

Influence of Community Pharmacists' Attitudes on Antibiotic Dispensing Behavior: A Cross-sectional Study in Portugal

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ABSTRACT

Purpose: The emergence of microbial resistance is widely associated with inappropriate antibiotic use. Self-medication with antibiotics acquired directly from pharmacies without a medical prescription has been reported by several European countries as being an important cause of such inappropriate use. The goal of this study was to identify and evaluate community pharmacists' attitudes toward and knowledge of antibiotics and microbial resistance and to assess what influence, if any, these attitudes might have on their propensity to dispense unprescribed antibiotics.

Methods: We conducted a cross-sectional study covering all community pharmacists registered with the Official College of Pharmacists in Portugal's Central Region. A self-administered questionnaire on attitudes toward microbial resistance and antibiotic use was mailed to 1197 pharmacists. Responses ranged from 0 (total disagreement) to 10 (total agreement). Logistic regression was used to model the association between respondents' attitudes and their propensity to dispense antibiotics without an earlier medical prescription.

Findings: The overall response rate was 64.8%. Agreement with the dispensing of unprescribed antibiotics was highest in the case of dental diseases and ailments, followed by urinary tract infections. Although none of the sociodemographic data were associated with a propensity to dispense antibiotics without a medical prescription, the attitudes shown to be significantly associated with this propensity were complacency about patients, responsibility of others, and precaution or fear.

Implications: Because the attitudes of community pharmacists can influence their readiness to dispense

unprescribed antibiotics, educational interventions addressing such attitudes should be implemented to improve antibiotic use. (*Clin Ther.* 2015;37:168–177) © 2015 Elsevier HS Journals, Inc. All rights reserved.

Key words: antibiotics, attitudes, community pharmacists, microbial resistance, Portugal.

INTRODUCTION

Microbial resistance to antibiotics is an emerging public health issue worldwide and has been pinpointed as a major consequence of the inappropriate use of antibiotics.^{1–3} The emergence of microbial resistance has had a significant impact on patient morbidity and mortality, as well as on the increase in health care costs.^{4–6} Most antibiotics are consumed by outpatients,⁷ and nonprescription antibiotic consumption, obtained directly from pharmacies (even in countries where it is illegal) or with leftovers from previous courses of treatment, has been identified in several European countries.^{8–17} The use of unprescribed antibiotics could increase the risk of microbial resistance^{18,19} because it is associated with incorrect self-diagnosis,⁸ inappropriate selection of antibiotics and doses, and shorter courses of treatment.^{19–21}

Similar to other countries, Portugal has a high rate of outpatient antibiotic use,^{2,22} and some studies have identified instances of nonprescription antibiotic

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