

COMPARATIVE ANALYSIS OF ANTIBIOTIC PRESCRIBING AT THE TIME OF SORE THROAT IN THREE EUROPEAN COUNTRIES: IMPLICATIONS FOR ANTIMICROBIAL RESISTANCE

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INTRODUCTION

- Overuse, misuse and inappropriate prescribing of antibiotics significantly contribute to antimicrobial resistance (AMR)
 - Most upper respiratory tract infections (e.g. pharyngitis [sore throat]) are self-limiting and resolve without antibiotics; however, considerable unnecessary antibiotic use persists¹⁻⁵
- Antibiotic consumption is increasing substantially, while antibiotics are becoming more ineffective due to AMR^{1,2}
- With a limited pipeline of new antibiotic classes, preserving the efficacy of the antibiotics we have remains important^{1,2}
- Tackling unnecessary antibiotic use and AMR is a global health priority, especially since there are few antibiotic alternatives available¹⁻³
- The World Health Organization is driving initiatives to optimise the use of antibiotics.¹ In addition, many countries have implemented strategies to target inappropriate antibiotic use
 - For example, awareness campaigns in France have focused on decreasing antibiotic consumption⁶
- Health focus moved away from AMR during the coronavirus disease 2019 (COVID-19) pandemic and was coupled with an overall drop in self-limiting, non-COVID respiratory illness⁷
- Comparison of antibiotic prescribing patterns in Europe is useful to help understand changes during the COVID-19 pandemic, the contribution of inappropriate prescribing to AMR and whether strategies are working

AIM

- To report antibiotic prescribing patterns in patients with a sore throat diagnosis across Italy, the United Kingdom (UK) and Russia

METHOD

STUDY DESIGN

- A multicentre, retrospective, observational study
- Prescribing data were collected from Italy, the UK and Russia between different timepoints (Table 1)
- Data were filtered to identify patients with a selected diagnosis (laryngitis, pharyngitis, tonsillitis, glandular fever)
 - All antibiotic prescriptions were issued within 14 days of a diagnosis

Table 1: Study design across Italy, the UK and Russia

COUNTRY	TIMEPOINTS	REAL-WORLD DATASET*	PRESCRIBING SYSTEM
Italy	November 2018–October 2021	IQVIA Ltd® LPD	Primary care practices
UK	November 2016–October 2021	IQVIA Ltd® LPD incorporating data derived from THIN®, A Cegedim Database	Primary care practices
Russia	January 2019–November 2021	IQVIA Ltd® LPD	Outpatient reimbursement segment

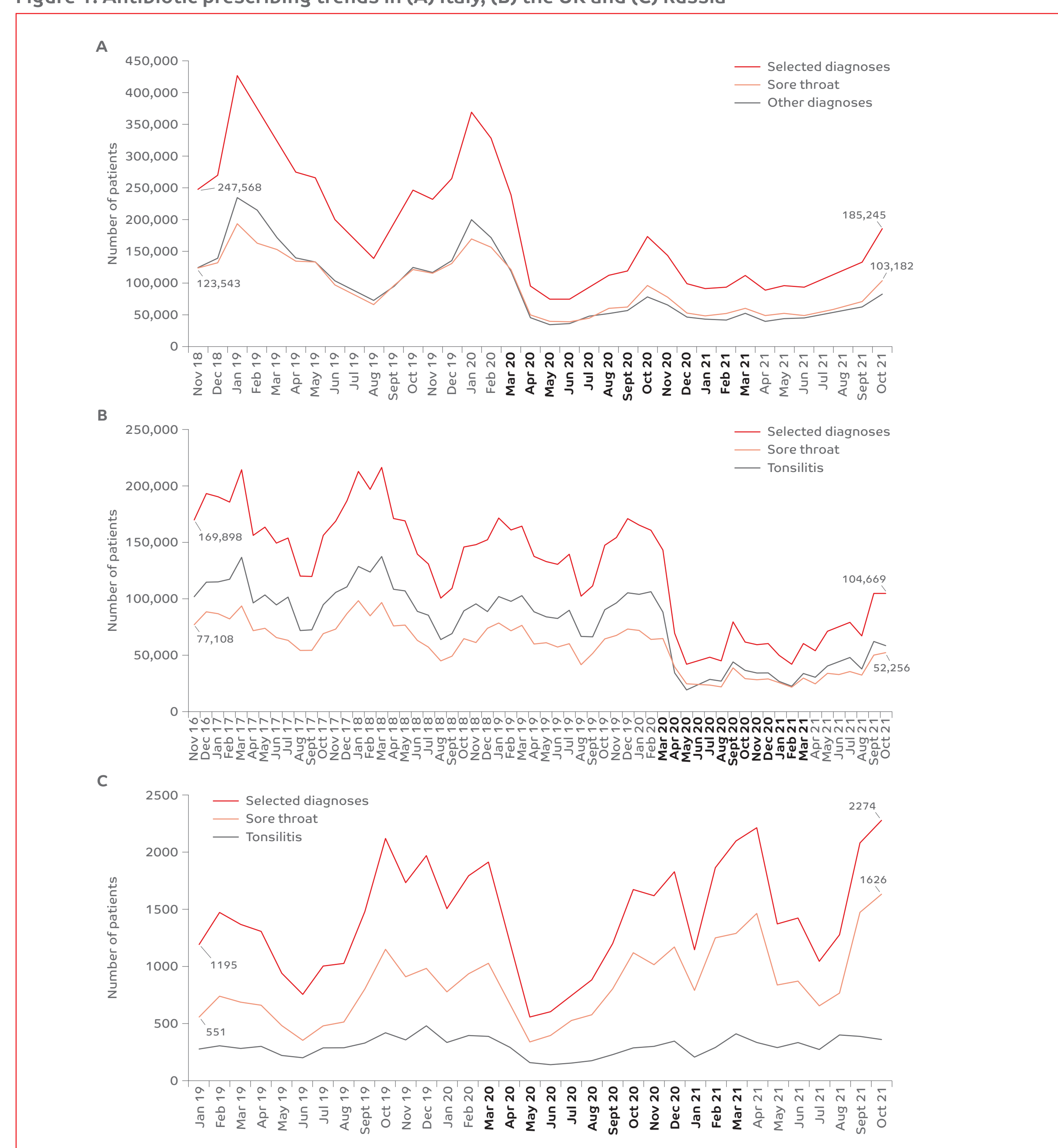
*UK and Italy LPD is de-identified patient information from a sample of General Practitioner (GP) practices projected to national levels. Russia LPD is from hospital outpatient reimbursement data
LPD, Longitudinal Patient Database; THIN®, The Health Improvement Network; UK, United Kingdom

RESULTS

SEASONAL TRENDS OF ANTIBIOTIC PRESCRIBING

- Despite variability across the UK's devolved countries and smaller regions in Russia, antibiotic prescribing mirrored the seasonal trend of selected respiratory infections across the three countries included (Figure 1)

Figure 1: Antibiotic prescribing trends in (A) Italy, (B) the UK and (C) Russia



ANTIBIOTIC PRESCRIPTIONS FOR PATIENTS WITH SORE THROAT

- There was a marked decline in antibiotics prescribed during the COVID-19 pandemic in 2020 (Figure 1)
- From 2019 to 2021, the number of patients with a sore throat diagnosis who were prescribed antibiotics declined over time in Italy (-51%) and the UK (-48%), and increased in Russia (+45%). It should be noted that prescribing data from Russia were limited (Figure 2)
- The proportion of patients with a sore throat diagnosis who were prescribed antibiotics decreased by 10% in Italy (2019–2021), decreased by 2% in the UK (2017–2021) and increased by 15% in Russia (2019–2021) (Figure 3)

Figure 2: Number of patients with sore throat prescribed antibiotics in (A) Italy, (B) the UK and (C) Russia

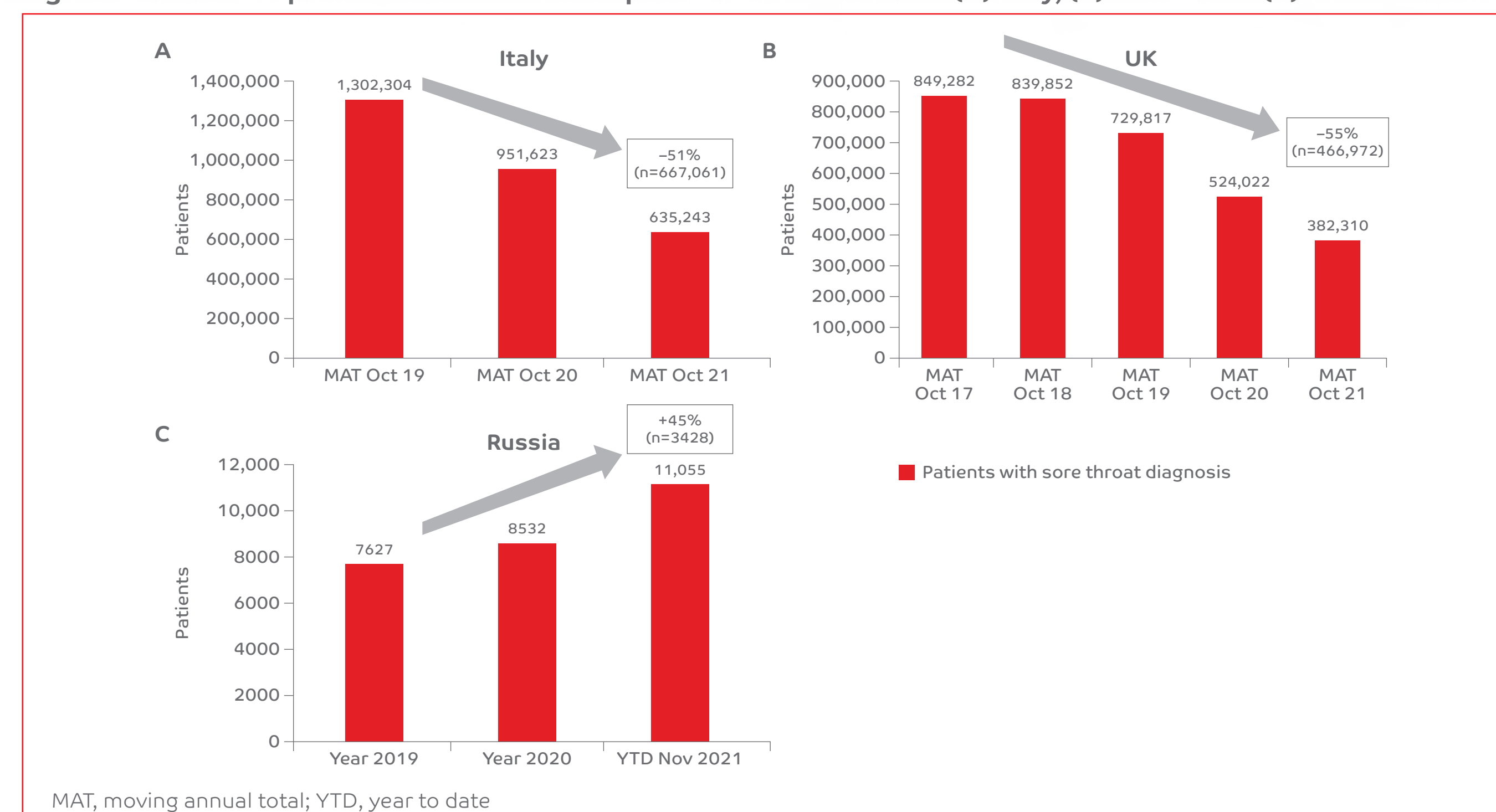
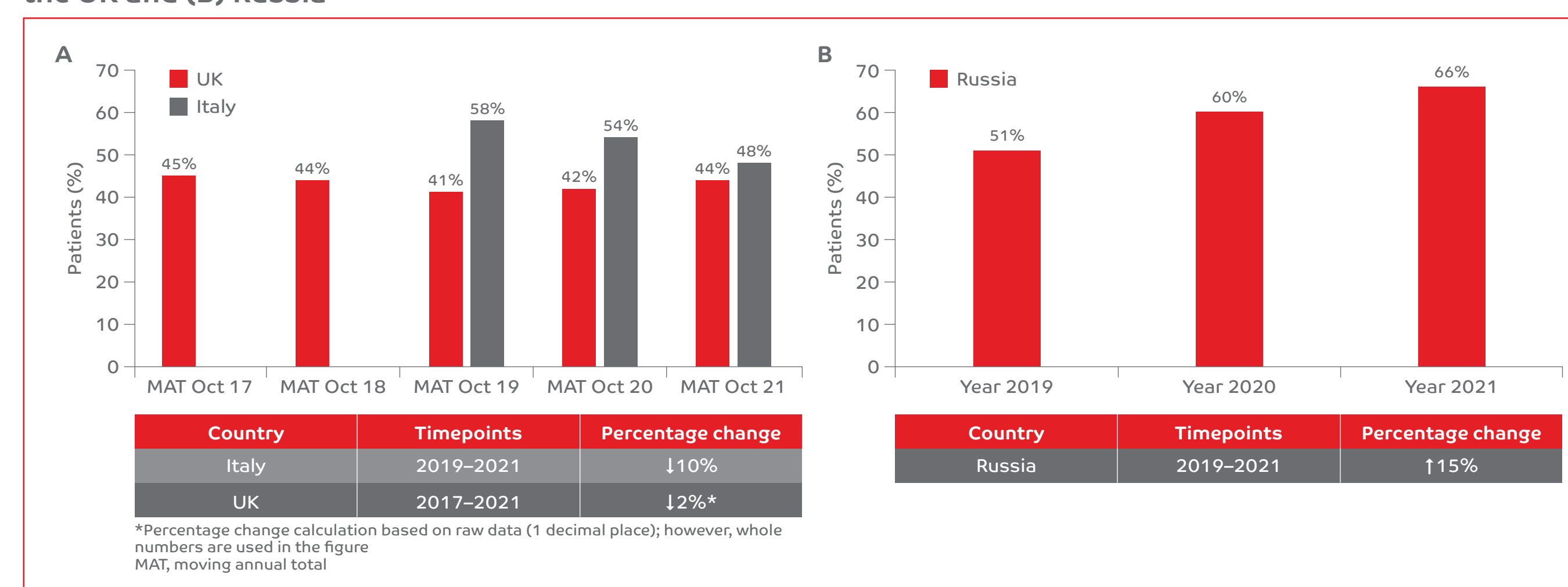


Figure 3: Change in the proportion of patients with sore throat diagnosis prescribed antibiotics in (A) Italy and the UK and (B) Russia



PRESCRIBER DISTRIBUTION

- In Italy and the UK, respectively, 25% and 15% of physicians were high prescribers (Table 2)
- High prescribers covered 59% and 50% of total prescriptions for both Italy and the UK, respectively

Table 2: Prescriber types in MAT October 2021 (Italy) and the QTR October 2021 (the UK) of antibiotics for patients with a sore throat

COUNTRY	PRESCRIBER TYPE	NUMBER OF GPs	% OF GPs	NUMBER OF RxS	% OF RxS
Italy	High	8558	25	452,690	59
	Medium	10,629	30	188,558	25
	Low	15,598	45	120,782	16
UK	High	3647	15	54,549	50
	Medium	7294	26	32,250	30
	Low	14,067	55	21,674	20

GPs, general practitioners; MAT, moving annual total; QTR, quarter; RxS, prescriptions; UK, United Kingdom

POST-ANTIBIOTIC PRESCRIBING PATTERNS

- The proportion of patients with a sore throat diagnosis who were prescribed subsequent therapies (from subsequent antibiotics, painkillers or throat spray) in the 14 days following an antibiotic prescription were as follows:
 - In the UK (2017–2021), of the ~10% of patients who received a subsequent therapy, ~66% were prescribed a subsequent antibiotic, ~39% a painkiller and ~5% a throat spray
 - In Italy (2019–2021), of the ~3% of patients who received a subsequent therapy, ~84% received a subsequent antibiotic, ~13% a painkiller and ~3% a throat spray
 - Similar data could not be collected for Russia

CONCLUSIONS

- These data suggest that antibiotics are still being prescribed to patients with sore throat, which may be unnecessary prescribing and can contribute to AMR
- The levels of prescribing of antibiotics to patients with sore throat appears to be different depending on the country
 - Russia demonstrated increased antibiotic prescribing over time, although these data were more limited
 - Despite the decline in antibiotic prescribing in Italy and the UK, there was an ongoing high use of antibiotic treatment at the time of sore throat diagnosis
 - The COVID-19 pandemic certainly impacted antibiotic prescribing, and changes post lockdown still need to be assessed
- Sectors not included in this study (e.g. hospital) would also further contribute to antibiotic consumption
- This study highlights the need for further:
 - Educational campaigns to prevent antibiotic misuse, including health literacy to help patients make informed treatment choices
 - Antimicrobial stewardship targeting high prescribers
 - Establishment of regional guidelines and training to support prescribing decisions

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DISCLOSURES

This study was funded by Reckitt. Graça Coutinho, Thomas Hallett and Adrian Shephard are employees of Reckitt. Aurelio Sessa and Martin Duerden have received honoraria for work with Reckitt related to the subject area
Poster presented at the 81st FIP World Congress of Pharmacy and Pharmaceutical Sciences, Brisbane, Australia, 24–28 September 2023

ACKNOWLEDGEMENTS

Medical writing support was provided by Isabella Janowski, Elements Communications Ltd, UK, and was funded by Reckitt