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## Augmented reality for risks management in injectable drugs preparation in hospital pharmacy



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The main faced difficulty while preparing doses to be administered, is to provide information without disturbing the manipulator work. Confronted with this issue, we started the integration of Augmented Reality (AR) glasses during the phase of injectable drugs preparation in order to reduce the number of medication errors (ME) related to lack of information. Three different structures, one is made up of engineers, the second was pharmacists while the third has nurses and doctors, have therefore developed an innovative solution based on AR glasses which allow the operator to have both of his hands free. Our system displays on the AR glasses the different instructions for the drug preparation in an ergonomic and practical way. It indicates to the operator the various steps of its preparation. Markers (QR code) are used for the user interaction with the application.



This software prototype has been tested by 7 nurses in a neonatology department for the preparation of an insulin dose following a new protocol that nobody knew or has used before. The tests feedbacks were positive : the nurses are ready to work with the technology of AR. They are more guided in their medicines preparation with a visual freedom. With AR glasses, they perform their tasks faster and more precisely. During a satisfaction survey, it was interesting to note, in addition to the conclusive results of the first tests, the nurses would most desired that some problems of adaptability related to the change of users and mechanical adjustment of the glasses will be resolved.

This prototype is probably the beginning of this innovative technology integration in drugs preparation process to reduce the number of ME. However, it is currently being developed in order to optimize its functionalities. Eventually, it will also incorporate a double-checking system for products subject.

# Augmented Reality for Risks Management in Injectable Drugs Preparation in Hospital Pharmacy

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