

## AutoAsmaAlert: Technological tool to prevent Salbutamol Overuse in a Colombian Healthcare Provider "Letter to the Editor"

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### Abstract:

The use of Salbutamol for the treatment of asthma has been a part of regular therapy as a short-acting  $\beta$ 2-agonist since the 1960s. In the GINA 2024 guidelines, it is indicated that the use of salbutamol in monotherapy has been associated with increased mortality and poor asthma control. Therefore, the development of alternatives that allow rapid identification of its overuse is of great interest for the management of the disease. In order to achieve this objective, it was proposed to develop the technological tool, Auto Asthma Alerts "AAA", with the aim to identifying in the clinical history and in real time the overuse of SABA (more than 3 inhalers per year) and thus alert physicians. The platform was successfully trialled on a pilot scale in a healthcare institution in Montería, Colombia, MediSinu IPS.

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## BRIEF COMMUNICATION

The excessive use of salbutamol (more than 200 doses per month or more than 3 inhalers dispensed in a year) has been associated with adverse effects, including severe exacerbations, allergic responses, and airway inflammation. In some cases, these effects may require emergency care and may even result in fatal outcomes (Nwaru et al., 2020; Reddel et al., 2024). One strategy to address this challenge is to intervene in the patient's medical history, accompanied by the integration of data processing. This has allowed the construction of computer applications that facilitate decision-making and strengthen health risk management (Medinaceli et al., 2021).

The accurate identification of high-risk patients becomes crucial in order to reduce mortality and improve the quality of life of asthmatic patients (Reddel et al., 2024). In Colombia, the SABINA III cohort study revealed that asthma is partially controlled in 57.6% of patients, and 15.6% have experienced at least one severe exacerbation in the 12 months prior to the study visit. Furthermore, the study found that the prescription or purchase of SABA was common in Colombia (Pedrozo et al., 2022) and this indicates that there is a public health problem regarding the use of SABA in the country. Consequently, a project was initiated with the aim of developing a technological tool, Auto Asma Alert "AAA," which would identify instances of overuse of SABA (more than 3 inhalers per year) in patients' clinical histories and issue alerts to physicians, thereby

improving the management of asthma in a Health Care Provider Institution (HCP) in Montería, Colombia.

## DISCUSSION

Some applications that promote the responsible use of SABA have been described. However, they focus on the application of tests that assess SABA overuse, mode of inhaler use, pathology control, or mobile applications for patients (Plaza et al., 2022; Van et al., 2022). In this context, an innovative platform emerges, namely AAA, which generates immediate alerts aimed at detecting SABA overuse at the time of prescription. This makes AAA a valuable solution to optimize therapy and prevent complications in asthmatic patients. The HCP MediSinu, successfully implemented the system, and it is anticipated that it will be extended to several HCP in different cities throughout the country. The development of the AAA platform was made by the efforts of medical professionals from the HCP, Triario (an inbound marketing agency), and the medical team of AstraZeneca S.A.S. The AAA application works through a data processing and alert generation system comprising essential technical components, including a Node.js backend, a user access application for managing the model, the configuration of alert rules, and the visualization of the health program performance dashboard. The application is implemented in Odoo technology, an application installed on the physicians' devices that routes the alerts and a database in PostgreSQL. Its execution occurs in the Amazon Web Services (AWS) cloud.

## CONCLUSION

Although there are technical, ethical, and regulatory challenges, this initiative (AAA) is an invaluable ally in healthcare processes for the safer and more effective use of drugs. The tool is reproducible and can be implemented in a relatively short period of time (few weeks). The successful implementation of this initiative on a pilot scale provides a compelling rationale for future applications and developments involving intelligent assistants in the national medical field.

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## CONFLICT OF INTEREST

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