

## FIJIAN FARMERS' ATTITUDE AND KNOWLEDGE TOWARDS ANTIMICROBIAL USE AND ANTIMICROBIAL RESISTANCE IN LIVESTOCK PRODUCTION SYSTEMS: A QUALITATIVE STUDY

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**Introduction:** Antimicrobial resistance (AMR) is a global health issue to humans and livestock (1). To mitigate AMR risks, responsible use of antimicrobials in livestock production systems have been advocated (1). Studies have demonstrated the patterns of antimicrobial use (AMU) in livestock production systems; however, there is limited information on the drivers of AMU. For successful antimicrobial stewardship (AMS), identifying the psychological (knowledge and attitude) and contextual drivers (environmental factors, economic status, and resource accessibility) for intervention is a crucial first step in the agri-food value chain. The theory of planned behaviour (TPB) has been used to understand behaviour influenced by a person's intention, attitude, and knowledge; therefore, evaluating behaviour allows understanding of drivers that affect and shape the farmers' intention and decisions (2).

**Aim:** To explore and understand the attitude and knowledge of Fijian livestock farmers on AMU and AMR.

**Methods:** Face to face one-to-one semi-structured qualitative interviews were conducted between September and November 2019 with Fijian livestock farmers and managers located in the Central and Western divisions of Viti Levu, Fiji. A sample of at least 20 participants from the cattle and poultry production systems was targeted and recruited using purposive and snowball sampling methods. TPB informed the development of the semi-structured interview guide. The interviews were audio-recorded and analysed inductively using Braun and Clarke's reflexive thematic analysis and deductively using the TPB framework (results reported elsewhere). An interpretative approach underpinned the design and conduct of this study.

**Results:** Nineteen livestock farmers and managers took part in interviews. Our analysis generated four themes: 1) Uninformed use of antimicrobials and unaware of AMR, 2) Safeguarding livestock and generating income source as primary motivators for using medicine, 3) Medicine shortage resulting in hoarding and self-prescribing, and 4) Foreign farmers and veterinarians trusted over Fijian veterinarian and para-veterinarian knowledge. Livestock farmers did not differentiate amongst different types of medicine, including antimicrobials. Therefore, antimicrobials were unwittingly used and without an awareness of the risks of AMR. Medicines, including antimicrobials, were used to protect livestock and promote production for food and financial security. Farmers hoarded medicines and self-prescribed them on the farms. Farmers lacked confidence in the advice on livestock management, and medicine use, provided by Fijian veterinarians and para-veterinarians. They sought help online and from foreign farmers and veterinarians. No participant sought advice from pharmacists who are experts in medicine.

**Conclusion:** This study uncovered the first documented accounts of Fijian livestock farmers' attitude and knowledge on AMU and AMR. AMS programmes promoting awareness

and rational use of antimicrobials and resistance in Fijian livestock production is recommended. These programmes need to consider the social, economic, and environmental factors driving irrational medicine use by farmers. We acknowledge the views shared by participants may not be representative of all farmers in Fiji; however, we believe all participants provided in-depth insight into the current drivers of AMU. Future studies exploring the attitude and knowledge of Fijian veterinarians, para-veterinarians and pharmacists on AMU and AMR in livestock production can inform the design of AMS programmes that currently do not exist.

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## EXPLORING DETERMINANTS OF ANTIMICROBIAL PRESCRIBING BEHAVIOUR: A QUALITATIVE STUDY USING THE THEORETICAL DOMAINS FRAMEWORK

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**Introduction:** Few qualitative studies have explored determinants of antimicrobial prescribing behaviour in hospitals, and none has made reference to behavioural theories. An understanding of these determinants is required for the successful development and implementation of behaviour change interventions (BCIs) in this area.

**Aim:** To explore the determinants of clinicians' antimicrobial prescribing behaviour, using the Theoretical Domains Framework (TDF; a framework of behavioural theories).

**Methods:** This work was part of a multi-phase explanatory, sequential mixed methods PhD programme of research. This qualitative part involved semi-structured, online (video) interviews via a videoconferencing software programme (Zoom) with clinicians (doctors and pharmacists) based in 12 Hamad Medical Corporation hospitals in Qatar. Clinicians were sampled purposively in strata of gender, profession, years of experience and area of practice. The interview schedule was developed based on a review of published literature (1), previous findings of quantitative research (2) and the TDF to ensure comprehensive coverage of key determinants (including barriers and facilitators) related to clinicians' antimicrobial prescribing behaviour. Interviews were conducted from December 2020 to February 2021, audio-recorded, transcribed and independently analysed by two research team members using the TDF as an initial coding framework.

**Results:** Data saturation was achieved after interviewing eight doctors and eight pharmacists from a range of areas of practices and with a variety of experiences. A number of themes, linked to ten TDF domains, were identified as determinants of antimicrobial prescribing behaviour and these determinants

were interrelated. In-depth analysis identified several barriers and facilitators that may contribute to inappropriate or appropriate antimicrobial prescribing. Main barriers identified were around hospital guidelines and electronic system deficiencies (environmental context and resources), gaps in the knowledge in relation to guidelines and appropriate prescribing (knowledge), restricted roles/responsibilities of microbiologists and pharmacists (professional role and identity), uncomfortable antimicrobial prescribing decisions (memory, attention and decision processes), as well as professional hierarchies and poor multidisciplinary teamworking/relationships (social influences). "Sometimes, the barrier would be the ego of senior doctors who refuse our evidence-based recommendation and depend on their clinical judgement or experience" (Pharmacist 470, Cardiology). Key facilitators highlighted included guidelines compliance goals and intentions, and the beliefs of consequences of appropriate or inappropriate prescribing. Further education and training sessions, and some changes to guidelines, including accessibility were also considered essential. "We need to seriously consider getting an antibiotic guidelines app which is downloaded to clinicians' mobile phones. The mobile app is handy, you can access it anytime even at the patient's bedside" (Doctor 514, Microbiology).

**Conclusion:** This qualitative study, using a theoretically based approach, has identified that antimicrobial prescribing in hospitals is a complex process influenced by a broad range of behavioural determinants that described specific barriers and facilitators. The in-depth understanding of this complexity provided by this phase of the research may contribute to the design and development of theoretically based BCIs to improve clinicians' antimicrobial prescribing. Limitations include data collected with online interviews due to the Covid-19 restrictions. This may have excluded some clinicians who did not feel comfortable with or have access to the technology required.

#### References

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### Oral papers 4: Community pharmacy

#### A NATIONAL INITIATIVE TO PROMOTE PUBLIC INVOLVEMENT IN MEDICINE SAFETY IN SCOTLAND: THE USE OF A POPULATION SURVEY TO IDENTIFY CANDIDATE BEHAVIOURS FOR INTERVENTION DEVELOPMENT

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**Introduction:** Medicines are the most commonly used healthcare intervention (1). Every medicine has benefits and harms. One of the five objectives of the WHO Global Patient Safety campaign, Medication Without Harm, is to "empower patients, families and their carers to become actively involved and engaged in treatment or care decisions, ask questions, spot errors and effectively manage their medications" (2). Effective strategies are needed to promote greater public involvement in the safe and effective use of medicines.

**Aim:** The aim of this study was to explore the prevalence of public behaviour in terms of information-/advice-seeking about medicines in general, newly prescribed medicines, and pain management including their use of oral, over-the-counter (OTC) analgesics. The survey also included exploration of self-reported behaviour regarding their use of pharmacies and OTC analgesics.

**Methods:** A cross-sectional online survey of 1000 adults (aged >16years) in Scotland was undertaken in collaboration with Ipsos MORI. The content was informed by a multi-stakeholder prioritisation event (held in November 2019) and supplemented with information from earlier studies, including national surveys using Citizen Panels. The following themes were included in the questionnaire:

- Use of community pharmacies to obtain medicines
- Perceptions/expectations of pharmacists and medicine advice provision
- Advice-seeking for medicines in general and oral OTC analgesics
- Use of oral OTC analgesics and pain management
- Risk perception and medicine use
- Medicine disposal
- Demographics (age, gender, education, employment, urban/rural area, social grade, and participant's general health)

The data were input online by respondents then cleaned and weighted by Ipsos Mori using random iterative method (RIM) weighting to the known offline population proportions for age, gender, region and working status. All data were analysed and presented using descriptive statistics.

**Results:** Most respondents (78%, n=777) had used a pharmacy in the previous 12 months to obtain a prescription medicine and slightly fewer (61%, n=610) to obtain an OTC medicine. Low levels of information- and advice-seeking were reported especially on receipt of new prescription medicines.

Few (5%) respondents 'always' discussed their new prescription medicine with pharmacy staff and 29% reported 'never' engaging in this behaviour. Older people (> 35 years) were less likely to engage in this behaviour. Up to 65% of respondents reported 'always' engaging with specific aspects of the appropriate use of OTC analgesics e.g. appropriate dose.