

## **The new covid-19 monitoring method significantly saves costs and allows more accurate forecasting**

*26. 4. 2022, MLADA BOLESLAV - The research organization NEXARS, in cooperation with ŠKODA AUTO a.s., has developed a new method monitoring the occurrence of the coronavirus SARS-CoV-2 from wastewater. It does not pose any additional demands on employees, reduces costs and it allows very accurate prediction of SARS-CoV-2 load.*

The covid-19 pandemic has been going on for more than two years and no one knows how long it will affect our society. One of the critical tools for reducing impact on society and companies has been testing of employees by antigen tests. ŠKODA AUTO taking the illness with highest priority and respect has been using the testing approach to limit spread of disease between employees making remarkable effort to keep the employees healthy, even beyond the obligations arising from the pandemic measures in force. From March 1, 2021 to February 18, 2022, ŠKODA AUTO thoroughly tested all employees at least once a week. And during this time, the coronavirus in wastewater was monitored by the research organization NEXARS.

### **Dramatic reduction of high costs**

The costs of self-testing by antigen tests at ŠKODA AUTO exceeded CZK 250million, while only approximately one-fifth of the covered by a public health insurance. The average price of the antigen test was less than CZK 40. However, more than CZK 150million included personnel costs associated with the testing provisioning (assuming the minimum time of 10 minutes required for tests collection and evaluation). Other costs related to services were not calculated. Agency staff was also tested.

"The high costs, along with the discomfort of our employees, gave us the impulse to develop a new approach for monitoring the covid-19 pandemic in a non-burdensome and more cost-effective manner. The research organization NEXARS, in cooperation with ŠKODA AUTO a.s., has developed and put into practice a methodology for monitoring the viral load from wastewater, which has no analogues in the Czech Republic," describes Mgr. Jiří Prokop, PhD., Head of Health Services and Ergonomics ŠKODA AUTO a.s.

NEXARS researchers took samples from wastewater in each production hall to find out presence and load of the virus. "Thanks to the new methodology, we were able to determine threshold above which the virus load of the sample can be considered to be positive and also to predict future development of the virus load. With regard to the collection points of wastewater, it is possible to take arrangements for a specific production hall based on a prediction minimizing the effects on productivity. Therefore, we managed to design a certain traffic light that would allow real-time response to the detected virus load, such as tightening measures and starting to test across the hall. On the contrary, provide the virus load in the wastewater not reaching the given threshold, comprehensive testing would not be necessary, and thus it would be possible to save significant resources. In addition, it is possible to target the precautions according to age or according to the particular mutation of

the virus detected, "explains MUDr. Róbert Hromádka, founder and CEO of the research organization NEXARS.

### **Accurate prediction and saving hundreds of thousands for one positive person**

Long-term testing of employees made it possible to obtain the exact comparison necessary for the development of a new non-burdensome methodology. This verified not only its accuracy, but also the ability to predict trends. The results obtained thus exceed the similar methods used by the possibility of prediction, financial efficiency and, last but not least, by not burdening employees. Thanks to the new monitoring methodology, NEXARS researchers are able to predict the development of the pandemic several days in advance, and even are able to predict the situation in individual production halls, which is very important in efficient production planning.

"It is a cost-effective method of monitoring the load of an infectious disease, reducing costs. The costs of examinations per employee are in the order of pennies, the costs per positively tested employee are less than CZK 100. According to public data, the total costs reimbursed by health insurance companies for covid-19 testing in accordance with the regulations of the Ministry of Health of the Czech Republic in 2021 were more than 17 billion CZK. Všeobecná zdravotní pojišťovna covered 4.5 billion CZK for antigen tests and 3.8 billion CZK for PCR tests, and about 0.1 billion CZK for antigen tests and about 0.1 billion CZK for PCR tests were covered by Škoda Employee Insurance. This cost, together with the declared costs of approximately CZK 300,000 per positively tested employee at Oborová zdravotní pojišťovna, confirms the usefulness of our work," concludes Róbert Hromádka from the NEXARS research organization.