

# Analysis of the drugs consumption for hyperthyroidism in Republic of North Macedonia for the period of 2016-2019

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## Introduction

Hyperthyroidism (Thyrotoxicosis) is characterized by hypermetabolism and elevated serum levels of free thyroid hormones (thyroxine [T4] and triiodothyronine [T3]) from the thyroid, caused by thyroid stimulators in the blood or by autonomous thyroid hyperfunction.

The most commonly used drugs for the treatment of hyperthyroidism in Republic of North Macedonia (RNM) are: propylthiouracil, methimazole, thiamazole, and carbimazole.

The dosage is individual, depending on the severity of the disease.

Market analysis and monitoring of the drug consumption for the treatment of hyperthyroidism in the country could provide valuable data for the possibilities of effective treatment of these patients and serve as a base for influencing health policies to improve the existing condition.

## Materials and methods

In order to achieve the set goals, we reviewed relevant literary data from primary, secondary and tertiary literature, the recommendations of Evidence-Based Medicine, official data from world and domestic drug registers and the published reports for drug consumption covered by the Health Insurance Fund of RNM. Reviewed materials were systematized and, sorted by date and data source, and compared the worldwide approved drugs for hyperthyroidism, recommended by Evidence-Based Medicine, the approved drugs used in RNM, and the drugs from official drug List refund from the Health Insurance Fund RNM. For analysis of the drug consumption for hyperthyroidism in the pharmacies of RNM for the period 2016 to 2019 were used the data published on the official website of the Health Insurance Fund by number of realized prescriptions and total paid amount of funds per drug. We used a descriptive method in data processing

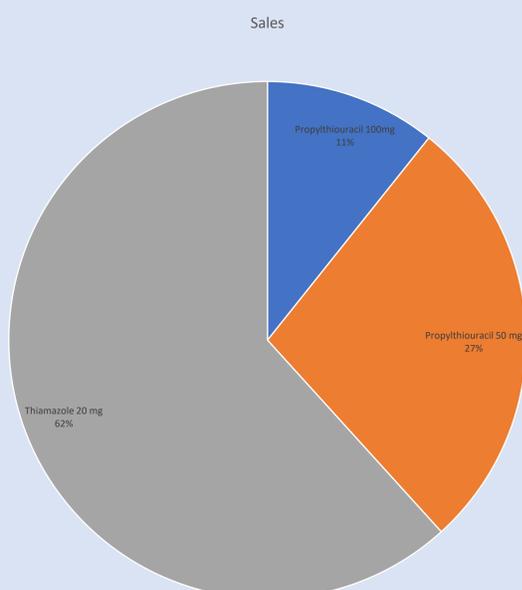


## Results and discussion

Two drugs have been approved for the treatment of hyperthyroidism in RNM:

- propylthiouracil 50mg and 100mg in tablet form,
- thiamazole 20mg in tablet form and film-coated tablet.

In terms of the consumption of drugs for hyperthyroidism, the analysis was made through the number of realized prescriptions from the pharmacies that have concluded an agreement with the Fund.



In terms of the number of realized prescriptions in the four-year period, a total of 14,591 prescriptions of the drug Propylthiouracil 100mg, 37,522 prescriptions of Propylthiouracil 50 mg and 84,025 prescriptions Thiamazole 20 mg were issued.

It is an interesting fact that there is a significant change in the prescribing trend / habits with a significant reduction in the number of prescriptions for the drug Propylthiouracil (from 10051 prescriptions in 2016, to 9261 in 2019) Propylthiouracil usage is reduced globally. This drug is not recommended by Evidence-based medicine for the treatment of hyperthyroidism.

## Conclusion

According to the reviewed databases for the treatment of hyperthyroidism, seven drugs are recommended in the world, including three iodine preparations. The two preparations recommended by the Evidence-based medicine are not registered in the RNM, and two other generic drugs with a long history of existing are in use. The recommended therapy by Evidence-based medicine is not available in RNM, and the doctors have a limited choice for treatment of this disease and do not have the opportunity to follow the instructions from Evidence-based medicine. The number of total drugs prescribed for the thyroid disease treatment on prescriptions is constantly increasing, which is probably due to the increasing number of diagnosed patients with impaired thyroid function. There is a change in the trend / habits for prescribing that, significantly reduces the number of prescriptions for the Propylthiouracil which is reduced globally.