

DEVELOPMENT AND EVALUATION OF A COMPUTERIZED PROGRAM FOR A ONE-STEP PRESCRIBING AND COMPOUNDING OF PAEDIATRIC PARENTERAL NUTRITION

C. Fonzo-Christe¹, F. Sadehipour¹, H. Ing¹, L. Cingria¹, R. Pfister², P. Bonnabry¹
¹ Pharmacy, ² Department of Paediatrics, Geneva University Hospitals (HUG), Switzerland

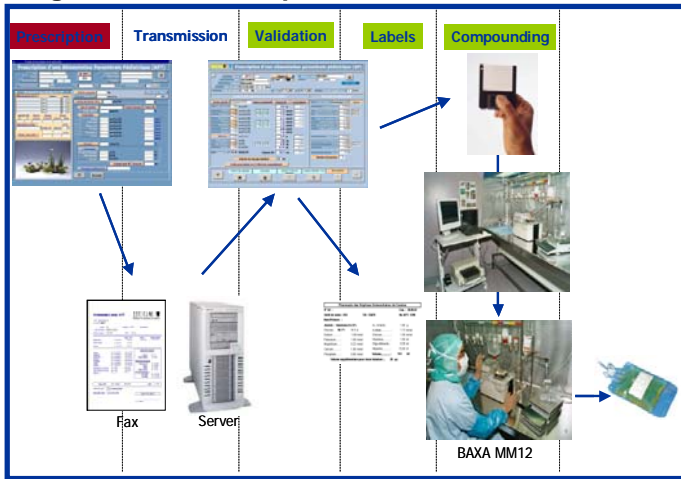
RATIONALE

Computerized ordering programs of parenteral nutrition reduce errors (e.g. calculation) and adverse events (e.g. calcium-phosphate precipitation), improve prescription's quality (e.g. by optimising the energy load), and decrease workload for the prescribers and the pharmacists.¹⁻⁴ Most of the time, computerized programs do not integrate the compounding and labels' edition steps. We developed a user-friendly program ("**Nutrilogic**"), for one-step prescribing and compounding of paediatric parenteral nutrition.

RESULTS

- ❖ **Nutrilogic** is accessible **online** since 2003 from all HUG's paediatric wards
- ❖ Ordering is performed in a logical way using patients' clinical data (enteral nutrition, amount of volume, energy, glucose, Na⁺ and K⁺ already administered with IV fluids and drugs) (Fig. 3)
- ❖ Limits for each nutrient, calcium-phosphate precipitation curves, and others useful functions (e.g. possibility to select a ready-to-use all-in-one TPN for children > 35 kg) are integrated in the program (Fig. 3,4)
- ❖ Alerts for physical or chemical incompatibilities are built in the program at the physician step to reduce unnecessary calls for clarification (Fig. 5)
- ❖ Prescriber's guide is integrated in the program (Fig. 1)
- ❖ **Nutrilogic** reduces significantly the risks compared to former manual compounding method, mainly by suppression of retranscription errors and readability problems⁵

Fig. 2 General Principle



CONCLUSIONS

By its high educational value and its one step approach from prescription to compounding, the user-friendly program **Nutrilogic** improves the quality and security of paediatric parenteral nutrition by reducing prescription errors and compounding risks.

References

- Schloerb PR. JPEN 2000;24:23-9 / 2. Peverini RL et al. Proc Amia Symp 2000;650-4 / 3. Hilmas E et al. Am J Health Syst Pharm 2004;61:273-7 / 4. Horn W et al. Artif Intell Med 2002;24:217-28 / 5. Bonnabry P et al. Qual Saf Health Care 2005;14:93-8

METHOD

Nutrilogic, developed on Access®, provides (Fig. 1,2):

- ❖ high educational environment for the prescription
 - ❖ direct prescription's recording on a server
 - ❖ creation of a file used to pilot a BAXA® MM 12 automatic compounder
 - ❖ automatic printing of the labels
 - ➔ complete traceability of each nutrition bag is assured
- Safety improvement of the process induced by the program was evaluated using a structured risk analysis method.

Fig. 1 Main functions of the program

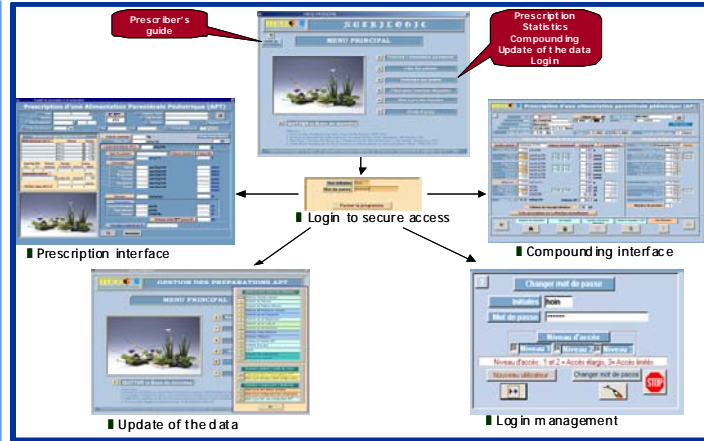


Fig. 3

Fig. 4

Fig. 5