The purpose of the "**NutriChu"** software is to improve the nutritional therapy by adapting the prescription to the actual status of critically ill patients staying in intensive care units.

"**NutriChu"** enables the calculation of the actual caloric and protein intakes, and the comparison with recommended targets (goals).
The results are calculated automatically and displayed graphically.

This software is the result of a close multi-disciplinary collaboration of different departments at the University Hospital of Liege (Belgium), and involved physicians; nurses, dieticians, pharmacists cooperating with Nutritional Team of the hospital.

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Instructions for use:

Warning:
The software "*NutriChu*" is an Excel file written under Microsoft® Office Excel 2003 SP3.
Its use with a more recent version can involve problems of compatibility.
It is advised to de-activate the macros Excel while opening the files.

1. The software package contains 3 different files:

   1.1 "*NutriChu USERGUIDE.pdf*" which contains this file.

   1.2   A file named: "*NutriChu NEW PATIENT.xls*"
   At the beginning, it is empty and allows the recording of data from a new patient.
   To be used, this file should be "saved as…" prior to the recording of patients' data.

   1.3 A file named: "*NutriChu EXAMPLE.xls*"
   The different functionalities can be visualized on an example.

2. Patients' data can be recorded in the turquoise blues boxes of the different Excel spreadsheets.

3. Menu overview:
   3.1 NEW PATIENT
   3.2 TABLE
   3.3 RECORDING
   3.4 GRAPHICS
   3.5 USERGUIDE: Which contains this file

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1. Menu overview: <u>NEW PATIENT</u>
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This sheet is designed to record the details of a new patient:
- LAST NAME
- FIRST NAME
- **BIRTHDATE** (DD/MM/YYYY)   Required
- **GENDER** (MALE/FEMALE)   Required
- **ICU ADMISSION DATE** (DD/MM/YYYY)   Required
- UNIT/BED identification
- **HEIGHT** (cm)   Required
- **ADMISSION WEIGHT (Kg)**   Required
  or **usual weight** if unavailable (Kg)

- Determination of a **CALCULATED WEIGHT** (kg)
(Weight to be used for calculations)

The lower limit of the weight will be calculated for a BMI of 18.5 (or BMI of 23 if older than 75 years); the higher limit of the weight will be calculated as the adjusted weight
Adjusted weight = (usual Weight X 0,25) + (ideal Weight)
Ideal Weight = Weight calculated than the BMI of 21.75 (or BMI of 25.5 if older than 75 years)

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2. Menu overview: <u>TABLE</u>
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This sheet is designed to list the nutritional formulas or solutions used for enteral or parenteral feeding. The total caloric and protein content of each formula or solution must be recorded before the first use and can be updated when new formulas or solutions become available.

COMPOSITION OF NUTRITION SUPPORT
ENTERAL (EN) - PARENTERAL (PN) SOLUTIONS
Fill in the turquoise blue boxes:
Amount / Unit / Utilised solutions / Total kcal / Proteins g

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3. Menu overview: <u>RECORDING</u>
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By default 50 empty columns are provided per patient.
Each column corresponds to 1 day spent in the ICU, starting on the admission day.

For each day, represented by a column:
- Measured Weight
- Calculated Weight

- Actual amount of formula / solution ingested or provided (listed in the **TABLE**)
- Calculation of the actual caloric intakes
- Choice among 3 caloric goals : 25 - 30 - 35 kcal/kg of calculated weight
      By default : 30 kcal/kg of calculated weight
- Calculation of the Caloric debt or excess and the cumulative Caloric debt or excess
- Calculation of the actual protein intakes
- Choice among 4 proteins goals : 1,25 - 1,50 - 1,75 - 2,00 g/kg proteins of calculated weight
      By default : 1,50 g/kg proteins of calculated weight
- Calculation of the proteins debt or excess and the cumulative Proteins debt or excess

The caloric goals and the proteins goals can be modified in the course of use and those are adapted automatically for the following days
- Possibility of calculating a protein balances: intake – urinary losses calculated from the daily urea excretion.

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4. Menu overview: GRAPHICS
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Graph 01: Caloric balance (kcal):
        Caloric intake – Caloric goal – Harris & Benedict – Caloric debt or excess
Graph 02: Cumulative caloric balance (kcal):
        Caloric intake – Caloric goal – Harris & Benedict – Cumulative Caloric debt or excess
Graph 03: Caloric balance (kcal/kg):
        Caloric intake – Caloric goal
Graph 04: Protein balance (g):
        Proteins intake – Proteins goal – Proteins debt or excess
Graph 05: Cumulative Protein balance (g):
        Proteins intake – Proteins goal – Cumulative Proteins debt or excess
Graph 06: Proteins balance (g/kg):
        Proteins intake – Proteins goal
Graph 07: Calories-to-nitrogen (NPC/N) ratio
Graph 08: Protein Balance Intake – losses:
        Proteins intake - Proteins goal - Proteins loss (estimation)
        PROTEINS BALANCE : Intake - losses
Graph 09: Weight Balance (kg) :
        Measured weight - Calculate weight

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The University Hospital of Liège is pluralistic and multisite.
925 approved beds of which 717 are university.
The hospital activity is deployed on several sites by privileging specialization and complementarity.

Liège is a French-speaking city of Belgium located in Walloon Area, it is also the chief town of the Province of Liege. To the 1ier March 2010, it counts 194.230 inhabitants. Its agglomeration is populated approximately 600.000 inhabitants, by the number of inhabitants it is the third agglomeration of Belgium after Brussels and Antwerp.