and noting any immediately available corroborating data in the accompanying medical record. The completed FQ-Form was then kept in the patient’s paper chart at the health department.

2. **In Home Questionnaire** (In-home interview, see Supplementary Appendix 3 for the actual form): During the study period, health department staff approached culture-confirmed tuberculosis patients during tuberculosis care at Tennessee health departments. The health department staff asked the patients if a researcher could contact them about the study. If patients agreed, a researcher contacted them. If patients agreed to participate by providing written consent, research staff conducted interviews at the patient homes according to the questionnaire. Two memory aids were used to assist patients with their recall of antibiotic use: (1) a calendar with significant events such as holidays, birthdates, and the start date of tuberculosis treatment; and (2) color pictures of common antibiotic pills and their respective names. Patients were also asked to show the study coordinator all prescription medication bottles in their home.

**In Home Questionnaire**

**Patient Name**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Date of birth**:\_\_\_\_/\_\_\_\_/\_\_\_\_\_

**Case Number**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Date of TB diagnosis**: \_\_\_\_/\_\_\_\_/\_\_\_\_\_

In the **6 months** before you were told you had TB, how many times were you prescribed an antibiotic?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(# of antibiotic courses)

Who prescribed the above antibiotics (*circle all that apply*)?

* Primary care doctor
* Emergency room doctor
* Specialist
* Other (please describe)

For each time you received an antibiotic what was the reason given?

* Bronchitis # of times\_\_\_\_\_\_\_\_
* Sinusitis # of times\_\_\_\_\_\_\_\_\_
* Pneumonia # of times \_\_\_\_\_\_
* Urinary tract infection # of times\_\_\_\_\_\_\_\_
* Other, # of times \_\_\_\_\_\_\_\_\_\_\_

How much of each antibiotic course were you able to complete (*circle one*)?

* Took none of the pills prescribed
* Took half of the pills prescribed
* Took all of the pills prescribed

Do you remember the names of any of the antibiotics or what they looked like? Y N

(Provide names and pictures of fluoroquinolones and other common antibiotics)

Do you still have any of the antibiotics or the bottles that they came in? Y N

**Fluoroquinolones/Pill bottles available**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of fluoroquinolone****(Generic/Trade)** | **Date of prescription** | **Number of days/pills prescribed** | **Number of pills in bottle** | **Comments** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Supplementary Appendix 4

|  |  |  |  |
| --- | --- | --- | --- |
|   **FQ-Form** |  **Overall Medical Records\*** |   | **Outpatient Records Only**  |
|  | Exposed | Not Exposed |  | Exposed | Not Exposed |
| Exposed | 38 | 5 |  | Exposed | 27 | 16 |   |
| Not Exposed | 24 | 71 |  | Not Exposed | 11 | 84 |   |
|  |  |  |  |  |  |  |   |
| Sensitivity = 61% | Agreement = 79% | Sensitivity = 71% | Agreement = 80% |
| (CI 48-73%) |  | (CI 71-86%) |  | (CI 54-85%) |  | (CI 73-87%) |   |
| Specificity = 93% | k = 0.56 |  | Specificity = 84% | k = 0.53 |   |
| (CI 85-98%) |  | (CI 0.43-0.70) | (CI 75-91%) |  | (CI 0.37-0.68) |
| PPV = 88% |  | LR(+) = 9.3 | PPV = 63% |  | LR(+) = 4.4 |
| (CI 75-96%) |  | (CI 3.9-22.2) | (CI 47-77%) |  | (CI 2.7-7.3) |
| NPV = 75% |  | LR(-) = 0.4 | NPV = 88% |  | LR(-) = 0.3 |
| (CI 65-83%) |  | (CI 0.3-0.6) | (CI 80-94%) |  | (CI 0.2-0.6) |
|  |  |  |  |  |  |
| **In-home Interview** |  **Overall Medical Records\*** |  **Outpatient Records Only**  |
|  | Exposed | Not Exposed |  | Exposed | Not Exposed |
| Exposed | 20 | 1 |  | Exposed | 20 | 1 |   |
| Not Exposed | 52 | 93 |  | Not Exposed | 22 | 123 |   |
|  |  |  |  |  |  |  |   |
| Sensitivity = 28% | Agreement = 68% | Sensitivity = 48% | Agreement = 86% |
| (CI 18-40%) |  | (CI 60-75%) |  | (CI 32-64%) |  | (CI 80-91%) |   |
| Specificity = 99% | k = 0.29 |  | Specificity = 99% | k = 0.56 |   |
| (CI 94-100%) | (CI 0.18-0.41) | (CI 96-100%) | (CI 0.41-0.71) |
| PPV = 95% | LR(+) = 26.1 | PPV = 95% | LR(+) = 59 |
| (CI 76-100%) | (CI 3.6-190) | (CI 76-100%) | (CI 8.2-427) |
| NPV = 64% | LR(-) = 0.7 | NPV = 85% | LR(-) = 0.5 |
| (CI 56-72%) | (CI 0.6-0.8) | (CI 85-78%) | (CI 0.4-0.7) |
|  |  |  |  |
| **TennCarea**  |  |  |  |  | **Outpatient Records Only** Exposed Not Exposed |
|  |  |  |  | Exposed | 4 | 1 |   |
|  |  |  |  | Not Exposed | 7 | 25 |   |
|  |  |  |  |  |  |  |   |
|  |  |  |  | Sensitivity = 36% | Agreement = 76% |
|  |  |  |  | (CI 11-69%) |  | (CI 62-90%) |   |
|  |  |  |  | Specificity = 96% | k = 0.36 |   |
|  |  |  |  | (CI 80-100%) | (CI 0.03-0.68) |
|   |   |   |   | PPV = 80% |   | LR(+) = 9.5 |   |
|  |  |  |  | (CI 28-100%) |  | (CI 1.2-75.3) |  |
|  |  |  |  | NPV = 78% |  | LR(-) = 0.7 |  |
|  |  |  |  | (CI 60-91%) |  | (CI 0.4-1.0) |  |
|  |  |  |  |  |  |  |  |  |

Supplementary Figure. Sensitivity, specificity, agreement, kappa, positive and negative predictive values, and positive and negative likelihood ratios for pairwise comparisons of fluoroquinolone exposure ascertainment methods to exposure as determined by medical records. Outpatient record exposures were determined by review of clinic records and hospital discharge prescription records. Overall medical record exposures were determined by review of clinic records, hospital discharge prescription records, and hospital records.

CI: 95% Confidence interval; k: Kappa coefficient; PPV: positive predictive value; NPV: negative predictive value; LR(+): positive likelihood ratio; LR(-): negative likelihood ratio.

aTennCare pharmacy records included only outpatient prescriptions and were only available for patients age <65 years.