

CONFERENCE ABSTRACTS

FIP VIRTUAL 2020

Pharmaceutical Practice: Community Pharmacy

Community pharmacists' views of postgraduate Quality Improvement (QI) training and impact on practice

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Background: As pharmacists continue to extend their professional roles and deliver new services, there is growing debate on how pharmacies can maintain service quality within a clinical governance framework.

Purpose: It was hypothesised that a postgraduate Quality Improvement (QI) module that provided pharmacists with methodological training in the principles of QI, could be used to support service safety, effectiveness and patient experience.

Method: In collaboration with four Local Pharmaceutical Committees (LPCs), one university developed a QI training module; 28 community pharmacists enrolled on the module. Focus groups were used to explore motivation to undertake the learning, organisational support, impact on knowledge and outcomes on practice. Focus groups were audio recorded, transcribed and analysed thematically.

Results: Six focus groups were held involving 21 community pharmacists. The findings showed that pharmacists' experience of the QI learning was positive with significant improvements in comprehension and application in practice. However, some pharmacists reported a lack of time to undertake the learning. There was a perceived lack of organisational support and pharmacists considered it too soon to make an assessment on

patient outcomes as their improvements required time to fully embed in practice.

Conclusion: Despite the barriers to learning, pharmacists demonstrated improved knowledge of QI methods and reported using these approaches with their teams to improve practice. With an expectation on pharmacists to extend their roles, there is a pressing need to effectively promote QI skills to deliver change, ensure quality and transform services.

COVID-19 – seen through the eyes of the pharmacy interns

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Background: One hundred and thirty (130) pharmacy students from the University of Copenhagen were doing their pharmacy internship in community pharmacy. Here they are to acquire knowledge of, as well as skills and competencies in, areas such as organisation, leadership, ethics, economy, patient counselling, patient safety, cooperation etc. The COVID-19 pandemic hit the entire world and created an extra steep learning curve for the interns. And why not try and combine the two: the pharmacy internship learning and the COVID-19 crisis? It is important to explore how pharmacies manage their customary and newly emerging roles during the COVID-19 outbreak.

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Purpose: The purpose of the study is to reveal how the COVID-19 pandemic influences pharmacy organisation, leadership, ethics, economy, patient counselling, patient safety, and cooperation seen through the eyes of the pharmacy interns.

Method: A two-page long questionnaire on how COVID-19 influences the above mentioned areas was uploaded to the internship webpage, hopefully inspiring the interns, who were tasked with handing in a nine-page long report as part of their exam. A content analysis of the reports will be done.

Results: Since the interns hand in their reports by June 19 2020, no results are available yet. If all interns write about COVID-19 in their report, though, more than 1,000 pages on their COVID-19 experiences will exist. Answers with the most insightful learning potential for pharmacy practice globally will be presented and discussed.

Conclusion: Having successfully carried out pharmacy internship-based research for more than 20 years in Denmark, we are convinced that the study will reveal useful results.

Vaccinating pharmacist in Italy: Why still a taboo?

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Background: The administration of vaccines by pharmacists is a reality in a number of countries. This provision leads to an increase in the immunisation rate and a notable gain in consensus amongst the population. In Italy, this service has not yet been started.

Purpose: To evaluate the opinion of pharmacists and pharmacy customers regarding vaccines, and the proposal to authorise Italian pharmacists to administer vaccines. Based on data from a first-wave investigation that was carried out in a rural area, we have extended the study to a metropolitan area.

Method: Data were gathered from direct interviews by means of questionnaires in ten pharmacies located in Turin (Italy).

Results: Eight hundred (800) pharmacy customers were interviewed and 79% of them were found to be in favour of the introduction vaccinating pharmacist. Moreover, 76% affirmed that vaccines are safe and effective. The questionnaires of 111 pharmacists were also collected. Only half of the interviewed pharmacists were in favour of being authorised to administer vaccines. Many were concerned about the management of potential adverse reactions following immunisation. About 90% of the pharmacists were in favour of vaccines.

Conclusion: The data confirm the results of the first wave as to the particularly positive feedback, from pharmacy customers, regarding the subject of pharmacists being authorised to administer vaccines. The uncertainties shown by the pharmacists on this subject can be solved thanks to specific training on injection techniques and the management of potential adverse events following immunisation, as implemented in countries in which vaccinating pharmacists are already a reality.

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Virtual integration of the Shared Pharmaceutical Record with medicines related e-health services in Belgium

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Background: E-health services, such as electronic prescriptions, the Shared Pharmaceutical Record (SPR), digital medication plans, and reimbursement procedures have been implemented progressively in Belgium. Uniform standards were developed and introduced in collaboration with authorities, service providers and software vendors.

Purpose: Integration of medicine related e-health services allows sharing and re-use of data, once-only data entry and interdisciplinary collaboration through common tools. It supports the family pharmacist's function in patients' medication management.

Method: A national e-health action plan was launched in 2012 creating common objectives, overarching governance and coordination among e-health projects in Belgium. Those regarding medication were brought together in a Virtual Integrated Drug Information System (VIDIS) (Project Team VIDIS, 2020). Community pharmacists participated since they provide e-health services for sharing dispensing and medication plans through FarmaFlux (Farmaflux, 2020).

Results: In 2012 MyCareNet, a e-health service providing reimbursement information became mandatory in pharmacy. In

2017 the family pharmacist service was launched: 835,000 patients have applied since. In 2019 electronic prescribing became mandatory and the roll out of the SPR was almost complete: 99.9% of registered pharmacies were connected. In 2020 sharing digital medication plans will be developed by FarmaFlux and the VIDIS web application will be released.

Conclusion: Common standards and procedures amplify virtual integration of medicines related e-health services into a comprehensive web application, allowing access for citizens and interdisciplinary collaboration, thus anchoring the family pharmacist in patients' medication management.

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A pharmacist's view of the impact/management of medicines shortages in the pharmaceutical supply chain (Spain)

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Background: Access to medicines, or lack of it, is a global phenomenon which is an increasing problem for healthcare professionals. Patient health and wellbeing can be adversely affected by this issue and it adds to pharmacist workload and stress levels.

Purpose: To analyse the impact of medicines shortages (MedS) on the pharmaceutical supply chain (PSC) as reported by pharmacists in Spain and to examine current management strategies.

Method: An e-questionnaire was piloted and completed by 271 pharmacists. The questionnaire was deployed in August 2019 and circulated via social media networks. Ethical approval was obtained from the University of Bradford Ethics Committee.

Results: Seventy-five percent (75%) of respondents were community pharmacists, 85% of which said that medicines shortages occurred daily. Medicines unavailability caused delays in patient care, inability to provide treatments and alternative medicines to be sourced. MedS caused extra work (1-2 hours/day as reported by 63%) and 79% confirmed that they had suffered adverse financial repercussions. A large proportion of respondents (85%), were aware of the national reporting system for medicines shortages but felt that it did not work effectively. Approximately 60% said that they were unaware of key policies guiding this activity and advocated greater stakeholder communication.

Conclusion: Surveyed pharmacists demonstrate great resilience, determination and adaptability in managing the impact of medicines shortages. They do this to better serve their patients. Further exploration needs to be undertaken to identify and share good practice in medicines shortages management strategies and to provide additional support and guidance.

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Pharmacy Space

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Background: Pharmacists in Egypt and developing countries suffer from difficulties in communication, the lack of opportunities to develop their skills, the lack of opportunities for interaction and expression of opinions, and few provided opportunities to work and continue in education.

Purpose: Facilitate communication between pharmacists by creating a social networking site for pharmacists.

Method: 'Pharmacy Space' is a network that connects specifically pharmacy professionals; it has many features including chatting, presenting topics for discussion, showing the latest news in the field of pharmacy from reliable sources, it offers online courses and job opportunities. A prototype of the site was made and tested on a group consisting of more than 100 pharmacists from five different regions in Egypt, to test the effectiveness of the website.

Results: The website proved to be very effective in improving communication between pharmacists and providing some opportunities for courses or jobs, and some effective discussions were held on the current pharmacy situation in Egypt and ways to develop it.

Conclusion: 'Pharmacy Space' is an effective way to reduce the distance between pharmacists in developing countries for one goal, which is to develop pharmacists themselves and the pharmacy profession as a whole.

FIT - the right training at the right dose

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Background: The FIT Programme is a new concept of professional training for community pharmacy teams with both e-learning and face-to-face training components. It was launched in September 2018 by the National Association of Pharmacies (ANFs) Post-Graduate School in Health and Management. FIT is based on three pillars: mentoring of participants, training content is tailored to the pharmacy's reality, and an assessment. FIT helps to up-skill the pharmacy teams in four knowledge areas: Technical and Scientific, Operational Efficiency, Soft Skills, and Technological.

Purpose: Describe the implementation and quantitative and qualitative results of the new pharmacy training model - FIT from October 2018 to October 2019.

Method: FIT was launched on the 18th October 2018. FIT continued in 2019 featuring decentralised sessions. The programme data were collected and analysed with Microsoft Office tools - Power BI that aggregates the data from the participants and pharmacy management platforms - Humantrain and Percepium e-learning platform, and reporting results from it.

Results: In the first year 49% of Portuguese pharmacies and 7,300 participants were enrolled (3,635 participants were involved in face-to-face training sessions and 3,400 participants completed the programme). Satisfaction surveys showed that 97% of the participants were 'very satisfied' or 'satisfied' regarding the relevance to professional activity.

Conclusion: Fifty percent (50%) of Portuguese pharmacies have joined FIT, suggesting that it met their expectations and needs. Being able to 'do it' is much more than just knowing how to 'do it'. FIT goal has enhanced these two concepts, allowing a professional qualification closer to the challenges of the pharmacy and the health sector.

Operação Luz Verde: A new light for patients during COVID-19 pandemic

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Background: During coronavirus disease (COVID-19) pandemic, avoiding hospital visits only to obtain medication was crucial to protect patients and to ensure hospital responsiveness. Portuguese pharmacies have national coverage.

Purpose: To establish a nationwide response that allows patients to receive their specialty medicines (SM) in a community pharmacy of their convenience or at home, ensuring treatment continuity and avoiding unnecessary travelling to and from a hospital.

Method: Community pharmacies, hospitals and pharmaceutical wholesalers collaborated in a structured, multidisciplinary operation, involving healthcare professionals and pharmaceutical stakeholders, endorsed by Pharmaceutical and Medical Societies: Operação Luz Verde (OLV). Hospitals, patient associations, community pharmacies and patients themselves can ask for the dispensing of SM at a community pharmacy. Requests are received by a pharmacist specialised support line (LAF), which ensures communication between all stakeholders. Hospital pharmacists prepare the medicines and wholesalers provide transportation to ensure good practice. Community pharmacists scheduled for medicines to be dispensed with patients, ensuring electronic records and reports of eventual problems were sent to the hospital. OLV is free of charge for patients and hospitals, at least until the end of May 2020.

Results: From the 23rd March until the 15th May 15, 12,229 patient requests were approved by a total of 33 hospitals; 2,189 participating pharmacies and 20 patient associations endorsed the initiative. Final results will be presented at a later date.

Conclusion: Community pharmacies may have an important role in the dispensing of SM. OLV may improve access to these medicines and reinforce potential for reducing inequities.

Characterisation of cardiovascular risk patients: A useful professional service in community pharmacy

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Background: Currently, different professional services are being incorporated into community pharmacies in order to optimise the personalised management of patients. The characterisation and monitoring of patients with cardiovascular risk (CVR) is one of them.

Purpose: To determine the characteristics of patients with CVR in the community pharmacy in order to detect their health needs, and from there, to establish the most appropriate and effective intervention guidelines.

Method: A validated questionnaire was used to facilitate the storage and processing of data from patients with CVR from four community pharmacies, two in Seville and two in Badajoz (Spain), which were recorded through personal interviews. An observational and cross-sectional descriptive study was conducted between January 2016 up until July 2017.

Results: A sample of 100 patients was evaluated, 51% were men, older (61.5 ± 10.1 years) with a low educational level (53.1%) and most of whom living accompanied (88.0%). The 74.5% were primary prevention patients with a moderate level of CVR (2.51 ± 1.89). Hypertension (83.7%), dyslipidemia (64.4%), diabetes type-II (38.8%) and obesity (52.0%) were the most prevalent factors of CVR. Nearly half of the patients (48.5%) engaged in regular physical exercise and 23.5% were smokers. The most commonly used drugs were lipid modifiers (59.4%), oral antidiabetics (37.5%), antithrombotics (32.2%), followed by beta-blockers (28.1%).

Conclusion: The characterisation of patients with CVR through structured and agreed questionnaires can help the pharmacists to provide a professional service adapted to their needs and to develop more effective prevention programmes.

Three-dimensional printing: A new approach for the manufacture of individualised medicines

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Background: Three-dimensional printing (3DP) has been recently identified as an opportunity to make a significant technological leap over traditional pharmaceutical manufacturing processes, especially regarding individualisation of medicines.

Purpose: This work aims to envision the future of the design and manufacture of 3DP individualised medicines.

Method: A SWOT analysis is performed considering the state of the art in multiple perspectives.

Results:

Strengths - Design and development of individualised medicines with flexible and precise doses for specific patient groups (e.g. paediatrics/geriatrics) or patients with specific conditions or diseases (e.g. kidney/hepatic damage; chronic diseases); Manufacture of medicines closer to patients; Advantages when compared to traditional industrial manufacture (e.g. scale up not required); Promotion of pharmacists on prescription evaluation and patient counselling.

Weaknesses - Requirement of trained personnel and qualified technical resources; Initial investment of equipment and software in compounding pharmacies; Running costs may increase; Daily professional practice must change.

Opportunities - 3DP re-centres compounding pharmacy; Better articulation between manufacture and pharmaceutical advice; Higher involvement of patients and patients' associations in medicines' usage; Larger benefits in compliance and health literacy.

Threats - Physicians and pharmacists must change daily practice because medicines are designed, manufactured and prescribed for patients in a tailored way; Stakeholders connected to medicines may resist to changes.

Conclusion: In sum, emergent 3DP can potentially contribute to better, patient driven medicines reinforcing the pharmacist role as a healthcare provider.

Attitudes of Estonian public towards pharmacy-based flu vaccination

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Background: In 2017 Estonia had one of the lowest vaccination rates in Europe for seasonal influenza. Previous studies have shown reluctance towards influenza vaccinations as the vaccine is considered to be ineffective and influenza is regarded as a well-tolerated disease, therefore vaccination is seen as redundant.

Purpose: To determine the attitudes of the Estonian public towards pharmacy-based vaccination and pharmacies as a place to administer vaccines and pharmacists as vaccinators.

Method: A survey was conducted among people who were vaccinated at pharmacies during 2018 and 2019 within the pharmacy-based vaccination programme. The anonymous questionnaire consisted of 25 questions; 850 persons participated. Descriptive statistics with Microsoft Excel were performed for data analysis.

Results: Most of the participants presented to the pharmacy with the aim to get vaccinated and about half had never been vaccinated against influenza. Almost half of the respondents regarded visiting their general practitioner as difficult during working hours and over 95% would use the pharmacy-based vaccination programme again. Almost 90% would accept pharmacists as vaccinators and 97% consider pharmacy a suitable environment for vaccination. During the 2018 pharmacy-based influenza vaccination campaign in 15 pharmacies, about 10% and during the 2019 campaign in 23 pharmacies, about 11% of all influenza vaccines were administered. Vaccination rates have increased from 4% in 2017 to 7% in 2018 and 9% in 2019.

Conclusion: Positive attitudes followed by an increase in numbers of vaccinated people shows the large potential that pharmacies have to reach the members of community who would otherwise be left aside.

Effects of poor prescription handwriting on patients' health: Experiences of community pharmacists in Nigeria

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Background: Therapeutic problems have been linked to, among other things, illegible prescriptions. These result in misinterpretation of prescription orders and consequent medical implications.

Purpose: To assess the effects of poor prescription handwriting on patients' health and possible solutions.

Method: A purposive sample of 104 community pharmacists participated in the study. A well-structured self-administered questionnaire of 14 questions was developed using Google Forms and was administered through various social media platforms by the investigators to community pharmacists in the Lagos metropolis. Descriptive statistics were carried out using Statistical Package for Social Sciences (SPSS) version 25. Data access was managed and restricted to only the investigators.

Results: About 62.5% of the respondents strongly agree that the clarity of a written prescription can affect patients' health. Also, 93% of respondents indicated that poor prescription handwriting has led to a delay in pharmaceutical services. Some indicated that it has caused wrong dispensing (74%), poor health outcomes (62.5%), disagreement with the prescriber (49%), and situations such as confidence loss, death, adverse drug reactions and claims of incompetence (11.5%). Suggested solutions for the problem of illegible prescriptions include; improved handwriting (33.7%), typed (E-) prescriptions (28.8%) and educating prescribers (15.4%).

Conclusion: The study shows that illegible prescriptions can negatively affect a patients' health. There is a need to adopt legible writing, electronic prescriptions and educating prescribers to ensure patient safety.

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SFVETI Project – Training patients at community pharmacies improves their inhalation technique

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Background: Inhalers are the cornerstone treatment for Asthma and Chronic Obstructive Pulmonary Disease (COPD), being a crucial tool for the successful management of the disease.

Purpose: To evaluate the impact of Pharmaceutical Service of Verification and Instruction of Inhalation Technique (SFVETI), a pharmaceutical service to test patients' inhalation techniques performed in community pharmacies.

Method: The results from a prospective study which took place in 15 community pharmacies in Portugal over the period of one year (November 2018 until November 2019) included patients who already used inhalers and patients who were new to using an inhaler. The service consisted of a pharmacist-led educational method, based on watching demonstration videos on correct inhalation technique and evaluation of patient's performance. Additional explanation was also given in case of errors detected. Data from the intervention were registered.

Results: A total of 175 patients (64% were more than 60 years old), 63% (111/175) female gender, were included. The predominant diagnostic was chronic respiratory diseases (n=90, 52%), specifically asthma (n=45, 26%) and COPD (n=45, 26%). Fifteen percent (n=26) of the patients had prescription for two or more inhalers. Under the SFVETI protocol we evaluated a total of 211 inhalation techniques, of which 59 (59/211, 28%) were performed with some errors by patients. After the pharmaceutical explanations, 51 of the patients (51/59, 86%) correctly repeated the inhalation technique.

Conclusion: Pharmaceutical services like SFVETI have a preponderant impact, improving patients' knowledge about the use of medicines like inhalers, which has a big therapy efficiency gains, resulting in better symptom control of respiratory diseases.

The project evaluation of implementing public anti-drug and protecting public health

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Background: Drug abuse not only leads to harm of personal physical and mental health, but also the corruption of social security which results in increasing social cost.

Purpose: Anti-drug education in communities involves holding anti-drug abuse educational activities to strengthen the knowledge of drug abuse prevention among the public.

Method: E-Da Hospital is one of the eight resource centres for anti-drug education. The group includes psychiatrists, hospital/community pharmacists and school teachers.

The authors held workshops for teacher training, the target populations identified were the high risk groups such as students, factory workers and long-working hours staff. The principles of the teaching materials confirmed by reliability and validity: 'love your own life, drug abuse prevention and resistance, drug and anti-drug understanding, and care and assistance'. The authors utilised Perceived Stress Scale (PSS) and a drug abuse cognition questionnaire to evaluate learning effectiveness and evaluated learning satisfaction.

Results: A total of 450 people were enrolled and 300 valid questionnaires were obtained and the participants were found to have mild-grade score (1.76±0.49 points). Cognition evaluation were scored 70% before education and 89% after education. The statistically significant results include: (a) The first time taking drugs and asking for professional help can be exempted from legal liability (65%/85%, $p<0.05$); (b) Smoking and alcohol are often the entry substance for taking addictive drugs (78.5%/92.1%, $p<0.05$). The satisfaction is up to 4.85 points.

Conclusion: Through the campaign, we found out that drug-related awareness of the public still has to be strengthened, and the audience have given a high evaluation feedback to the professionals.

Development of evidence-led competency framework for community pharmacists in the Philippines

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Background: A competency framework for community pharmacists in the Philippines serves its key function in demonstrating the roles and activities that are encompassed within the scope of practice.

Purpose: This framework comprises standards for pharmacists in community pharmacy practice; includes standards intended to promote growth and development along the practice continuum to achieve advanced level practice.

Method: Methods include assessment of the acceptability and extent of utilisation of the different practice standards for

pharmacists. Community pharmacists' views on continuing professional development (CPD) and activities that can promote career progression were also studied. Fourteen (14) study sites across the country were chosen with 30-40 community pharmacists at each site who participated in questionnaire completion, focus group discussions and attendance of a seminar-workshop.

Results: The community pharmacists are aware of the existence of copies of the national standards, but not all consult them on a regular basis. Around 60% of the respondents are 'mostly' performing the set competencies. Assessment of the Filipino pharmacists' views on CPD programmes and other career progression activities was done for relevance to each pharmacist's professional need. Seventy-two percent (72%) of the respondents stated that most programmes they attended were not tailored to their required competencies. Majority sought career progression in the community practice similar to other practice sites, through continuing education, online study, peer evaluation and specialisation programmes.

Conclusion: Community pharmacists in the country practice well with their general and specific competencies, and look for development where their active participation is involved.

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Medication safety talks at a veterans' home in southern Taiwan

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Background: 'Veterans' Home' is a state-run home for aged or disabled retired soldiers. The authors regularly run health talks at the centre, including medication safety talks. Most retired veterans are in their senior ages and many of them suffer from a combination of chronic diseases and need a variety of medications. It is, therefore, important for them to have medication safety education.

Purpose: To let veterans and their caregivers have a correct concept of medication usage and are able to use medicines safely and correctly.

Method: The researchers annually deliver a medication safety talk at the Veterans' Home to promote five core skills (expression, check, understand, control, ask) that lead to medication safety. Before the talk, veterans and caregivers were tested for their understanding on medication safety. During the talk, prizes were given to encourage learning. After the talk, participants took a quick test to evaluate the learning outcomes. Throughout the talk, based on the test results and participants' reactions, researchers gave feedback immediately hoping to further their understanding on medication safety.

Results: Between 2016 and 2019, there were 211 valid questionnaires. The average scores of pre-talk tests were 70.0, 65.2, 71.0 and 90.0, after talk were 92.6, 85, 83.5 and 97.5 in each year, respectively. Based on the *t*-test, they had a significant improvement after the talk (*p*-value 0.01). The research found that the concepts veterans need to have corrected are two core skills: 'understand' and 'ask'.

Conclusion: Recently veterans and their caregivers obtained better results before our talks, which means our medication safety talk is successful. The participants now comprehend that 'to see a doctor for illness, to see a pharmacist for medication usage'.

Knowledge, attitudes and practices related to antibiotics among community and hospital pharmacists in Sri Lanka

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Background: Pharmacists' knowledge about and attitudes towards antibiotics (ABs) impact on appropriate AB supplies. Knowledge of this is, however, lacking in the Sri Lankan context.

Purpose: The authors aimed to evaluate the knowledge, attitudes and practices of AB use and antibiotic resistance (ABR) among community pharmacists (CPs) and hospital pharmacists (HPs) in Galle District, Sri Lanka.

Method: A cross-sectional study using a self-administered questionnaire was conducted among CPs and HPs in Galle to assess their knowledge about AB use and ABR causes, attitudes towards AB use, and dispensing practice. Data were analysed using descriptive and inferential statistics.

Results: Total 90% pharmacists (n=90/100) responded, comprising CPs (n=43) with efficiency qualifications and HPs with proficiency (n=45) or B.Pharm. (n=2) qualifications. The HPs' knowledge about consequences of inappropriate AB use which were ineffective treatment (100%) and ABR (100%) were

significantly higher than CPs' (91% and 86%; $p=0.048$ and 0.010 respectively). The knowledge about ABR causes; for example, AB use for non-bacterial infections, was also significantly higher in HPs (92%) than CPs (74%), $p=0.030$. About 84% of respondents had positive responses on all attitude statements. Most of the participants (98%) denied non-prescription AB supply. Overall, greater knowledge about AB use increased the likelihood of higher knowledge about ABR (Adj. OR=3.94; 95%CI: 1.57-9.88; $p=0.003$) and positive attitude towards AB use (Adj. OR=3.71; 95%CI: 1.54-8.92; $p=0.003$).

Conclusion: Extent of pharmacy qualification could impact pharmacists' knowledge about AB use and ABR. Improving pharmacists' knowledge about AB use may enhance their ABR knowledge and attitudes towards AB use.

Knowledge and consumption patterns of paracetamol among school teachers in Sri Lanka

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Background: Rational use of paracetamol (PCM), which is the most common over-the-counter drug, can avoid unnecessary health risks. Knowledge of this is, however, still lacking in the Sri Lankan context

Purpose: We aimed to evaluate the consumption pattern and knowledge regarding PCM among school teachers in Sri Lanka.

Method: This was a cross-sectional study involving 259 school teachers from three randomly selected government schools in Galle District, Sri Lanka. Data were collected using a validated questionnaire. The data were analysed using descriptive and inferential statistics using SPSS version 20.

Results: About 71% (185/259) of school teachers had taken PCM within the past three months. Most of the participants took PCM at the right dose (99%) and for headache (84%). Self-prescribing of PCM was more prominent (76%) among teachers due to the confidence in their knowledge (37%). PCM was obtained mainly from retail pharmacies (66%). Respondents showed low overall knowledge levels related to PCM (mean=5.35/10, SD=1.27). Only 23% of respondents could mention correctly at least one of PCM's side effects, and nearly half of the teachers (43%) were aware of severe liver damage among the most serious health problems. Teachers who studied subjects related to health sciences had significantly higher knowledge about PCM (mean=5.56) than those who did not (mean=5.22), ($p=0.034$). Pharmacists' contributions to patient counselling on PCM's use (35%) and side effects (8%) were limited.

Conclusion: Lack of knowledge about PCM may contribute to inappropriate use of PCM among teachers. Pharmacists' contribution is lacking in educating patients related to PCM.

Online community pharmacy practice: A cohort pilot survey in Lagos state, Nigeria

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Background: In 2017, a global study projected that by 2020, online pharmacies' drug sales will exceed \$30 billion, signalling the future direction of community pharmacy practice. For growing economies in low-middle income countries, there is an increasing demand for online pharmacies due to several reasons, including heavy road traffic and busy schedules. There is currently no information on online pharmacy practice in Nigeria and this study will fill the gap.

Purpose: To study the influence of online community pharmacy practice in Nigeria.

Method: We conducted an online random questionnaire survey of members of the innovative 'my-medicine.com' platform. Bivariate analyses were carried out using Fisher's Exact Test to describe associations between socio-demographic characteristics and use of the platform, at significance of 95% and p -values <0.05 .

Results: Twenty-seven (27) respondents completed the online survey. Majority 20 (74%) were females aged 26-50 years. Most (88%) admitted to partnering with my-medicine online platform solely for sales of their drugs. Most (19, 70%) admitted to having performed an assessment for drug interactions before online sale of drugs. Education ($p=0.002$) and age ($p=0.000$) showed a significant association with an increase of drug sales via online platform. Similarly, age ($p=0.014$) was the only socio-demographic characteristic with a significant association with the possibility of signing up with other reliable online pharmacy platforms.

Conclusion: The online purchase of goods and services is increasingly becoming popular in Nigeria. Policies to regulate this novel online community practice are needed to ensure the safety of consumers as well as distinguish the profession from regular drug sellers.

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Opportunities and barriers to implementing COVID-19 testing in community pharmacies

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Background: The World Health Organisation sent a clear message to the world, to 'test, test, and test' for early identification, isolation, and limiting the spread of coronavirus disease 2019 (COVID-19). Dismal testing rates have been the biggest barrier to understanding the spread of this disease. Community pharmacists and pharmacies provide an accessible and reliable avenue to increase testing rates.

Purpose: To identify opportunities and barriers to implementing COVID-19 testing in community pharmacies.

Method: Review of worldwide literature from 2019 and onwards was completed to review guidance documents and expert opinions on COVID-19 testing by community pharmacists.

Results: So far, only 32 states in the USA have provided community pharmacists with the independent ability to order and administer COVID-19 tests in community pharmacies. Opportunities are: fast and reliable access to testing; improved testing rate, data collection, and patient-pharmacists relationships; provide personalised follow-ups and new services; and leverage opportunity for future government collaboration. Barriers are: government buy-in, regulations and bylaw compliance, training, personal protective equipment, staffing needs, workflow optimisation, processes for collaboration with public health authorities, and pharmacists' willingness.

Conclusion: COVID-19 testing in community pharmacies can improve testing rates, and provide new avenues to collaborate on public health initiatives. There is a scarcity of evidence and literature around this topic and future work should explore success of testing in community pharmacies, and pharmacists and public perceptions of provision of such services in community pharmacy setting.

Can COVID-19 outbreak be anticipated by community pharmacy sales? A retrospective analysis

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Background: In large-scale community transmission, such as severe acute respiratory syndrome of the COVID-19, monitoring geographic trends and estimating the transmission intensity is critical to support decisions on actions to be taken. Though major efforts are concentrated on testing the populations, the availability and timing of this data pose a clear limitation to real-time monitoring.

Purpose: This study proposes a retrospective analysis to develop a novel methodology to detect and monitor the COVID-19 epidemiological activity using a selected subset of over-the-counter (OTC) products sold in community pharmacies in Portugal. Previous studies have successfully demonstrated this approach to different epidemiological outbreaks as individuals tend to self-manage the symptoms.

Method: The subset of OTC products was selected considering therapeutic indication for symptoms of infection by SARS-CoV-2 and the trends observed for diagnosed cases in Portugal. The similarities between the trends of the subset of products and the daily new-suspected and new-confirmed cases of COVID-19, respectively, were assessed using lagged spearman correlation analysis.

The trend of the subset of products selected presented high and statistically significant correlations to new- suspected and new-confirmed cases lagging 14-16 days (correl.>0.82; $p<0.001$). Highest correlation to both new- suspected and new-confirmed cases was found lagging 15 days (0.879 and 0.888, respectively; $p<0.001$).

Conclusion: The study supports the use of the methodology presented to anticipate the trends of COVID-19 outbreaks in Portugal, both locally and nationwide, considering representativity of the presence of community pharmacies to the distribution of populations.

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Antimicrobial resistance: Perception and behaviour from a local perspective (Northwest Italy)

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Background: Antibiotic resistance is a serious threat to public health that causes around 33,000 deaths in Europe annually. Moreover, it has consequences in economic terms; Italy will spend

€12 billion over the next 30 years to deal with these types of infections.

The mode and volume of antibiotics consumption may provide a plausible forecast for this issue in the future.

Purpose: To investigate the consumption of antibiotics and knowledge of antibiotic resistance from a local perspective.

Method: Data were collected by means of a questionnaire that was originally used by the World Health Organisation (WHO) and appropriately modified. The survey was carried out in two ways:

- questionnaires were self-administered by 327 students on degree courses at the University of Turin
- questionnaires were administered by a trained interviewer to 240 pharmacy customers in two different urban areas.

Results: On average, 20% of the University population admit to taking antibiotics without a prescription; a value that increases to 27% among the customers interviewed. About 15%, in both populations, admit to sometimes interrupting treatment when they feel better. Moreover, 62% of students provide the correct definition of antibiotic resistance, while only 39% of customers showed that they are aware of the phenomenon.

Conclusion: Healthcare students have greater knowledge of antibiotics and antibiotic resistance, as expected. Too many people stop antibiotic therapy prematurely. The phenomenon of antibiotic resistance is best known among young people, but is still a highly neglected issue. Greater control by healthcare professionals can stem the problem, and pharmacies may be a strategic place for the education of the population.

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Disease prevention in community pharmacies: What, when, who, why, where and how

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Background: According to the World Health Organisation (WHO), disease prevention concerns the measures sanctioned to counteract the development, progress and consequences of disease. This is an essential topic nowadays, both with regards to non-communicable diseases, which kill 41 million people each year, and infectious diseases, some of which have recently shocked world healthcare. Community pharmacies are excellently placed to carry out a number of disease-prevention actions thanks to their widespread presence across territories and the everyday relationship that have with hundreds of people.

Purpose: To investigate what type of prevention activities are performed in community pharmacies worldwide, how they are carried out, and their effectiveness.

Method: Comprehensive literature searches using the terms 'community pharmacy' and 'disease prevention' in online databases.

Results: More than 2,000 articles were found, and the most frequently implemented services seem to be:

- **Primary prevention:** actions linked to cardiovascular-disease prevention, diabetes prevention, smoking cessation, alcohol reduction, weight management, the administration of vaccines
- **Secondary prevention:** actions linked to screening for HIV, colorectal cancer, HPV, osteoporosis
- **Tertiary prevention:** actions linked to the management of COPD, diabetes, hypertension

Conclusion: Prevention interventions carried out in community pharmacies are a reality in many countries. Some studies have reported that these activities are effective for the health of the population and can help to reduce costs to National Health Services. However, these services are frequently not integrated with other health-system interventions and are, incorrectly, often not remunerated.

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Community pharmacists promoting the correct use of medicine in elderly people: The results of a survey

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Background: The Health Education Programme on the Correct Use of Medicines for Elderly people (PESGG) is an initiative consisting of talks given by community pharmacists in Catalonia with the aim of increasing awareness and improving the skills and knowledge about their medicine's management among the elderly people.

Purpose: To evaluate the quality of the programme and the attendant's satisfaction and its effectiveness related to their use of medicines.

Method: This study employed descriptive qualitative design. A sample was selected based on a total of 378 participants. Participants were contacted through phone calls. A total of 19 questions were set during the survey. Most of the questions were multiple choice type. Results were compared to the results obtained with the same survey pursued in 2016.

Results: The results showed that quality of the sessions and satisfaction of the attendants were very positive. Pharmacists are promoting the sessions better, as the participation during the sessions in 2019 compared to 2016's results was much greater. In the question on whether attendants had changed any habits related to the use of medicine after attending the session, results both in 2019 and 2016's showed that people up to 64 years old and people with worst health self-perception are the groups on which this programme could have more impact.

Conclusion: PESGG has a very good opinion and high satisfaction among the attendants. The authors conclude that this programme seems to be more effective in people up to 64 years old rather than very old people and people with worst health self-perception. For the upcoming programmes it has been suggested to target further younger people.

Generic medicines in Italy: Perception among pharmacy customers, pharmacists and pharmacy students

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Background: While people in other countries are increasingly choosing generic medicines, Italy still lags behind in their consumption despite the positive increase seen in the last few years.

Purpose: This work intends to examine the reason for the limited diffusion of generics in Italy and to investigate the population's perception of them.

Method: A survey was carried out in the northwest of Piedmont by administering face-to-face interviews.

Results: Four hundred (400) customers were interviewed in four pharmacies, as were 56 pharmacy students and lastly 61 pharmacists. The data revealed that a significant number of people have a negative perception of generics; customers are the most suspicious (46%) about the quality of generics, compared to pharmacists (15%) and students (0%). Forty-six percent (46%) of customers think that generics and originators have different probabilities of causing adverse drug reaction (ADR), while this is 12% for pharmacists and 13% for students. Forty-six percent (46%) of customers doubt the effectiveness of generics, as do 8% of pharmacists and none of the students. Finally, 43% of customers are not prone to generic substitution.

Conclusion: Despite promotional campaigns for the diffusion of generics, attitudes of mistrust persist both in the general population and in health professionals. It is fundamental that investment in constant training for pharmacists is maintained as they are the healthcare professionals that most frequently come into contact with the population and, through proper counselling, have the greatest opportunity to overcome this mistrust. It is important to underline that each pharmacist makes the difference in this matter thanks to their direct relationship with the patient.

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Smoking prevention and tobacco control - the role of community pharmacists

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Background: Tobacco use is still the principle preventable cause of morbidity and mortality worldwide. Smoking is responsible for the outbreak of many diseases and for about eight million deaths per year and is thus responsible for high healthcare costs. It is therefore crucial to facilitate smokers' access to smoking-cessation programmes.

Purpose: To evaluate the possible role of Italian community pharmacists in smoking prevention and cessation.

Method: The research was based on two questionnaires that targeted pharmacy customers and pharmacists. The survey was led by trained interviewers between October and December 2018, in 108 pharmacies in Piedmont (Italy).

Results: The results collected from the 431 clients interviewed identified that 35% were smokers; 65% of smokers have tried to stop smoking at least once, and 63% of these did so for health reasons. It is very worrying that just 12% indicated that health professionals were the main source of information for smoking-related damage. Among the 108 pharmacists interviewed, just 36% and 16% were aware of the rates of smokers in Italy and of tobacco-related diseases, respectively. Nevertheless, 76% thought that training on the topic would be useful and 92% sought to be involved in a smoking-cessation programme.

Conclusion: This data stresses the necessity to reinforce the role of healthcare professionals in handling nicotine addiction. Thanks to the data gathered, a 5As (Ask, Advice, Assess, Assist, Arrange) Protocol for pharmacists has been developed. In this way, Italian community pharmacies may become a crucial point for tobacco control. Future studies on the application and evaluation of Protocol efficacy will be needed.

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Danish pharmacy customers' beliefs about medication

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Background: Patients' perspectives on using medication affects the degree of their adherence to the medication. The counselling of patients in healthcare should take patients' perspective into consideration to secure the safe and effective use of medicines. In Danish community pharmacies, pharmacy technicians are the primary group counselling the patient. During their education they are taught about patient perspectives.

Purpose: The purpose of the study was to investigate patient perspectives, by pharmacy technician students.

Method: Pharmacy technician students each recruited 4 patients. Recruited patients had to take medication for a chronic disease and these patients completed the Beliefs about Medication Questionnaire (BMQ).

Results: For customers' general view on medication, an average for general-overuse and general-harm was calculated. In total 304 community pharmacy customers completed the BMQ. The analysis showed averages of 11.6 for overuse and 10.1 for harm (scale 4-20) indicating that neither worry about overuse or harm is a major worry. Also, the analysis showed averages of 13.9 for specific concerns and 19.8 for specific necessity (scale 5-25) indicating that patients find the use of medication necessary. This is further supported by a positive score of 5.92 for the necessity-concern score.

Conclusion: The analysis shows that community pharmacy customers in general consider medication necessary and are less concerned about overuse and harm. Patients' perspective on use of medication must be addressed by pharmacy staff in counselling to optimise patients' efficient and safe use of medication.

Pharmacy technician students are valid data collectors, and the data are qualifying the understanding of patient perspective among the students.

Using real-life data to strengthen the education of pharmacy technician students

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Background: Pharmacy technicians are the main professional group in community pharmacies in Denmark. Their primary task is counselling patients on safe and effective use of medication. The pharmacy technician programme is a three-year education programme, which consists of interaction between theory at the college and practice at the tutoring pharmacy. In the programme, the students have the elective course 'Clinical Pharmacy in Community Pharmacy', which targets students who wish to work in-depth with patient communication.

Purpose: The purpose was to demonstrate, how pharmacy technician students can expand their perspectives on patient safety by using real-life, student-gathered patient data.

Method: Students were introduced to using a questionnaire, register data in a web-based survey tool and asked to recruit six patients each during their pharmacy placement.

Results: The results from the analyses was introduced to the students through a plenary session. In groups, students worked with the results and discussed how to use their new knowledge to generate questions, to identify patients' perspectives on their use of medication. In a final plenary session, the groups presented their work and received feedback from teachers and other students.

Conclusion: In conclusion, involving pharmacy technician students in data collection has strengthened the students' awareness of their responsibility to ensure patient safety. Students collected data that can be used for teaching as well as research and, when discussing the data, demonstrated an advanced level of understanding of how optimal counselling can uncover and accommodate patients' concerns and beliefs about the necessity of using medication.

Innovative regulatory framework in community pharmacy

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Background: The evolution of regulatory sciences introduced the need for a patient-centred regulatory framework.

Purpose: To establish a regulatory self-audit (RSA) model in community pharmacy aiming at satisfying regulatory requirements while meeting patient needs.

Method: The methodology included:

1. Design of a Pharmacist Competencies Self-Assessment (PCSA)
2. Regulatory risk-based assessment
3. RSA, regulatory audit (RA), PCSA implementation in 61 community pharmacies.

Results: The PCSA was designed to evaluate professional strengths, interests, goals and opportunities for improvement (OFI). RSA and RA compliance were measured as a percentage of criteria accomplished (N=76). The number of minor (n=19), major (n=34) and critical (n=23) findings defined pharmacies high (1 minor or above 5 major), medium (1-5 major) and low-risk (only minor) categories. In the RSA, pharmacies declared higher compliance (94.7%±4.65) and were classified in lower risk-category (high-risk pharmacies=16) than in RAs (82.7%±8.14; high-risk pharmacies=46). The pharmacists managing the 61 pharmacies (56 were female, aged between 25-73 years, mean age 43 years) showed a difference between age groups. Pharmacists below-30 and over-60 years-old gave a lower RSA-pharmacy-risk compared to intermediate age-categories (p -value=0.041). In the PCSA, pharmacists reported understanding patient needs (57.4%) and patient-orientation (49.2%) as the two highest strengths. Personalised healthcare (44.3%) was identified as the major area of interest, service optimisation (49.5%) as the main goal and continuous education (63.9%) as an opportunity for improvement.

Conclusion: A regulatory self-audit showed significant differences from the established inspection audit.

Empathic communication as a pharmaceutical tool to involve customers in their treatment

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Background: Brædstrup Pharmacy has a focus on pharmaceutical conversations with customers, 'The New Medicine Service' (NMS). NMS is purposed to increase the customer's knowledge of their medicine, provide important safety and remove concerns about the treatment and medication.

Purpose: Focus on using an empathic communication method to better the outcome of NMS, specifically with regards to the customer's understanding of the purpose of NMS, thus bettering compliance and the overall experience.

Method: Two pharmaceutical students observed the conversations and afterwards interviewed customers about their experience with NMS. The focus was the customers response and their understanding of the purpose of NMS and the interaction with the pharmacist.

The conversations were recorded, and a professional coach, in empathic communication, evaluated the body language of the pharmacists during the conversations.

Results: The coach observed empathy and charisma in the conversations, both customers and pharmacists had enough time to listen and ask questions. Eye contact, smile and giving and getting customer attention, was rated as the strongest sign of an empathic communication.

Overall customers were very satisfied. Some of them were not clear about the purpose of NMS; but had a clearer understanding after the conversation. Some were courteous and obliging, and some were reserved because of concerns about privacy.

Conclusion: Using empathic communication improves the outcome of NMS, especially for customers who are reluctant to talk to the pharmacists. The aspiration is to use empathic communication throughout the pharmacy, thus increasing the chance of involving the customers in their treatment.

In-pharmacy administration of *Streptococcus pyogenes* point-of-care testing: Data from New Zealand and Portugal

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Background: Sore throat is a common, predominantly viral condition and patients often receive inappropriate antibiotics due to a variety of factors, including diagnostic uncertainty. Such inappropriate usage contributes to antibiotic resistance.

Purpose: This small-scale study evaluated the administration of point-of-care diagnostic swab tests for beta *Streptococcus pyogenes* Group A (Strep A) infection in the primary care setting in New Zealand and Portugal as a potential mechanism to reduce diagnostic uncertainty and patient demand for inappropriate antibiotics.

Method: During the 2018–2019 winter season, sore throat patients visiting participating pharmacies were offered locally available throat swab tests undertaken by trained pharmacy staff. Following pre-screening, those deemed at high risk were directed to their physician. Test results and patient satisfaction data were gathered by pharmacy staff.

Results: New Zealand: Data capture proved resource intensive for staff and so results were not available for every test administered. Where a result was recorded (n=400), 4.3% were positive for Strep A. Portugal: Although a lower number of tests were administered (n=51), 17.6% were positive for Strep A. Patient and pharmacist satisfaction with the service were high in both countries. The majority of patients did not need a referral to their physician for antibiotics and were recommended symptomatic relief.

Conclusion: The provision of point-of-care diagnostics for sore throats in the pharmacy can address patients' need for knowing the cause of their sore throat, reduce pressure on physicians to prescribe inappropriate antibiotics, and facilitate the provision of symptomatic relief as first-line treatment.

'Loures Tem+ Saúde' - The role of community pharmacies in local health policies and social cooperation

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Background: Demographic and social indicators show that Portugal has an ageing population, with a low fertility rate, new health problems and chronic diseases are an increasing challenge to the National Health System. In this context, health systems need to adapt to the new needs of people with proximity, humanisation of services and considering patients as the centres of the system.

Purpose: To allow a better access to health and reduce inequalities, in the Municipality of Loures, near Lisbon, since May 2018, community pharmacies are implementing the 'Loures Tem+ Saúde' (More Health for Loures) project.

Method: This is a collaborative project that establishes a strategy of articulation with the Municipality, public health centres and other local entities to improve the quality of life and health of all citizens, through the pharmacy network.

Results: With this project, all local entities, together, seek to serve their patients in a more inclusive way that is more adapted

to their needs, through initiatives like health literacy campaigns, elementary school visits or integrated flu vaccination, which leads to improved access to health in the community.

Conclusion: Based on real outcomes of the 'Loures Tem+ Saúde' services, this work shows that community pharmacies, in a closer relationship with Municipalities, the National Health Service and all other partners, have a social role, in the context of health intervention, indispensable at a local and regional level, constituting itself as a genuine service of public interest and leaving no one behind.

Tackling the COVID-19 crisis by monitoring medication dispensing data in Belgium

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Background: FarmaFlux is a non-profit organisation providing e-health services to community pharmacists in Belgium. When the pandemic struck a new service was launched to collect relevant data to tackle strategic issues with regard to the COVID-19 crisis.

Purpose: The COVID-19 Monitor was launched to detect pharmacy activity and drop out. Dispensing volume of relevant medicines was monitored to be able to prevent shortages. Afterwards they were used for outbreak detection and follow up of adherence.

Method: Professional associations of community pharmacists participated in the national task force 'Shortages' and collected data about dispensing volumes of relevant medicines. Pharmacy activity data were provided at province level. Dispensing data were cross linked with medical data, mobility indicators, financial transactions and absenteeism during the exit phase. Volumes of metformin dispensing were used as an indicator for follow up of chronic treatment.

Results: Community pharmacy drop out rose up to 3% in early April; but dropped afterwards and gradually went back to normal. Shortages of midazolam and oxygen were the most critical in ambulatory care. They were mitigated by the national task force. Dispensing data were shared with and processed by the federal scientific institution Sciensano. Results of the analysis were shared with the Group of Experts for the Exit Strategy (GEES). Metformin showed a stock piling peak the days before lockdown and an important drop afterwards.

Conclusion: Dispensing data, collected by FarmaFlux, provided useful information to detect: community pharmacy drop out, medicines shortages in ambulatory care, follow up of adherence and early outbreak detection during the COVID19 crisis.

References

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