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# Performance of operators in cytotoxic vial breakage management

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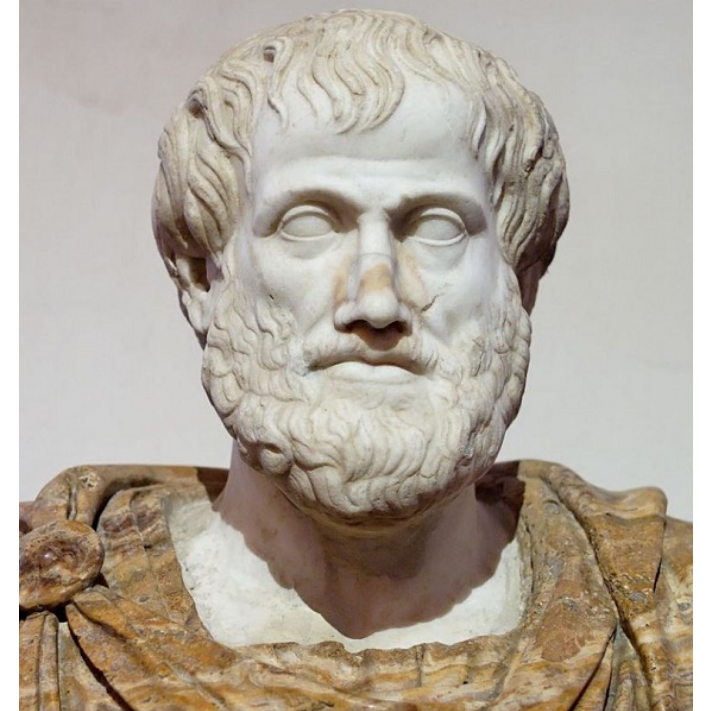
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*“What we must learn to do, we learn by doing it”*

*« Ce que nous devons apprendre à faire, nous l'apprenons en le faisant »*

*„Das, was wir lernen müssen, lernen wir während dem wir es machen“*



# Context



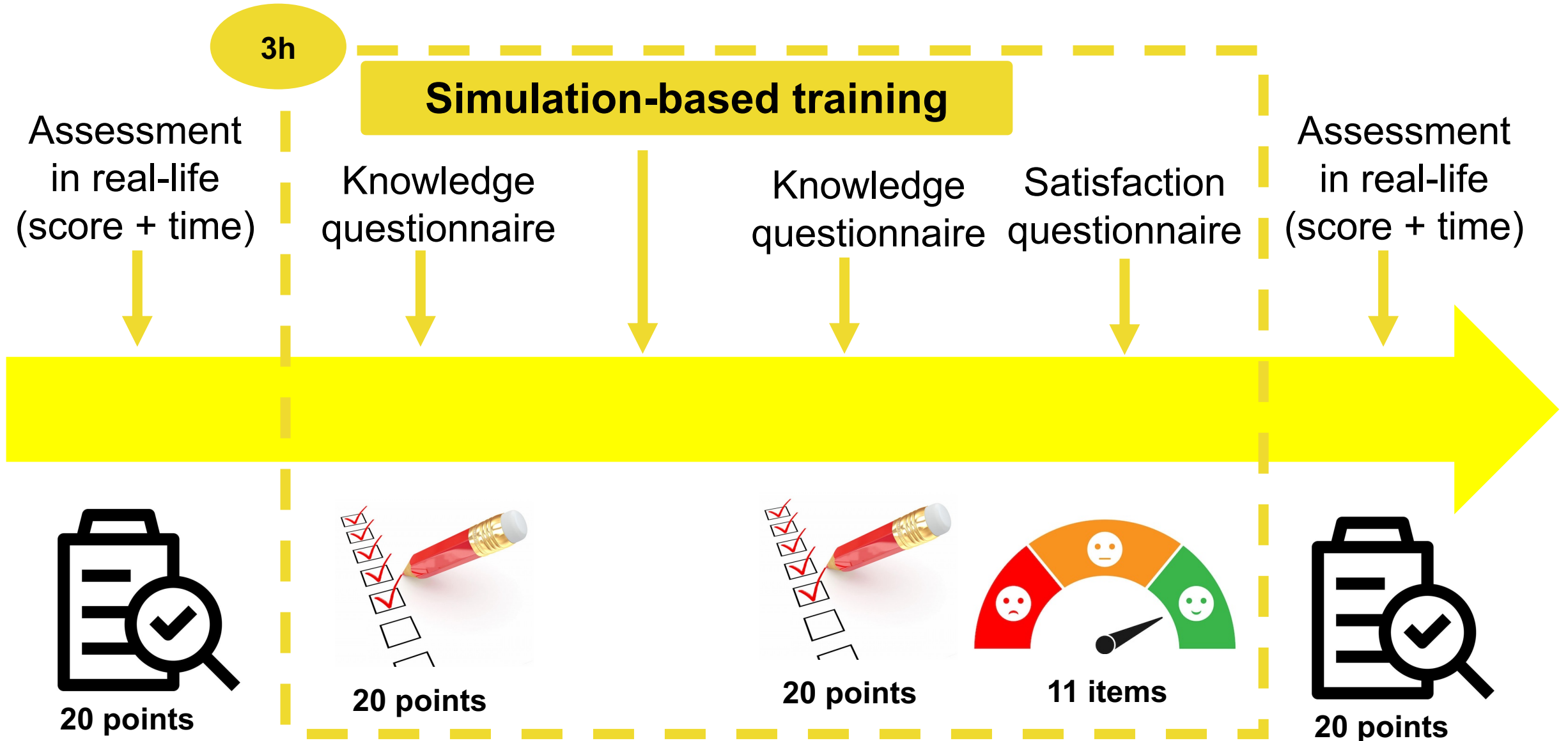
- Cytotoxic vial breakage is a rare but stressful event
- Continuous training of operators is mandatory according to GMPs



# Objectives

- To create a **simulation-based training** on **cytotoxic vial breaking management**
- To evaluate its **impact** on operators

# Material & methods – Study design



# Material & methods – The training

## Briefing

- Hazardous drugs
- Procedures

## Simulation 1

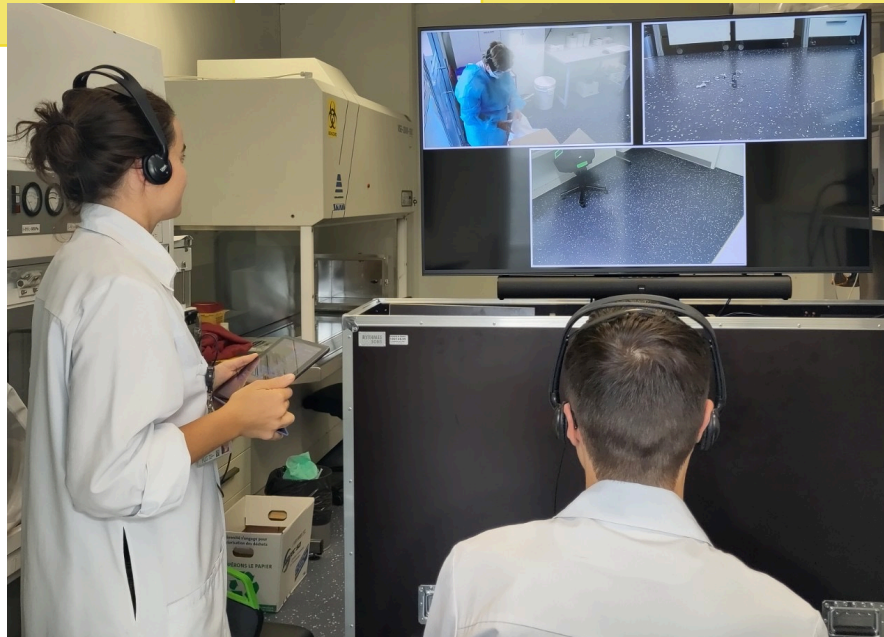
- Broken cytotoxic vial **outside of the cleanroom**

## Simulation 2

- Leaking cytotoxic bag **in the cleanroom**

## Debriefing

- Emotions
- Analysis
- Synthesis



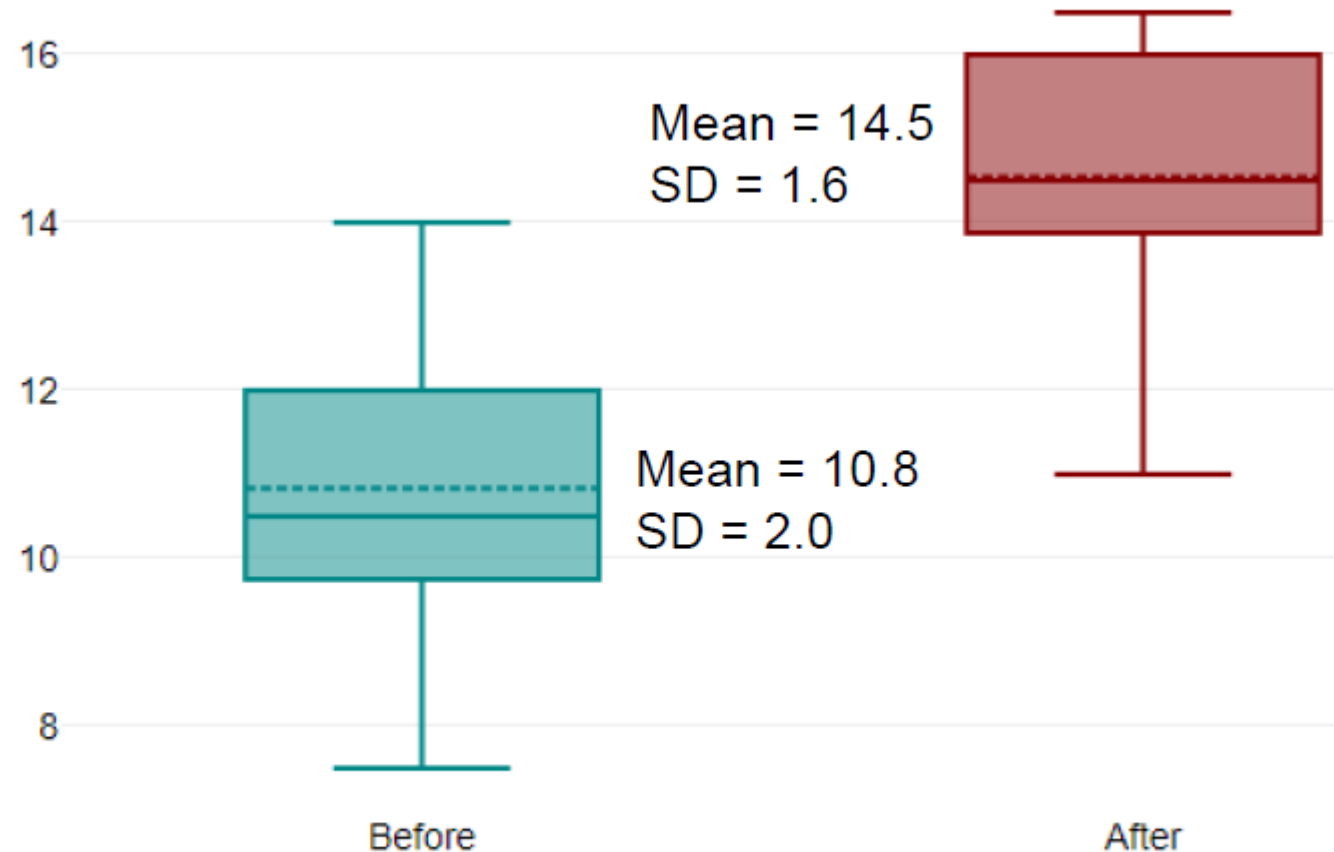
# Results – Satisfaction



# Results – Knowledge improvement



Improvement in the **score of knowledge** (in points) before and after the training (n=12,  $p < 0.05$ )

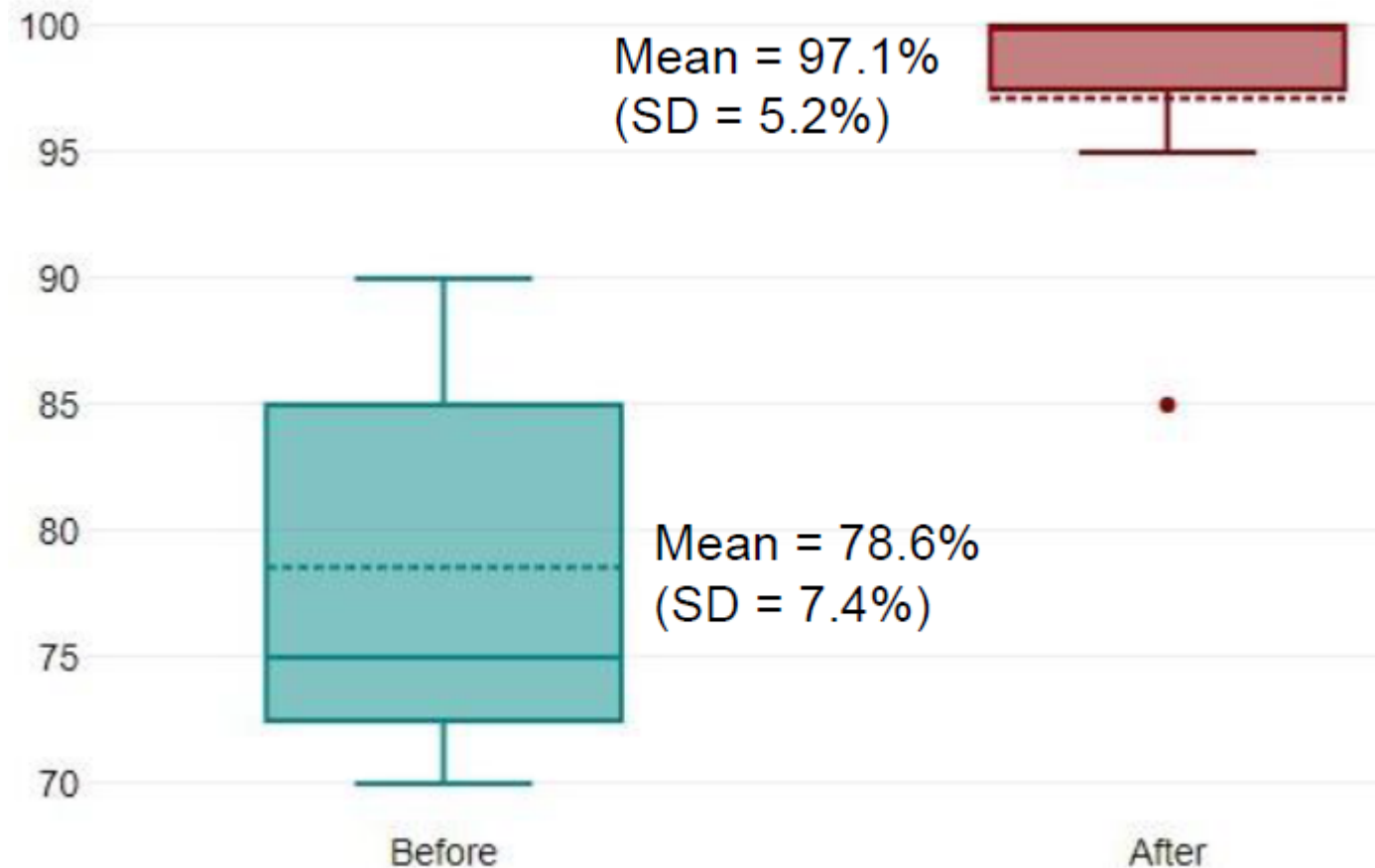




# Results – Performance improvement



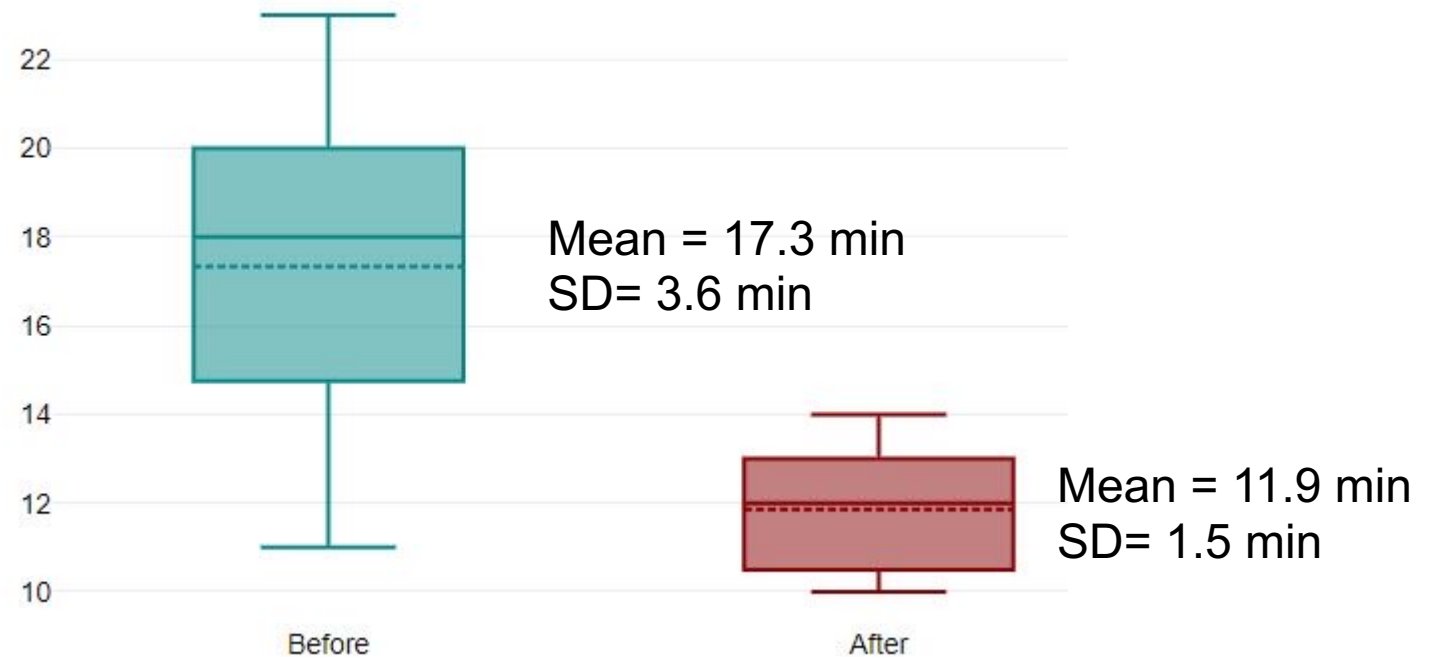
Improvement in the **score of performance** (in %) before and after the training (n=12,  $p < 0.05$ )





# Results – Time improvement

Evolution of the **time to handle the cytotoxic vial breakage** (in minutes) before and after the training (n=12,  $p < 0.05$ )



# Limits

- **Small population** of operators (n=12)
- No scenario for **powder cytotoxic vials**
- No **surprise effect** for the second real-life assessment

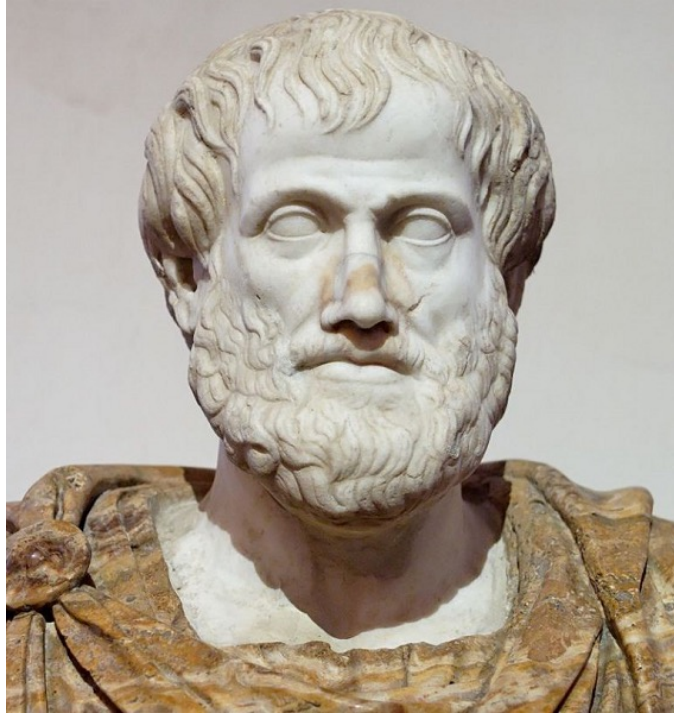
# Conclusion

- Operators handle cytotoxic vial breakage **faster** and **better** after the training
- Operators **increased their knowledge** on cytotoxic vial breaking management after the training
- Operators were **highly satisfied** by the training



# Perspectives

- To integrate this training in the **initial and continuing training** of the operators
- To adapt the leaking cytotoxic bag scenario for **oncology nurses**
- To offer this training to **other operators** from other hospitals



Yes, Aristotle was right!

*“What we must learn to do, we learn by doing it”*

**Thank you for your attention**