USER MANUAL

NeoDiet

INFANTOOLS

Content

Introduction

NeoDiet application focuses on nutritional management in neonatology and pediatrics. It enables both enteral and parenteral nutrition calculation, as well as preparation of individual infusion therapy for patients. Apart from the core functionality, NeoDiet offers also calculations for metabolic bone disease, enteral osmolarity, metabolic acidosis correction, heparinization, insulin dosing and/or glucose infusion rate.

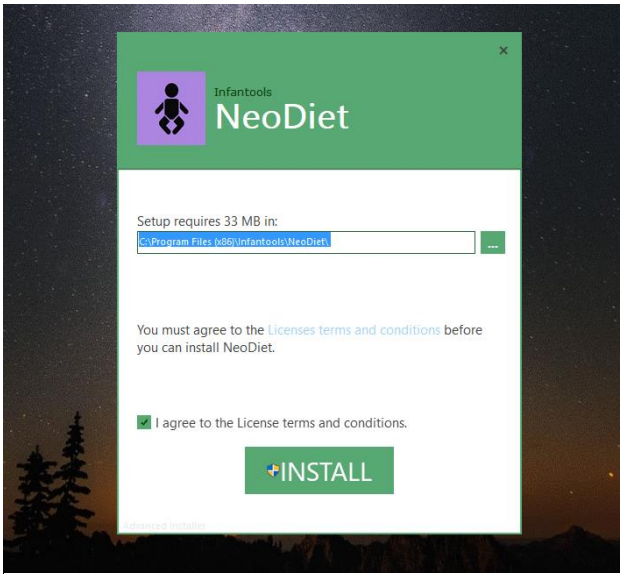
The application enables users to create, edit, save, export and delete patients with their respective nutrients and infusion therapy settings, so they can be recalled at any time. Besides patients, users can also manipulate with nutrients themselves – create, update and edit new nutrients that are used in neonatal and pediatric nutrition. NeoDiet runs locally under Windows OS and is licensed.

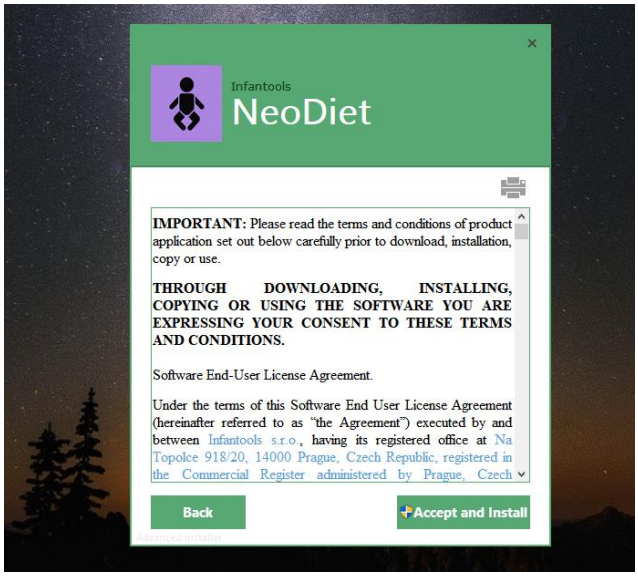
Thank you very much for your time and support! ☺

Infantools

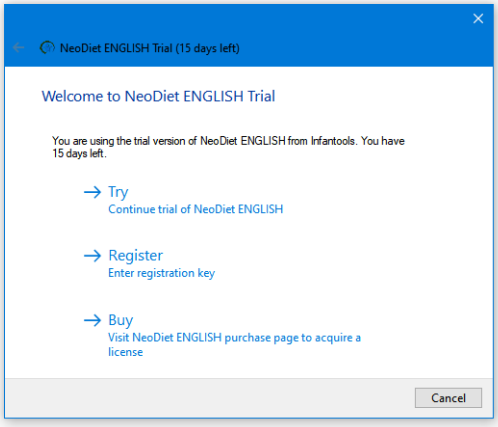
Installation

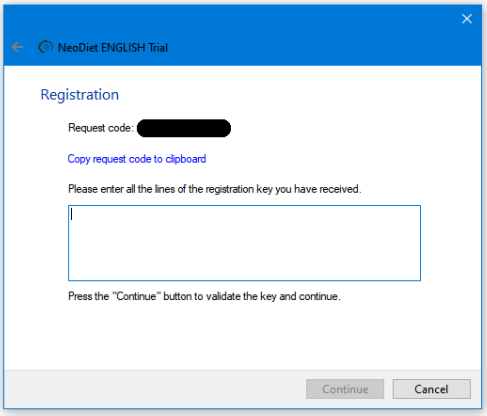
Upon receiving installation package (www.infantools.com/neodiet) we can begin installation process. It is mandatory to agree to **End user license agreement**. We recommend leaving the **default settings** during installation.





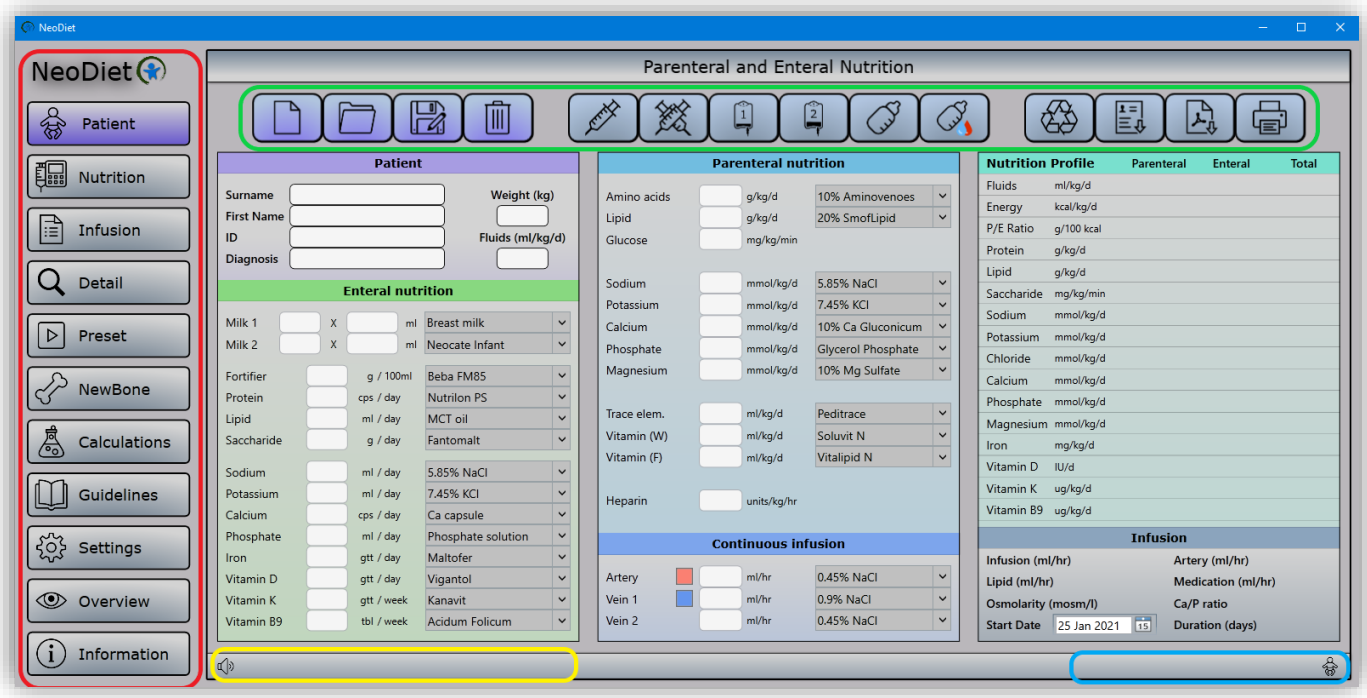
The application will start in Trial mode – free usage for limited time. In order to continue using the app, you need to purchase a license (Infantools). When starting registration process (**requires Administration access**), you will receive **REQUEST CODE** (see below), that you need to send to info@infantools.com. **REQUEST CODE** is necessary to generate License (**Registration key**). Once you will receive your specific License, you will copy it to empty field in the registration area to unlock the app (see below). End Users have the right to use new and updated versions of the application as long as they purchased a valid License (Maintenance period).



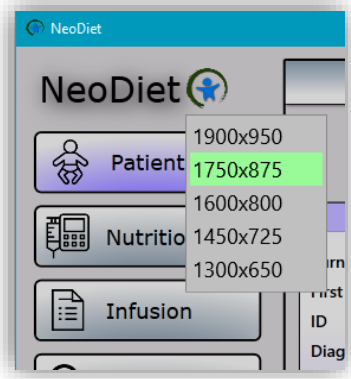


Overview

Application is divided into several **Modules**, that have specific **Toolbar**. Common areas include **Currently selected patient** and **Comment section for the last action**.

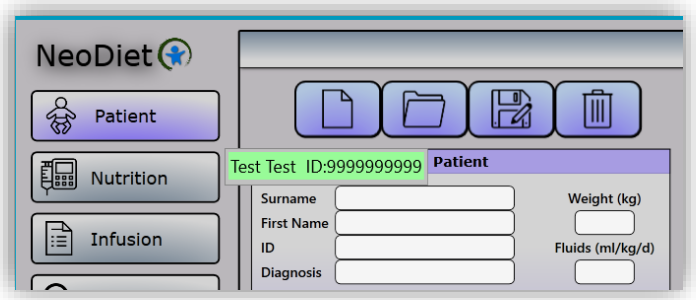


There is a tool for changing application dimensions as well as font size, using the NeoDiet logo in the left upper corner and choosing one of the options.

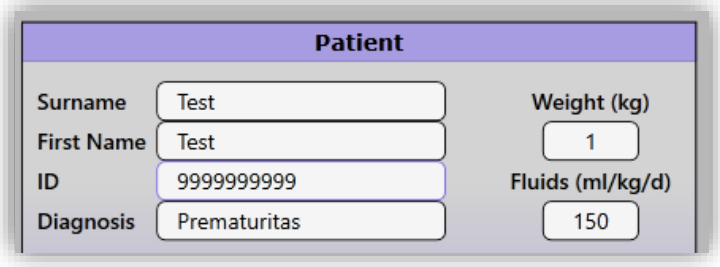


Module Patient

Upon clicking on Patient module, we will be presented with the list of current patients in the „internal“ database – the selected patient will be highlighted with green colour. „External“ database of patients (**using JSON (JavaScript Object Notation) files**) lies in the Database folder and can be accessed from another place – see Module Nutrition.

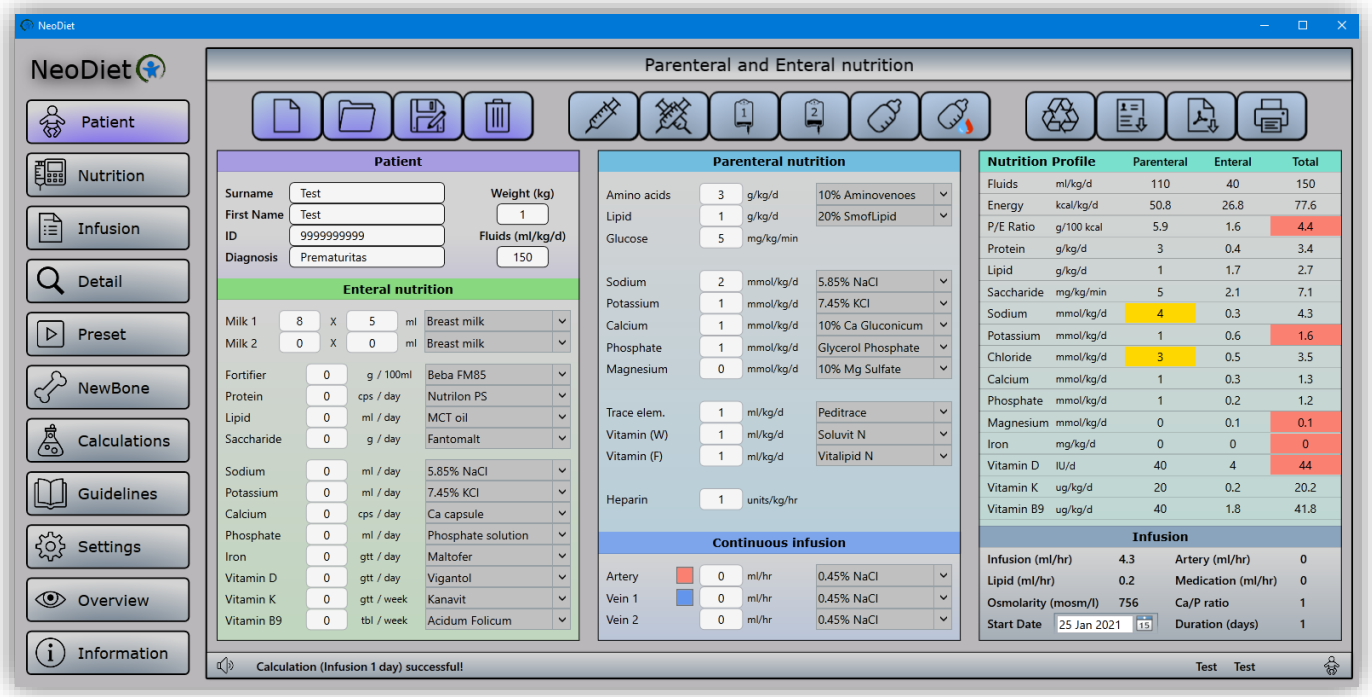


When a patient is selected, corresponding fields are filled in and calculation is performed (nutrition for 1 day).



Module Nutrition

First module we see after starting the app. It is the core element of the app as all types of nutrition calculations are provided here – enteral and/or parenteral nutrition, as well as enteral nutrition only or combination of enteral feeds and continuous flush. Nutritional overview is on the right side of the module, together with infusion parameters. We can calculate nutrition without entering a patient. Toolbar functions numbered from left to right – see below.



Toolbar

1 – New Patient: the current patient will be replaced with reset fields.

2 – Open NEODIET file: gives access to JSON files in the Database folder. After selecting a patient, his/her records will be loaded and nutrition calculation will be automatically performed.

3 – Save (Update) patient: saves Patient into Database folder (JSON file) as well as into Patient Module on the left side. In case the patient was already created, the function will perform update of the records for the given patient (**Patient ID is unique for each patient**). Certain fields are mandatory for saving a patient.

4 – Delete patient: will delete the patient from Patient Module („internal" database), but the patient will still exist in the Database folder, from where we can recall his/her records („*Open NEODIET file*" function).

5 – Calculate Infusion for 1 day: if there are no errors during calculation (missing fields, very high glucose infusion rate, etc), we can see nutrition overview and infusion parameters on the right side.

6 – Calculate Infusion for 2 days: we can spot the difference between this and previous function by looking at Comment (Infusion for 2 days) and Infusion parameters (Duration – Days: 2).

7 – Calculate All-In-One Infusion for 1 day: if there are no errors during calculation (missing fields, very high glucose infusion rate, etc), we can see nutrition overview and infusion parameters on the right side.

8 – Calculate All-In-One Infusion for 2 days: we can spot the difference between this and previous function by looking at Comment (Infusion for 2 days) and Infusion parameters (Duration – Days: 2).

9 – Enteral nutrition only: we can enter Weight and Enteral Nutrition in order to perform calculation (Total fluid intake will be automatically calculated).

10 – Enteral nutrition & Flush: we can fill in Weight, Enteral Nutrition and Continuous Infusion sections in order to perform calculation (Total fluid intake will be automatically calculated).

Specifically, we can check preparation of arterial (red) or venous (blue) flush in Pharmacy (this will be reflected in exported or printed PDF infusion).

11 – Convert units: it is possible to convert units for the following nutrients:

- Saccharide – mg/kg/min ⇔ g/kg/day
- Electrolytes – mmol/kg/day ⇔ mg/kg/day

12 – Export patient: will export JSON Patient file.

13 – Export nutrition: will export PDF Nutrition file.

14 – Print nutrition: quick print for the Nutrition handout. The function requires Adobe Acrobat Reader (https://get.adobe.com/cz/reader/?promoid=KSWLH), that must be set as **a default PDF viewer**/opening app. PDF file will be printed through your default printer. Alternatively, you can export PDF file and then use a printer of your choice.

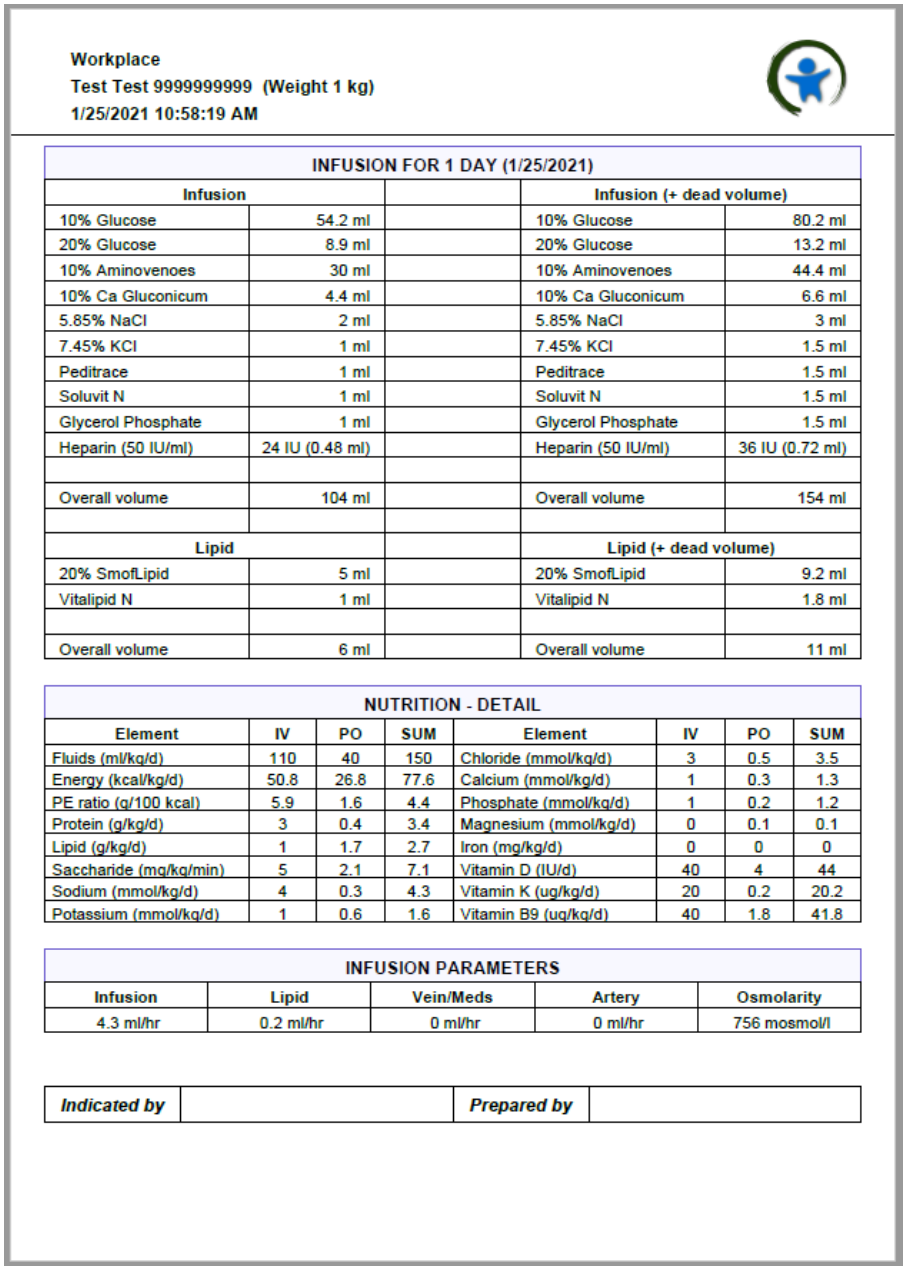
TIP: Patient ID is **unique** for each patient

TIP: Patient Module works as **„external" patient database**. If we delete patient from this module (patient was discharged or transferred), we can still find him/her in the **„internal" patient database** that can be accessed through „*Open NEODIET file*" (assuming that the patient was previously saved). When the patient is recalled back to the application, we can hit „*Save patient*" and it will save the patient again into the Patient Module.

Warnings are displayed in case of suboptimal nutritional intake (as set in Limits section in the Settings module). Yellow – element comes in a number of nutrients (e.g. sodium in Sodium Chloride, as well as Phosphate solutions). Red – suboptimal total nutritional intake. Nutrition profile also compares the current profile with ESPGHAN recommendations – hover your mouse over Nutrition profile name.

Infusion section shows rates of infusion, osmolarity, parenteral Ca/P ratio, duration and date for which the infusion therapy was prescribed.

Sample NeoDiet PDF file



Workplace
Test Test 9999999999 (Weight 1 kg)
1/25/2021 10:58:19 AM

INFUSION FOR 1 DAY (1/25/2021)				
Infusion			**Infusion (+ dead volume)**	
10% Glucose	54.2 ml		10% Glucose	80.2 ml
20% Glucose	8.9 ml		20% Glucose	13.2 ml
10% Aminovenoes	30 ml		10% Aminovenoes	44.4 ml
10% Ca Gluconicum	4.4 ml		10% Ca Gluconicum	6.6 ml
5.85% NaCl	2 ml		5.85% NaCl	3 ml
7.45% KCl	1 ml		7.45% KCl	1.5 ml
Peditrace	1 ml		Peditrace	1.5 ml
Soluvit N	1 ml		Soluvit N	1.5 ml
Glycerol Phosphate	1 ml		Glycerol Phosphate	1.5 ml
Heparin (50 IU/ml)	24 IU (0.48 ml)		Heparin (50 IU/ml)	36 IU (0.72 ml)
Overall volume	104 ml		Overall volume	154 ml
Lipid			**Lipid (+ dead volume)**	
20% SmofLipid	5 ml		20% SmofLipid	9.2 ml
Vitalipid N	1 ml		Vitalipid N	1.8 ml
Overall volume	6 ml		Overall volume	11 ml

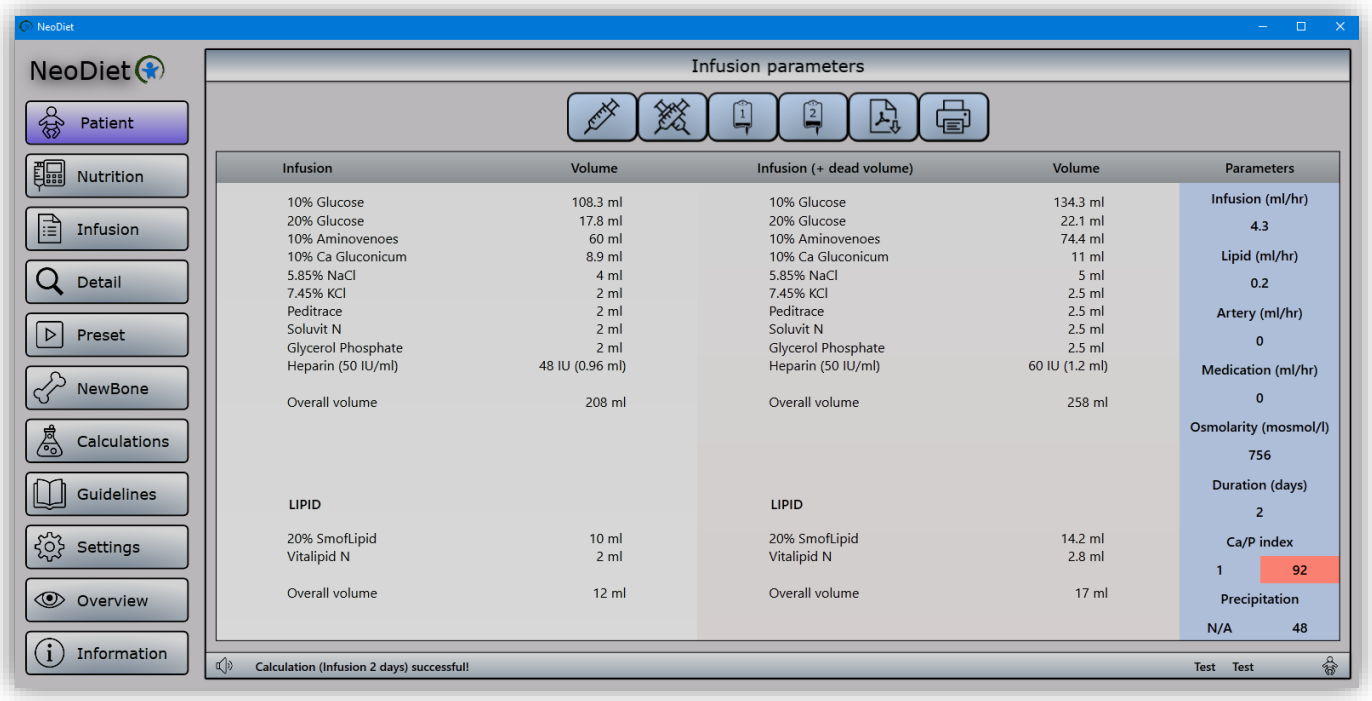
NUTRITION - DETAIL							
Element	**IV**	**PO**	**SUM**	**Element**	**IV**	**PO**	**SUM**
Fluids (ml/kg/d)	110	40	150	Chloride (mmol/kg/d)	3	0.5	3.5
Energy (kcal/kg/d)	50.8	26.8	77.6	Calcium (mmol/kg/d)	1	0.3	1.3
PE ratio (g/100 kcal)	5.9	1.6	4.4	Phosphate (mmol/kg/d)	1	0.2	1.2
Protein (g/kg/d)	3	0.4	3.4	Magnesium (mmol/kg/d)	0	0.1	0.1
Lipid (g/kg/d)	1	1.7	2.7	Iron (mg/kg/d)	0	0	0
Saccharide (mg/kg/min)	5	2.1	7.1	Vitamin D (IU/d)	40	4	44
Sodium (mmol/kg/d)	4	0.3	4.3	Vitamin K (ug/kg/d)	20	0.2	20.2
Potassium (mmol/kg/d)	1	0.6	1.6	Vitamin B9 (ug/kg/d)	40	1.8	41.8

INFUSION PARAMETERS				
Infusion	**Lipid**	**Vein/Meds**	**Artery**	**Osmolarity**
4.3 ml/hr	0.2 ml/hr	0 ml/hr	0 ml/hr	756 mosmol/l

Indicated by		***Prepared by***	

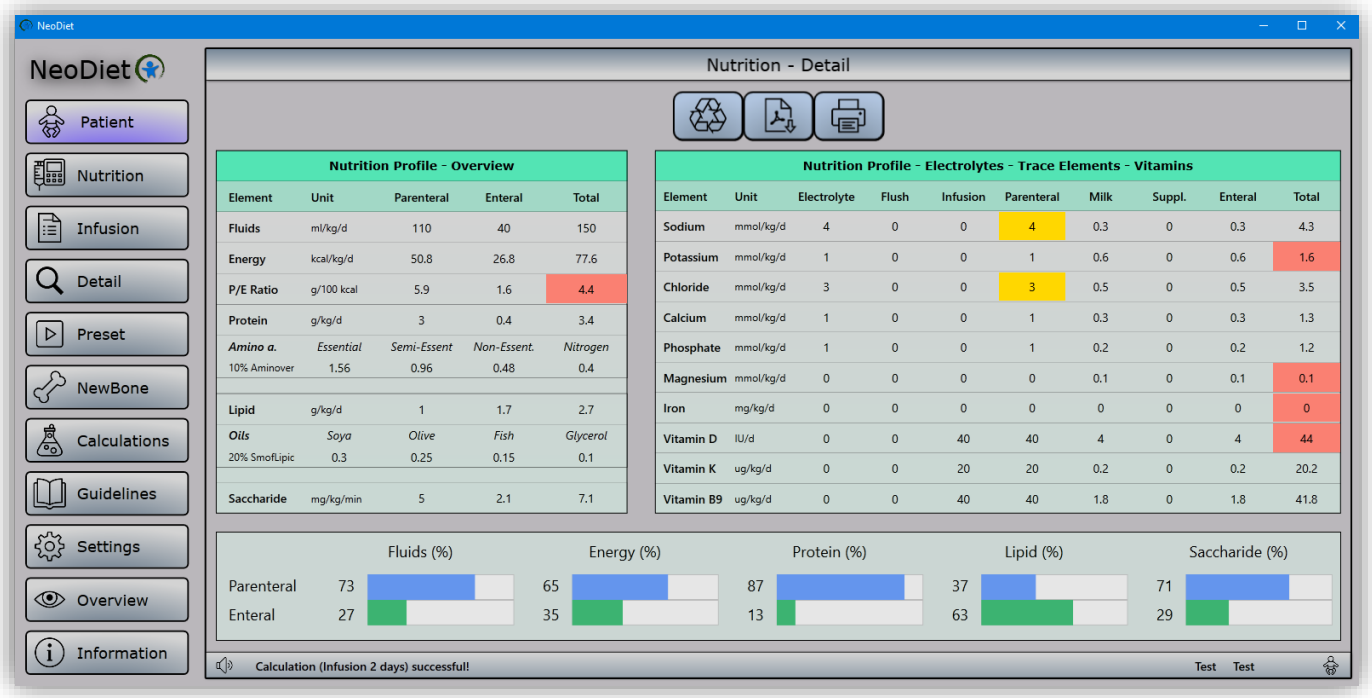
Module Infusion

Infusion and Lipid contents with/without dead volume. There are listed Infusion parameters that you can also find in the Nutrition module. Moreover, there is information regarding **Ca/P index and evaluation of precipitations risks** (some risks apply only to All-In-One infusions). The text **can** be selected and **cannot** be edited (copying to Word, Notepad). Toolbar offers already familiar buttons.



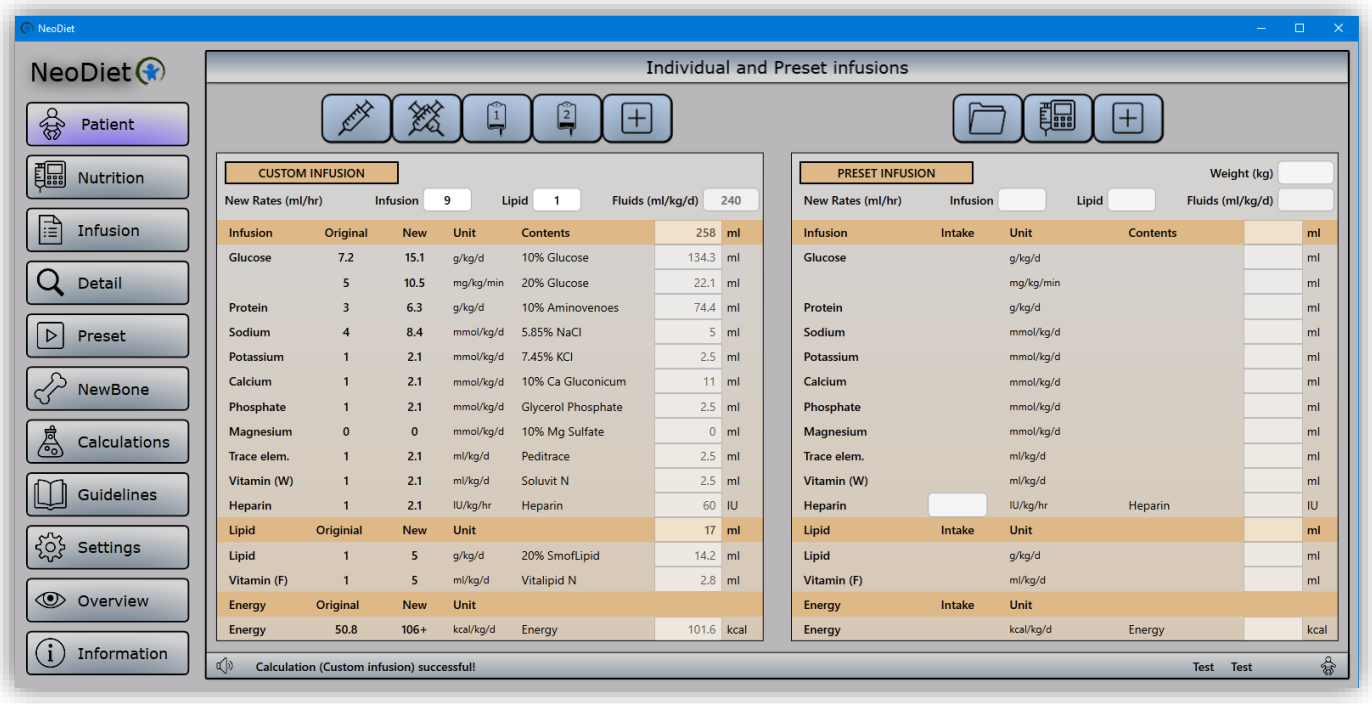
Module Detail

Detailed nutritional analysis for current calculation or patient – protein and lipid characteristics, distribution of enteral, parenteral electrolytes, trace elements and vitamins. Percentual overview of macronutrients, energy and fluids in the lower area.



Module Preset

There are 2 sections – on the left side we can alter nutritional intake of **Individual** („custom“) infusion (through changing lipid and infusion rates, or by adding nutrients to the infusion set). On the right side we modify **Preset** infusion (that can be created and edited in Settings – Preset infusion part). Toolbar functions from left to right – see below.



Toolbar

1 – Re-calculate infusion for 1 day: change and compare original and new nutritional intake (by changing rates). Energy results are **approximate** as it is re-calculated based on the main infusion rate – the reason is that the most common scenarios are sole infusion therapy (*without lipids*) or we are changing rates chiefly through main infusion rate (and only *very little change is made with lipid infusion rate*).

Following possibilities:

- Lipids were initially prescribed and we want to continue them – **„+“ is added** (the results are very approximate if lipids contributed significantly to the overall energy and the lipid rate change is relatively significant)
- Lipids were initially prescribed and we do not want to continue them – **„+“ not added** (energy contribution of lipids is not acknowledged)
- Lipids were not initially prescribed and we want to use them – the program **does not calculate with** this option (although calculation of parenteral fluid intake will be performed)

2 – Re-calculate infusion for 2 days: important if we are adding nutrients to the bag.

3 – Re-calculate All-In-One Infusion for 1 day: the limitation for energy results does not apply here – in order to perform calculation, lipid rate must be set to „0".

4 – Re-calculate All-In-One Infusion for 2 days: the limitation for energy results does not apply here – in order to perform calculation, lipid rate must be set to „0".

5 – Add nutrients to the infusion: it is mandatory to set the residual infusion volume before we can calculate new nutritional intakes after adding nutrients. The program **does not re-calculate new infusion osmolarity** (adding 20% / 40% dextrose!).

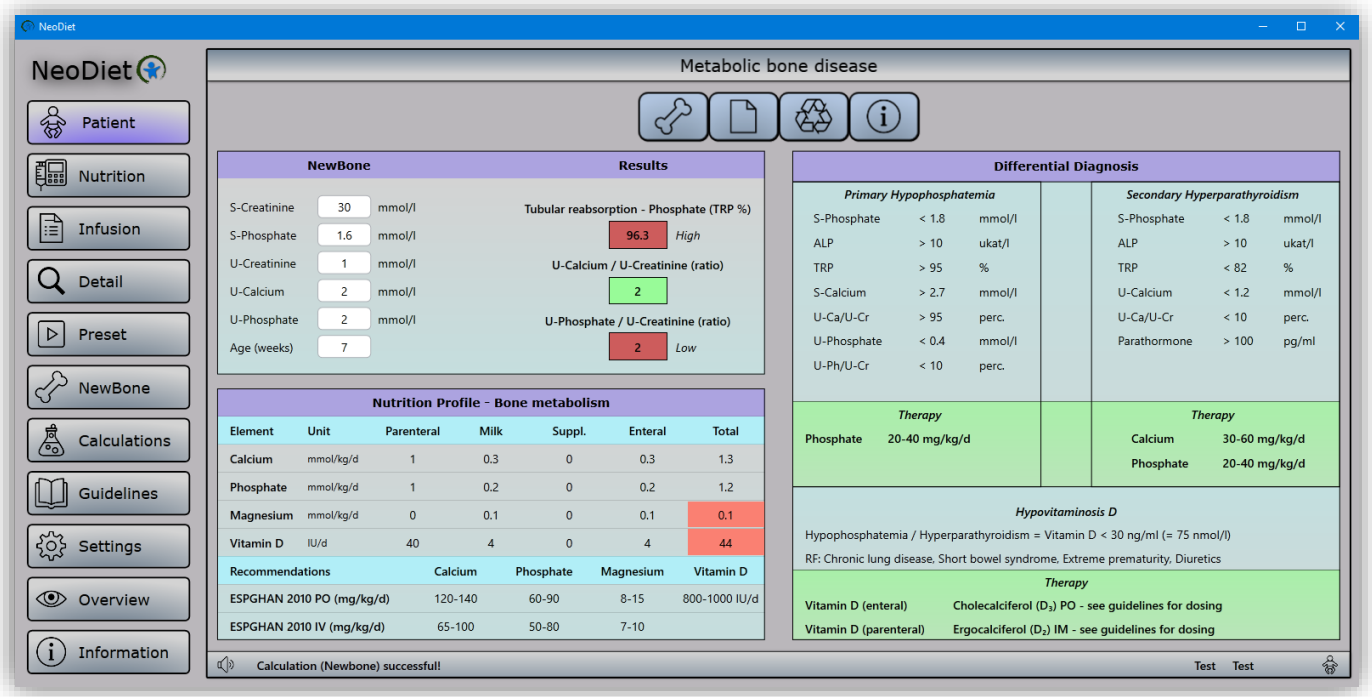
6 – Open Preset infusion: if the rest of the fields are filled in, the program will automatically calculate the intakes.

7 – Re-calculate Preset infusion: if the Preset infusion is already selected, we can change one of the fields and carry out the function.

8 – Add nutrients to the infusion: similar functionality as Function 3 – see above.

Module NewBone

Module designed for **Metabolic Bone Disease of Prematurity**. Toolbar functions from left to right – see below.



Toolbar

1 – Calculate Ca/P metabolism: sections **Newbone/Results** provide basic analysis of Calcium and Phosphate metabolism (red – out of range values, green – optimal values).

- U-Ph/U-Cr range = 4-26 (t10. – 95. percentile) – **does not change significantly** with postnatal age
- U-Ca/U-Cr range = 0,5-3,8 (10. - 95. percentile) – **descending trend with increasing** postnatal age

2 – Reset values: start a new calculation.

3 – Convert units

4 – Information: background information for metabolic bone disease of prematurity (pathophysiology, X-ray and clinical features, U-Ca/U-Cr ration graph).

Module Calculations

Multiple functions as per Toolbar overview. Each section contains Calculation area (left side) and Visual overview (right side).

Toolbar:

1 – Enteral Osmolarity: **approximate** analysis based on Milk volume and enteral supplements.

2 – Heparin: heparin dosing – enter volume, rate of infusion and required heparin dosing.

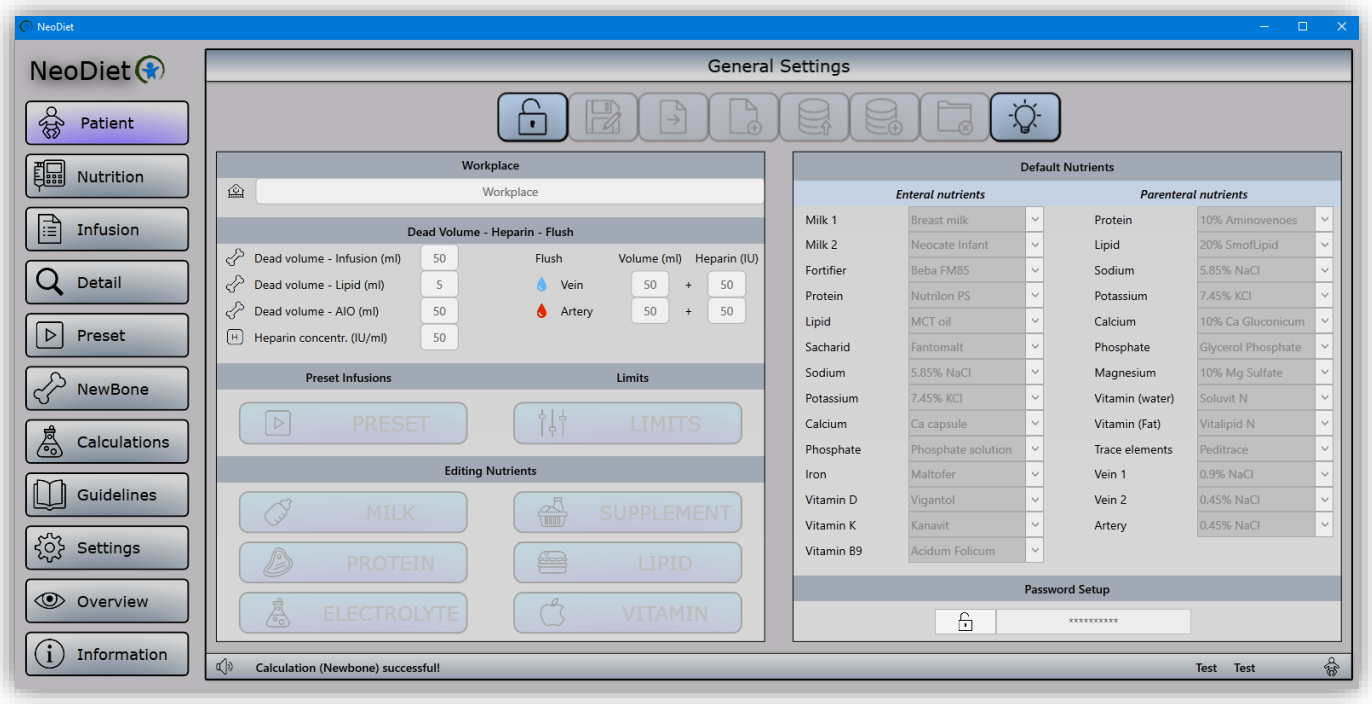
3 – Alkalinization: metabolic acidosis correction (4,2% $NaHCO_3$).

4 – Insulin: insulin dosing.

5 – Glucose infusion rate: enter weight and individual glucose concentrations (5, 10, 20, 40%) – the function will return glucose infusion rate (GIR) and concentration/osmolarity of mixed glucoses.

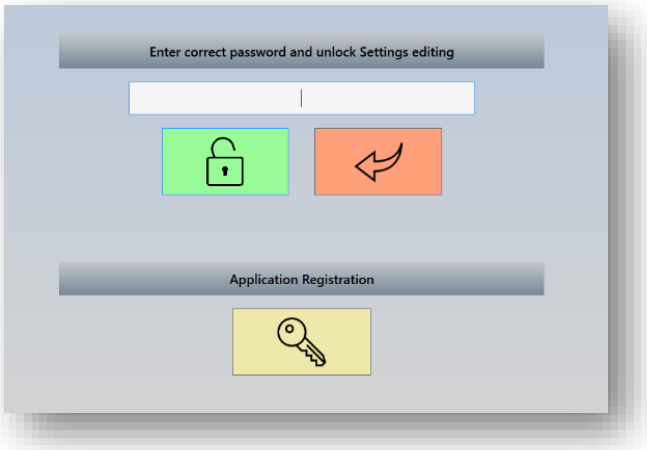
Module Settings

General settings for application, as well as nutrients editing options and default nutrient picker. Toolbar functions from left to right.

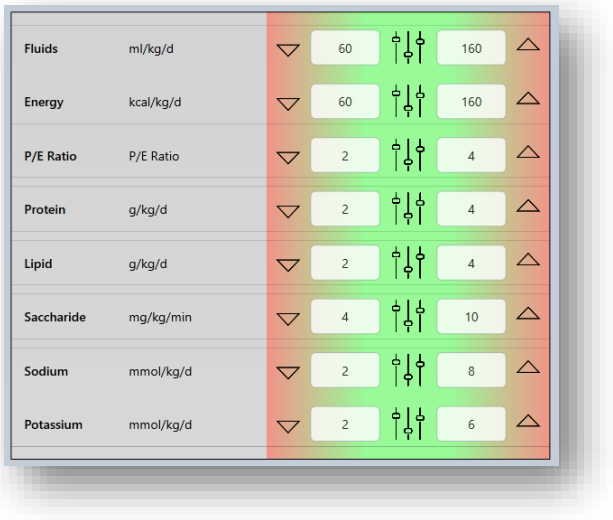


Toolbar

1 – Edit Settings: password is required to unlock Settings – see below. The page also contains option to register the application (**requires Administrator access)**.



2 – Save Preset: saves current Settings that will be recalled next time the app starts. (including **Limits** – see the screenshot below). We can set the default flush volume and heparin – the configuration will be used when arterial/venous flush preparation in Pharmacy will be checked (module Nutrition).



3 – Export NEODIET files: exports all JSON patient files to Desktop (folder „*NeoDiet Patients*“).

4 - Import NEODIET files: imports single JSON patient file that can be accessed through „*Open NEODIET file*“ in the Nutrition Module.

5 – Database Export: exports Databases (**there are 4 – Patients, Preset, Enteral, Parenteral**) to Desktop (folder „*NeoDiet Databases*“).

6 – Database Import: make sure to **back up your Database (through Database Export) before** any change, uninstall or update of the application. Otherwise you may lose all your data! After installing a new version, import the Database(s) back into to the app using Database Import function. **After import, make sure to restart the application, so that the new databases are loaded**.

7 – Delete PDF files: during PDF printing, a backup copy is also created in the folder „PDF“ that is part of installation folder. Over time, the size of the folder can increase significantly, so that using this purging function will clear up space (these are PDF files already printed or exported).

8 – Tips: randomly shows NeoDiet tip.

Editing Nutrients

Through Settings module, you can also edit:

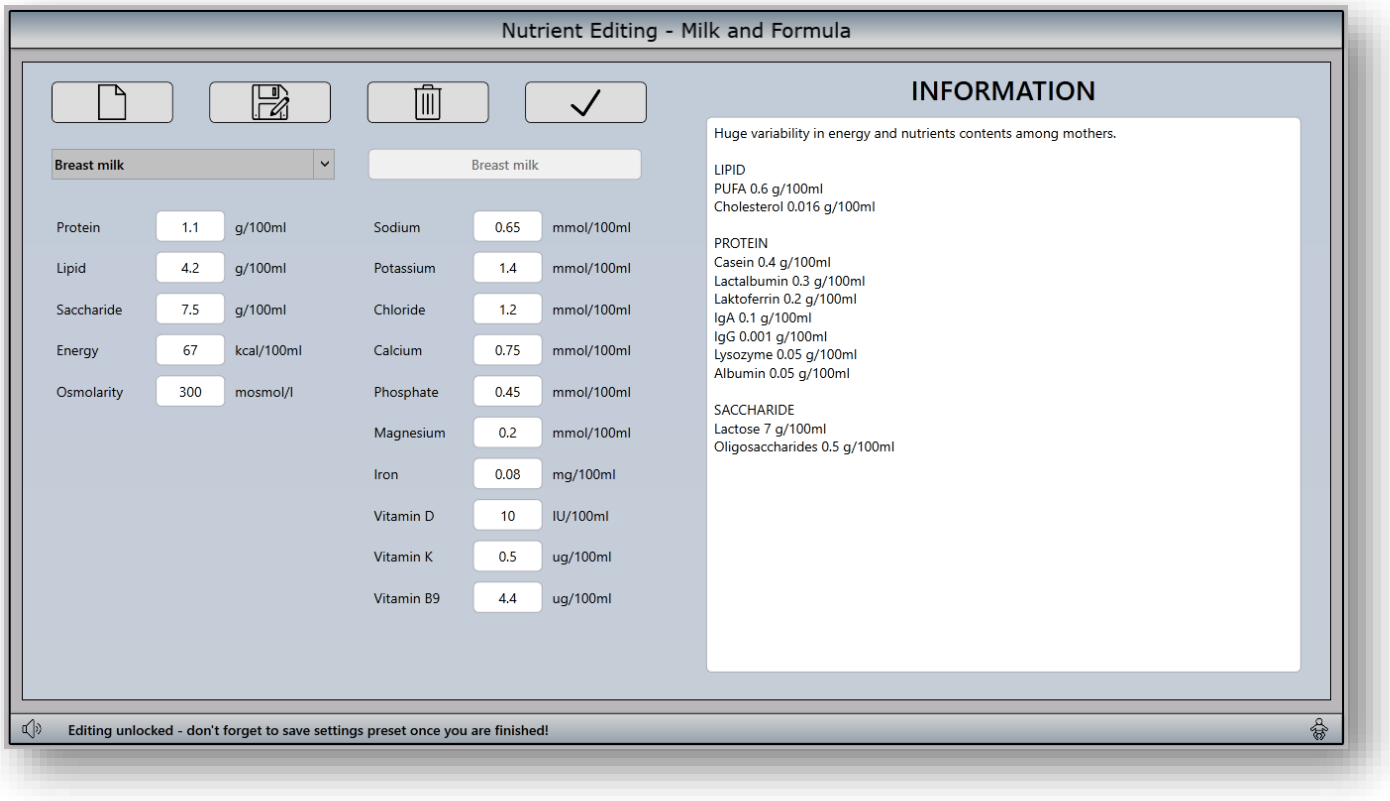
- Protein
- Lipid

- Electrolytes
- Milk
- Supplements
- Vitamins
- Preset infusions

The editing process is quite easy – see screenshot below. In the upper section we can find „*mini-toolbar*“, where we have basic editing functions:

- New nutrient
- Save nutrient to Database
- Delete nutrient

We can choose which nutrient we want to edit – main **nutrient ID is Name**.



TIP: Program works with name **Breast milk** during nutritional calculations. **DO not change** this name and in case of accidental deletion, enter **Breast milk** in the Nutrient Name section in Settings – Editing Milk.

Module Overview

Detailed list of currently used nutrients during calculations.

Module Information

Basic information about the application, as well as Metadata (support information) along with online application manual (www.infantools.com).

Module Guidelines

Overview of nutritional guidelines in neonatology with References.

Important Information

Do not change the structure or naming of the Database file(s) in the installation folder. Do not change its name, location, etc. Upon altering Database status, certain functions might not work within the app!

Do not install multiple language versions of the same app!

Make sure to **back up your Database (through Database Export function in the Settings) before** any change, uninstall or update of the application. Otherwise you may lose all your data! After installing a new version, import the Database(s) back into to the app (Settings – Database Import). **Finally, close and restart the app, so that the settings are restored from the Database files**.

As the application has to work with **multiple decimal separators, both DOT and COMMA** are allowed. However, it is the end user responsibility to write numbers **consistently** in the correct format. In case of default decimal point as *DOT*, numbers written with *COMMA* will be regarded as thousand separators. In case of default decimal point as *COMMA*, numbers written with *DOT* may cause the app crash.

In regard to decimal separator information above, make sure that you work with the correct Databases for your country and local number formatting settings. **The English versions of the app normally come with Database files that contain numbers with DOT as decimal separator**. If your country uses COMMA as decimal separator, use free supplied Database files from Infantools – number formatting will be with COMMA. Alternatively, you can delete the entries in the Databases and create your own. Afterwards, the Database files can be shared accross computers. Thank you for your understanding.

In case you need **technical support** (including bug reporting) or **general information** about the software functions, contact Infantools

- **WEB**: https://infantools.com/
- **CONTACT FORM**: https://infantools.com/support/contact/
- **EMAIL**: info@infantools.com