Do Public Campaigns And Changes In Antibiotic Pricing Affect Antibiotic Consumption In The Community? An Example From Belgium

Paul M. Tulkens

Louvain Drug Research Institute, Université catholique de Louvain, Brussels.

Abstract (edited)

Background

Public campaigns are often presented as effective to curb antibiotic use in the community but evidence for strong and sustained reduction is often missing or based on various manipulations of the metrics used to describe antibiotic consumption (for instance, using number of packages rather than absolute quantities prescribed). Conversion, lowering antibiotic related activities may have an impact on antibiotic use.[5]

In Belgium the 8th largest “antibiotic user” country in Europe[2] and public campaigns have been launched yearly with government support to reduce this.[4] In parallel, generics have been introduced also with government support (including obligations for prescribers to reach a pre-set level of “cheap” drugs with the clearly aim to reduce the financial burden on the Social Security (cabinet supported antibiotics are reimbursed in Belgium).

This combination of actions with potential opposite effects and applied to a single, well defined, and controlled market (about 10 million inhabitants; all antibiotics are under prescription in Belgium) gives the opportunity to measure their effects and to draw conclusions about global antibiotic exposure in the target population (antibiotic consumption; global increase in overall group and its rise over time period; largest pharmacological class and its rise over time period; decline following the public campaigns). The results can also be used as a measure (no inflation discount). Public campaigns: ran annually (2000-2017) with government support to reduce this.[4] In parallel, generics have been introduced also with government support (including obligations for prescribers to reach a pre-set level of “cheap” drugs with the clearly aim to reduce the financial burden on the Social Security (cabinet supported antibiotics are reimbursed in Belgium).

1. Consumption data:
   - Publicly available reimbursement statistics and reports of the National Institute for Sickness and Invalidity for the most used formulation of each major pharmacological class.

2. Price data:
   - Drug acquisition costs: Yearly census of all registered drugs in Belgium (with indication M-L-S: macrolides - lincosaminides - streptogramins)

3. Other sources:
   - Data from ESAC confirmed
   - For large consumption and increase at 2015 compared to other groups.

Methods

The total amount of prescribed antibiotic increased slightly, with no big systematic variations showing a major increase (2005-2017). Considering that the community prescriptions in the country account for about 80% of total antibiotic use in the country.

Conclusions

Public campaigns were not associated with marked and sustained decreases associated with an increased prescription of antibiotics (temporal association with prescription increase (i) beta-lactams showing a major increase in 2005-2017, (ii) M-L-S showing a major increase in 2005-2017). In parallel, generics have been introduced also with government support (including obligations for prescribers to reach a pre-set level of “cheap” drugs with the clearly aim to reduce the financial burden on the Social Security (cabinet supported antibiotics are reimbursed in Belgium).

This combination of actions with potential opposite effects and applied to a single, well defined, and controlled market (about 10 million inhabitants; all antibiotics are under prescription in Belgium) gives the opportunity to measure their effects and to draw conclusions about global antibiotic exposure in the target population (antibiotic consumption; global increase in overall group and its rise over time period; largest pharmacological class and its rise over time period; decline following the public campaigns). The results can also be used as a measure (no inflation discount). Public campaigns: ran annually (2000-2017) with government support to reduce this.[4] In parallel, generics have been introduced also with government support (including obligations for prescribers to reach a pre-set level of “cheap” drugs with the clearly aim to reduce the financial burden on the Social Security (cabinet supported antibiotics are reimbursed in Belgium).

The observed increase in costs (no correction for inflation over the time period considered)

Key points and Outlook

It is obvious that small (negligible) changes in antibiotic consumption (estimated from the amount of DDS sales) took place over the long period during which public campaigns were undertaken yearly, suggesting that they were ineffective. The marked global decrease of antibiotic prices over the same period tended to slightly increase their consumption, but conversely, the marked increase in patients’ co-payment introduced in 2017 was without immediate effect (perhaps because antibiotics have remained globally cheap, but more longitudinal analyses are needed). Other means (probably more directed to the prescriber) need to be developed to more effectively curb the unnecessary antibiotic prescription in the community.

References

1. Data from ESAC confirmed
2. For large consumption and increase at 2015 compared to other groups.
3. The use of sulfamethoxazole (trimethoprim) is merged

Acknowledgments and Funding

This work, available online, is published without any financial support. It is entirely a product of a sponsored and supported and available online.

[4] Paul M. Tulkens (year) Mailing address: P.M. Tulkens en Mécénat 290 7134 Brussels, Belgium tulkens@vub.ac.be +32-2-762-2136
Public campaigns are ineffective for reducing antibiotic overconsumption – page 1
Press release for ASM-Microbe 2019 (San Francisco, CA) – June 20-24, 2019

For presentation to the Press at ASM-Microbe 2019 (San Francisco, CA)
at the invitation of the ASM-Microbe Program Coordinator (Mrs Jacquelyn Hannan, American Society for Microbiology, 1752 N Street, NW | Washington, DC 20036)

NAME AND CONTACT INFORMATION FOR PRESENTING AUTHOR:
Paul M. Tulkens, Emeritus Professor
Louvain Drug Research Institute
Université catholique de Louvain, Brussels, Belgium
E-mail: tulkens@facm.ucl.ac.be – paul.tulkens@uclouvain.be

Important: due to current health problems, the author is unable to attend the meeting but can be contacted by e-mail or, if needed, by sending an SMS to 001-32-498-233826 with indication as how to call back (do not call right away due to time difference [+9h]).

The poster can be downloaded from Saturday June 22 from http://www.facm.ucl.ac.be/posters.htm.

ADDITIONAL AUTHORS: none


POPULAR TITLE:
Are public campaigns and price changes influencing the over-prescription of antibiotics? The answer is NO but the prices might…

TECHNICAL TITLE:
Do Public Campaigns and Changes in Antibiotic Pricing Affect Antibiotic Consumption in the Community? An Example from Belgium

DATE AND TIME OF PRESENTATION:
Saturday, June 22, 2019: 11 am - 12 pm PST and 4 pm - 5 pm PST.
Session Title: AAR05 - Antimicrobial Stewardship 2

PRESENTATION SUMMARY:
Antibiotics are overprescribed in many countries, including the United States, triggering a series of action aiming at correcting this situation.

Taking Belgium (where the amount to antibiotic prescribed in the community is almost 3-time larger than in the Netherlands) as an example, we show that public campaigns, performed yearly since 2000, have been largely ineffective (no sustained decrease in the amount of antibiotics prescribed).

In parallel, the price of antibiotics has been almost halved (due to increasing sales of generics), but the reimbursement by Social Security has also decreased. Yet, globally, antibiotics have become cheaper over time. Here we show that lower prices are associated with an increase in prescriptions.
Public campaigns are ineffective for reducing antibiotic overconsumption

The study used publicly available and official data from the Belgian Social Security (prescription and delivery data for reimbursed antibiotics [all antibiotics are under prescription and reimbursed]), complemented and confirmed by other official sources such as the European Surveillance of Antimicrobial Consumption Network (for antibiotic prescriptions) and the Belgian Center for Pharmacotherapeutic Information (for prices).

The work was done by the author alone without financial support from any source.

Although limited to a single, small country (10 million inhabitants), the study may help understanding the situation prevailing in many other countries where antibiotics are also under prescription, and be, therefore, normative.

How can we explain this situation? The current work and previous investigations suggest the following reasons:

1. Public campaigns aim largely at the general population. While being viewed with sympathy by healthy persons, they fail to gain acceptance by patients who seek medical help for minor illnesses but require antibiotics based on the belief that these will protect them from undue risk of developing a major infection… or simply curing them faster…

2. Prescribers have difficulty in resisting to such patient’s pressure because of (i) uncertainties about the causal diagnostic of many “mild” infections; (ii) fear of complications and ensuing legal risks; (iii) the fee-for-service system prevailing in Belgium and the possibility for the patient to go and see another physician in case of being denied an antibiotic prescription…

3. Globally, antibiotics are quite cheap (typical drug acquisition cost is as low as approx. 6 to 60 US dollars for the treatment of a community-acquired pneumonia), making both prescribers and patients unwilling to run any risk while saving only small amounts of money if not prescribing an antibiotic.

An important limitation in this study is that we assessed the amount of antibiotics consumed based on prescriptions and delivery (by the pharmacist) reimbursement data. We do not know what proportion was actually taken by the patient.

We suggest that actions directed to the prescribers rather than to the public are definitely needed and should be complemented with specific aids for improved diagnostic, protection(s) against legal issues in case of unexpected complications, and, perhaps, a significant increase in prices (as is the case for many other life-saving drugs).

Contact: Paul M. Tulkens – tulkens@facm.ucl.ac.be / paul.tulkens@uclouvain.be