

# Price And Volume Changing Trends Of Medicines Based On Index Analysis: An Empirical Case From Shanghai

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## Background

- Price and volume changing trends of medicines has become a focus of attention from a global perspective, especially in China, because of a series of drug reforms initiated in recent years, such as nationwide bulk procurement of medicines<sup>[1-3]</sup>, 25 and 32 varieties of medicines were procured respectively in March 2019 and April 2020.
- The theoretical study on the methodology of drug price index has been mature at home and abroad. Price index was used to compare the prices of drugs in different regions and varieties<sup>[4-5]</sup>.

## Objective

- Shanghai drug purchase price index and purchase quantity index will be based on the whole drug purchase volume data of medical institutions in Shanghai, select the whole variety and medical insurance classification as the main analysis object, present the dynamic change of drug price and supply, and reflect the whole picture of drug market supply in Shanghai under the guidance of policy.

## Methods

- Based on the database of Shanghai Sunshine Medical Procurement All-In-One, Laspeyres price index and Pascal purchase volume index was calculated monthly and annually by using Western medicines purchase records during 2018 and 2020, which were uploaded from all the medical institutions in Shanghai.
- Drug purchase information database involve information such as unified code, name, specification, dosage form, packaging, medical insurance classification, manufacturer, purchase amount, purchase quantity and purchasing organization information, such as organization name, hospital level, etc.

## Results

- Compared with the previous year, the purchase price index of all types of drugs of Shanghai was 93.3 in 2019 and 95.8 in 2020, indicating that the average drug price decreased by 6.7% and 4.2%.

- Monthly purchase price index of all types of drugs declined significantly in March 2019, April 2020 and November 2020, for the new purchase prices were adopted in these months (Figure 1). Before February 2019, the monthly price index of all types of drugs remained at 93.6 to 96.8; in March 2019, it dropped below 90 for the first time. From April 2019 to March 2020, during the first batch of nationwide bulk procurement of medicines, the monthly price index decreased slowly in a continuous manner, with the lowest drop to 87.6. The index continued to decline in April 2020, when the first batch signed the second year contract. Compared with the Base period of January 2018, the purchasing price index of December 2020 has decreased to 82.8.
- The change of medical insurance products was basically consistent with all types of drugs. The volume quantity index fluctuated on a monthly basis, and the fluctuation trend was similar in the same period of each year.
- Prices of those drugs not covered by the medical insurance fell slightly, and purchase quantity dropped sharply after the COVID-19 outbreak.

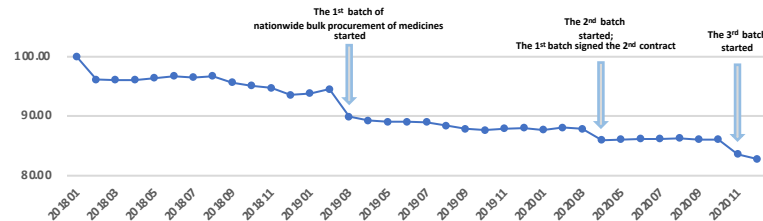


Figure 1 Monthly Purchasing Price Index of all drugs from 2018 to 2020

## Conclusion

- Prices of medicines maintained a downward trend in stability with limited procurement volume changes in Shanghai.
- The empirical case of price index and volume index of medicines in Shanghai has verified the feasibility of its application in drug price monitoring and management, the changes of drug purchase price and quantity are presented quantitatively and visually with high reliability and application value. It has also provided strong evidence for policy decision-making and evaluation.

## References

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