SELECTION OF AN OSMOLARITY VALIDATION MODEL FOR NOMINATIVE PARENTERAL NUTRITION

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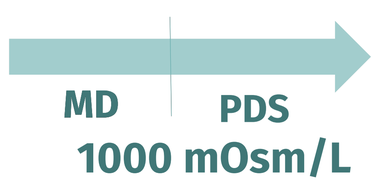
CENTRE HOSPITALIER UNIVERSITAIRE DE NANTES
MARCH 2022
eahp european association of hospital pharmacists
26th CONGRESS
N° 3PC-005

1 BACKGROUND AND IMPORTANCE

- Osmolarity is one of the pharmaceutical controls carried out on the **nominative parenteral nutrition (NPN)** produced at the Hospital pharmacy.
- According to a previous method validation, we use the **Pereira Da Silva equation (PDS)** when the theoretical osmolarity (TO) determined by this model is greater than 1000 mosmol/L and we use **the manufacturers' data (MD)** equation when the TO according to the PDS equation is below 1000 mosmol/L.
- This method is associated to an osmolarity **nonconformity (NC) rate of 5.9%.**



2 OBJECTIVE

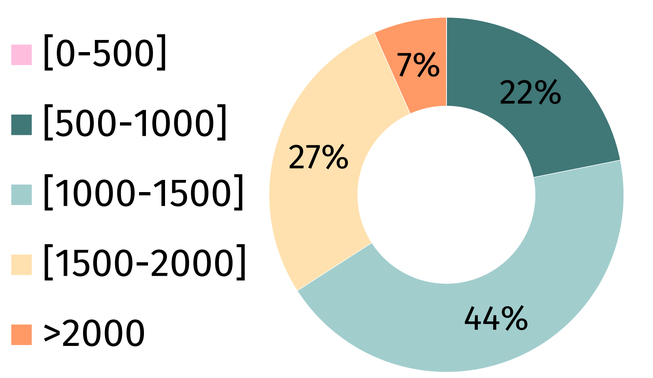
Determine the **best predictive model** to calculate TO of the NPN in order to **decrease osmolarity NC rate**.

3 MATERIAL AND METHODS

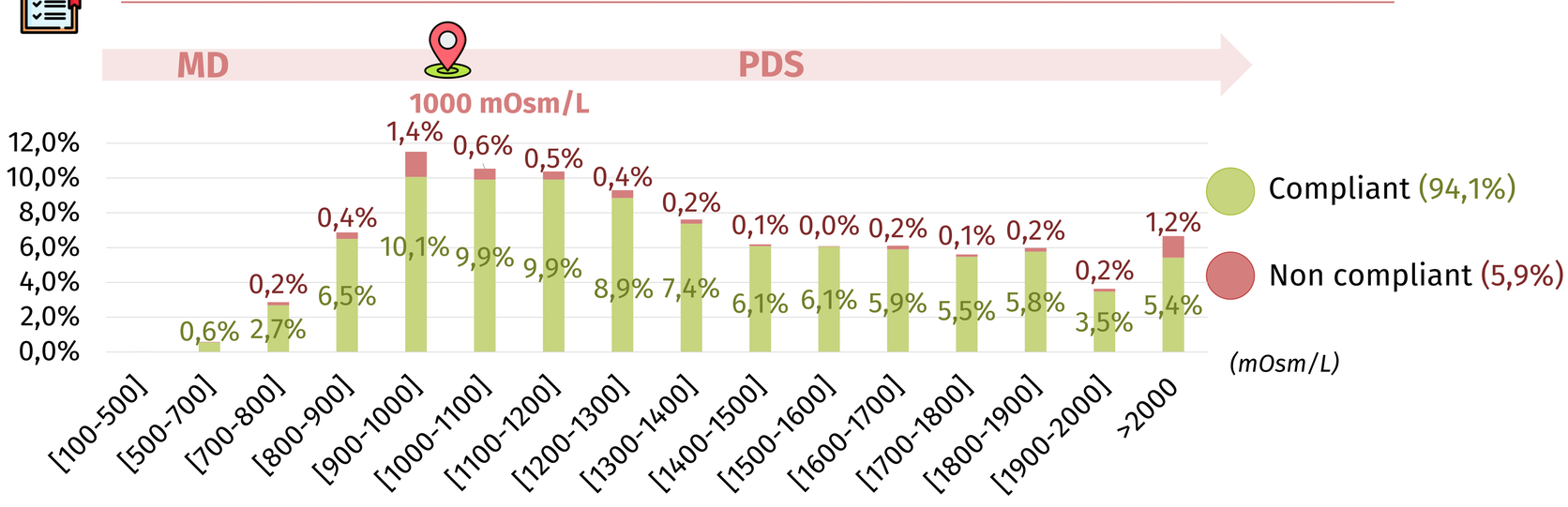
- **Retrospective analysis of measured osmolarities** was carried out from **June 2018 to September 2021** to determine the osmolarity classes most affected by NC.
- The MO (measured osmolarity) was **compliant** if it is between **-10% and +10% of the TO**.
- Different models (modification of the limit value; choice of the two models within a range of osmolarities) were tested and the one **with the lowest NC rate was chosen.**
- **Selection** of the best validation model for nominative parenteral nutrition

4 RESULTS

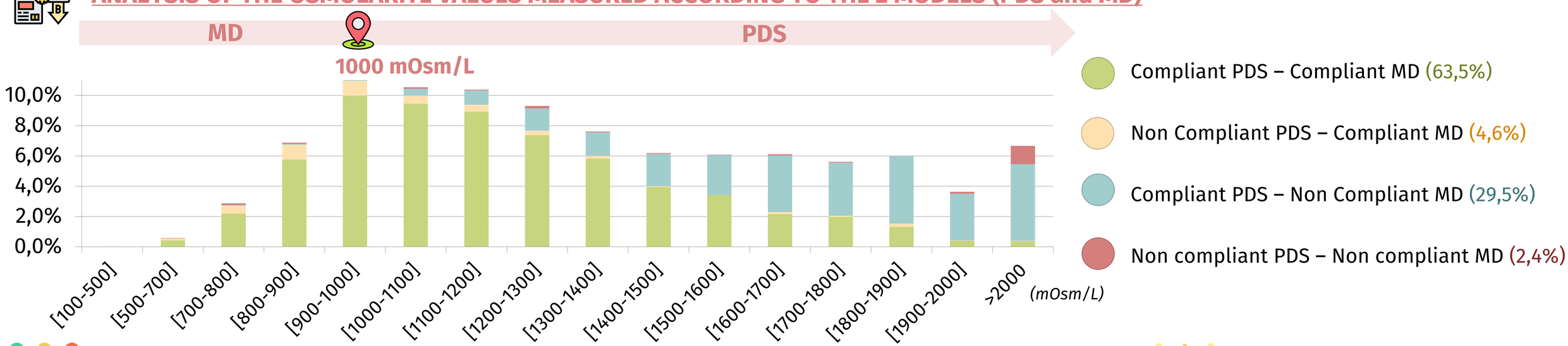
DISTRIBUTION OF MO (mOsm/L) VALUES



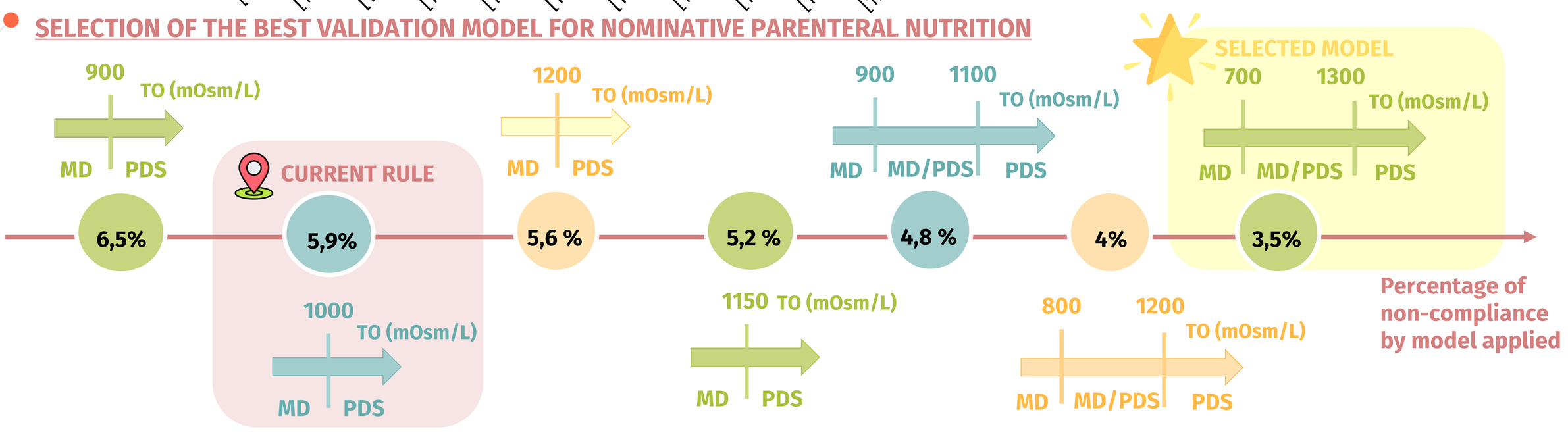
ANALYSIS OF THE COMPLIANCE OF THE MO ACCORDING TO THE CURRENT RULE



ANALYSIS OF THE OSMOLARITE VALUES MEASURED ACCORDING TO THE 2 MODELS (PDS and MD)



SELECTION OF THE BEST VALIDATION MODEL FOR NOMINATIVE PARENTERAL NUTRITION



5 CONCLUSION AND RELEVANCE

- By **increasing osmolarity limit value to 1150 mosmol/L** (instead of the current 1000 mosmol/L), the NC rate decreases **to 5.2%.**
- **By allowing both equations** for a TO according to the PDS equation between **[900;1000]; [800-1200] or [700-1300],** the NC rate decreases to **4.8%; 4% and 3.5% respectively.**
- Thus, we choose to **select the model allowing both equations between 700 and 1300**. The rate of non-compliance will then fall **from 5.9% to 3.5%**. The application of this new model will **facilitate the interpretation** of nominative parenteral nutrition.