Multidose liquid oral forms (MLOFs) are the most appropriate for paediatric population. They allow a better adaptability of the doses and facilitate the administration to patients who cannot swallow tablets or capsules. Many questions come up concerning the management in hospital pharmacies, the use in care services or the fate of the bottles after patient discharge.

The aim of this study was to conduct a state of play of MLOFs management in French paediatrics hospitals.

An online 3-part questionnaire was sent to 20 French paediatrics hospital pharmacies. The first part focuses on the management in the pharmacy (nominate or global dispensing). The second part concerns practices in care services (bottle sharing between patients, fate after patient discharge), and the last part is about existing procedures and documents to frame the practices. The collection period ran from June to October 2018.

17 among the 20 reached hospital pharmacies answered the questionnaire (85%). 16/17 of this pharmacies dispense MLOFs both nominate and global (drug staffing) ways, 1 institution practices nominate dispense only. When the dispensation is nominate, most of the pharmacies dispense the entire bottle of the drug: 14/17 when there is a marketing authorization (MA), 15/17 when the drug is under ‘Autorisation Temporaire d’utilisation’ (ATU) a French disposition when there is no existing form with MA in France. 2 institutions produce oral syringes within the pharmacy. In care services, 12/17 hospitals allow vials sharing between patients, and only 4 out of 12 have a limited authorized list of services, pharmaceutical specialties or situations (isolation...). Regarding to the administration devices used, 4/12 use the provided device, 11/12 enteral syringes, 1/12 oral syringes and 1/12 parenteral syringes. When the patient is discharged, MLOFs with MA are most often discarded (11/17) unlike ATU which are often given to the patient (15/17). The management policy is validated by the nursing care division in 9 out of 17 institutions. On the other hand, few centers have proper use documents as its disposal: 6/12 for sharing vials, 7/17 for equivalence tables and 7/17 conducts audits on MLOFs use.

This work highlight a real heterogeneity in the MLOFs management in French paediatrics hospitals. The issues are shared between pharmacists, and it would seem useful to share available documents and knowledge. The next step of this work would be to propose harmonized procedures that could be adopted by most of the paediatrics institutions.

### Background
Paediatric High Dependency Units (PHDU) specialize in the safe and optimal care of children requiring more close observation and intervention than can be provided on the general ward.

**Aims**
1. To analyze the patient characteristics, seasonal trends, bed occupancy rate and length of stay (LOS) of regional PHDU.
2. To develop a demand model for PHDU based on an annual regional birth rate and a childhood population (<16 years) for the Mid-West of Ireland and to propose National and European projections.

**Methods**
Bed occupancy analysis of PHDU (critical care level II) at University Hospital Limerick (UHL) was conducted. Daily assessment records covering over nine years (2010 to 2019) was used in which patient information indicating age, gender, symptom/signs at presentation along with the management received in PHDU were obtained. Additionally, a recorded location for admission/discharge, date and time of admission and discharge and transfer to tertiary centres was documented. Data was verified with computerized hospital inpatient enquiry (HIPE) and analyzed using SPSS. Demand modelling based on birth cohort and childhood population of the region was determined. UL Hospital group research and ethics committee approved the study.

**Results**
Over our study period annual mean general admission rate of 117 to PHDU was observed. Respiratory and Neurological presentations were the most common morbidities (32% and 27% respectively) followed by endocrine, sepsis related and surgical. 53% of admissions were male and 46% female with commonest age group was 0-4 years. Median length of stay was 2.3 days. Commonest respiratory morbidity was bronchiolitis and the most frequent acute neurological presentation was prolonged convulsion/status Annual mean rate for additional respiratory support (mostly Nasal CPAP/BiPAP/High Flow Humidified Oxygen) was 28 and that of tertiary care critical care transfers 18. Since the opening of PHDU in Limerick, tertiary care transfers to Dublin decreased by 54% and admissions to adult ICU by 78%. We estimated a mean annual paediatric admission demand of 110 per 100,000 childhood population <16 years and 9 infants/1,000 live births annually.

**Conclusion**
Our review provides strong evidence for rationalization in the development of more PHDU (critical care level II) facilities available at the regional centres. Additionally, our observations highlight the PHDU demand, appropriate equipping and multidisciplinary staff training/competence to safely cater for the critically ill infants and children at regional centres, thus supporting their safe care closer to home with obvious health economic and societal benefits.