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**Interim Report on Joint Research with Keio University Nakajima Research Laboratory**

Japan System Techniques Co., Ltd. (JAST) is announcing the report concerning results obtained at this stage of the joint research project with Keio University for increasing the use of generic drugs. The details are as per attached.

The earnings forecast announced on May 13, 2022 already incorporates the effect of this matter on the results of operations for the fiscal year ending March 2023. An announcement will be made promptly if there is any additional information that should be disclosed.

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Japan System Techniques Co., Ltd.

### **Interim Report on Joint Research with Keio University Nakajima Research Laboratory**

Japan System Techniques Co., Ltd. (JAST) is announcing the following report concerning results obtained at this stage of the joint research project with Keio University for increasing the use of generic drugs.

#### ■ Joint Research Theme

This research project is studying how authorized generics (note 1) can influence the use of generic drugs.

#### ■ Summary of the Research Project

In July 2022, JAST and Keio University began a joint research project about increasing the use of generic drugs. The objective is to devise effective methods for helping to raise the use of generic drugs (note 2) to more than 80% of all prescription drug use in every prefecture of Japan by the end of March 2024. This is the goal of the Japanese Ministry of Health, Labour and Welfare.

(Refer to <https://www.jast.jp/news/14800/>)

This research uses anonymous health insurance invoice data for which permission has been received to use this information. The invoice data includes diagnosis, treatment and other information about the activities of medical institutions. Data about drugs prescribed for patients are analyzed in order to examine the relationships between the utilization rates of authorized generics and brand-name prescription drugs. Results of this analysis are used to study hypothetical measures for increasing the percentage of generic drugs used. Another goal is to study ways to develop new products that can be used by health insurers of all types and for increasing the use of generic drugs.

#### ■ Interim Report of Results

An analysis using some of the health insurance invoice data concerning the utilization rates of authorized generics and generic drugs revealed that authorized generics increase the utilization of generic drugs. This conclusion indicates that raising the use of authorized generics may be an effective method for increasing the utilization of all generic drugs (Figure 1).

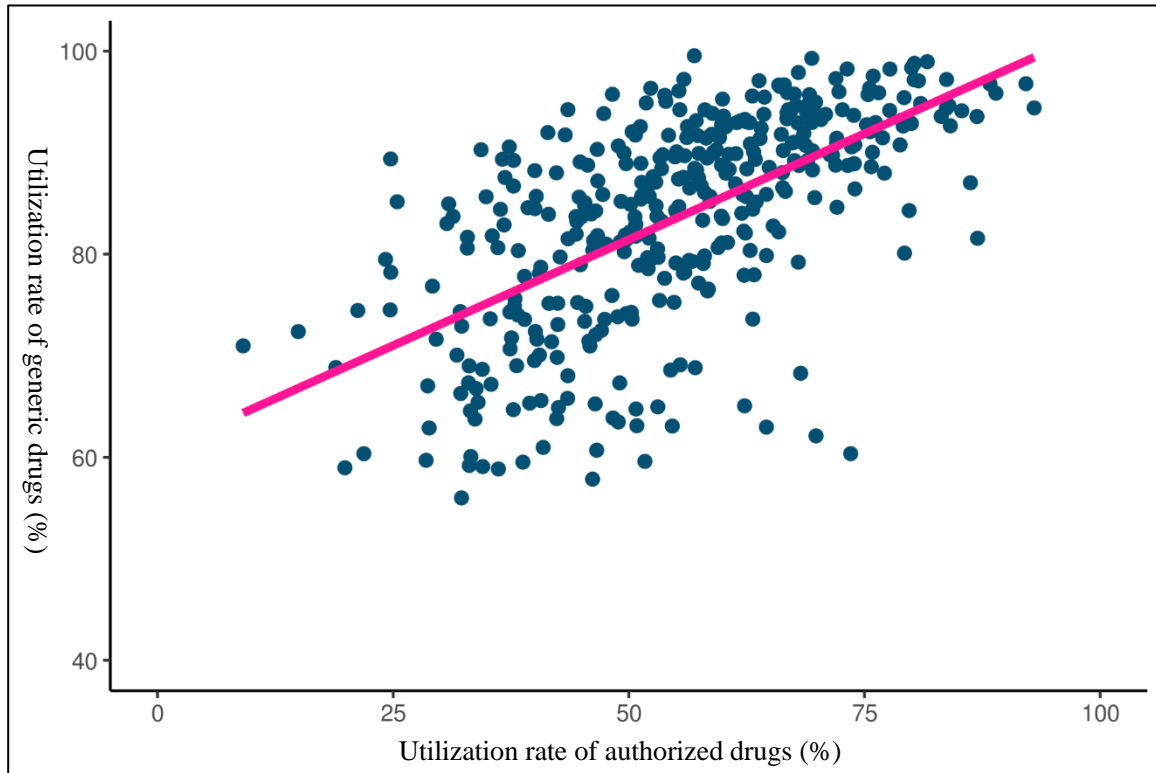


Figure 1: Utilization rates of authorized generics (horizontal axis) and generic drugs (vertical axis) in each prefecture of Japan

This research must also take into account how the use of generic drugs other than authorized generics (other generics) influences the use of all generic drugs. In another step to demonstrate the effectiveness of raising the use of authorized generics, there was also an analysis of the effects of the utilization of authorized generics and other generics for individual prescription drugs and pharmacies.

Studying individual drugs and pharmacies revealed that there are differences for some drugs in how authorized generics and other generics affect generic drug use at individual pharmacies. The more the percentage of generic drug use declines at pharmacies using other generics, the higher the use of authorized generics becomes as a share of all generic drug use (Figure 2).

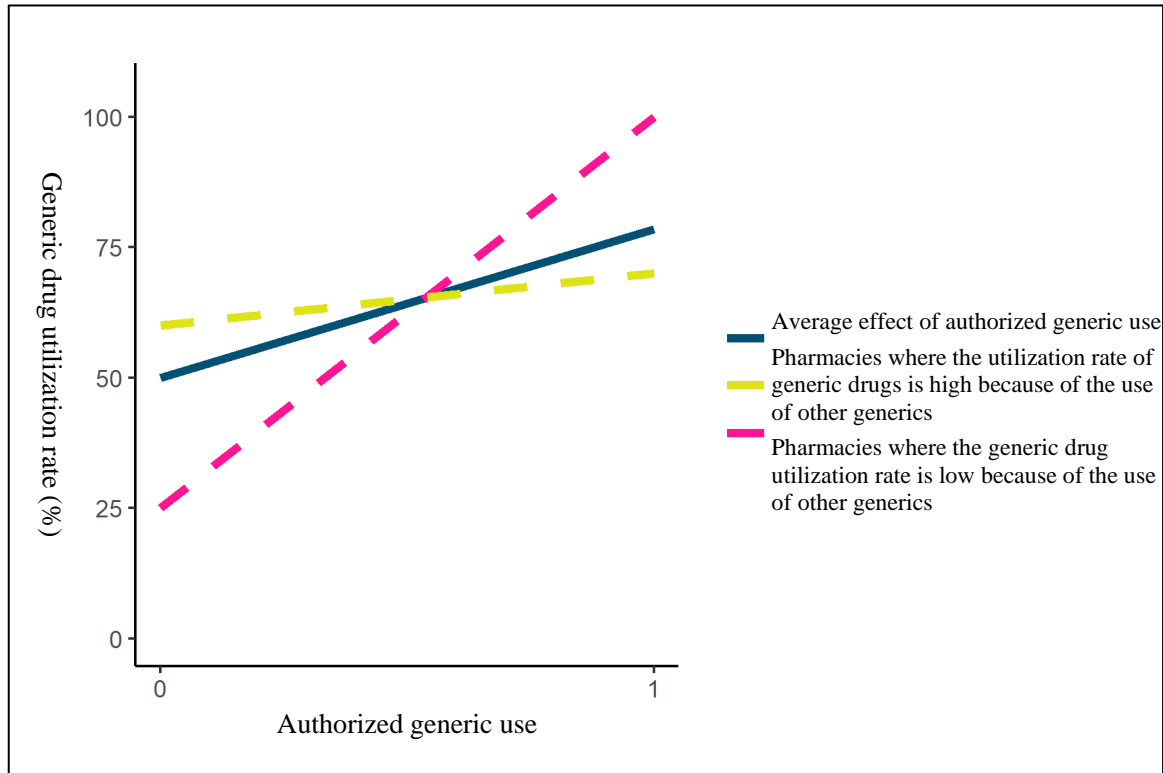


Figure 2: Relationship between authorized generic use (horizontal axis) and the generic drug utilization rate (vertical axis) for individual pharmacies

This figure shows the effect of authorized generic use on the utilization rate of all generic drugs at pharmacies where the utilization rate of generic drugs is high because of the use of other generics (yellow line) and at pharmacies where the generic drug utilization rate is low (red line).

■ Upcoming Activities

The research project has clearly revealed two points concerning some prescription drugs. First, authorized generics have produced a significant increase in the utilization rate of all generic drugs. Second, there are many different effects of authorized generics and other generics on the utilization rate of all generic drugs among individual pharmacies.

Researchers will next analyze the relationships with these two points for an even larger number of drugs. In addition, there will be studies about the effect of expenses involving the use of authorized generics and other generics in order to create effective proposals for health insurers.

■ The Future Co-Creation Laboratory of JAST

The Future Co-Creation Laboratory of JAST is a medical big data business with the mission of using the digital transformation of health care backed by medical big data (invoice data, health check-up data and other data) to solve issues at healthcare facilities and insurance companies and organizations. This laboratory will continue to analyze information obtained from research activities in order to raise the value of JAST’s data and create more ways to solve the issues of customers.

Operations of The Future Co-Creation Laboratory also contribute to accomplishing Sustainable Development Goals number three, good health and well-being, and nine, industry, innovation and infrastructure. These activities include the use of medical big data to enable people to stay healthy and the use of alliances with the academic sector for joint research and the development of products.



■ Profile of Ryo Nakajima



Professor Ryo Nakajima (left) and Future Co-Creation Laboratory member Taisuke Ichihara

Ryo Nakajima

Professor, Department of Economics, Keio University

Background:

1994: Graduated from Department of Economics of Agriculture and Forestry, Faculty of Agriculture, Kyoto University

2004: Completed the doctoral course in Department of Economics, New York University (Ph.D. in Economics)

Professor Ryo Nakajima specializes in applied econometrics and was awarded the Ishikawa Prize of the Japan Economic Association in 2018. His research focuses on empirical analysis of social interactions, examining with data the mechanisms by which people influence each other through channels beyond the market and the external economies that emerge from these interactions.

■ Supplementary information about data

Basic data used for the graphs in this release:

- Period: 2014 to 2021
- Region: All prefectures of Japan
- Medical procedures: 903,646
- Pharmacies: 47,646

Note 1. Authorized generics are generic drugs produced with the permission of the original manufacturer by using the same ingredients and production method as those used for the original prescription drug.

Note 2. Generic drugs are prescription drugs produced and sold after the patent of a prescription drug (brand name drug) has expired. Generic drugs have the same amount of effective ingredients and the same efficacy as those of the brand name drug (Source: Ministry of Health, Labour and Welfare).

**Inquiries**

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Contact for more information (redirected to an external website): <https://www.jastlab.jast.jp/contact/>

Website of The Future Co-Creation Laboratory: <https://www.jastlab.jast.jp/>