# ICUpilot - software for

NEURO MONITORING

Multimodal Neuromonitoring is an essential part of patient care after neurotrauma and hemorrhage.

- Intra cranial pressure tells us about cerebral perfusion and edema.
- Tissue oxygen pressure tells us about the oxygen available to the cells.
- Tissue chemistry, monitored by microdialysis, tells us about cell ischemia, mithocondrial dysfunction cell damage and cell metabolism.

This "multimodal monitoring" puts high demands on the ability of the clinician to integrate data from a seemingly endless number of variables.

M Dialysis has contributed to the solution of this dilemma by providing a real time, decision support software: ICUpilot.

ICUpilot collects data from all instruments around the patient. Data are displayed as graphs, which can be viewed in any combination in order to reveal the condition of the patient and the effect of various therapeutic interventions.
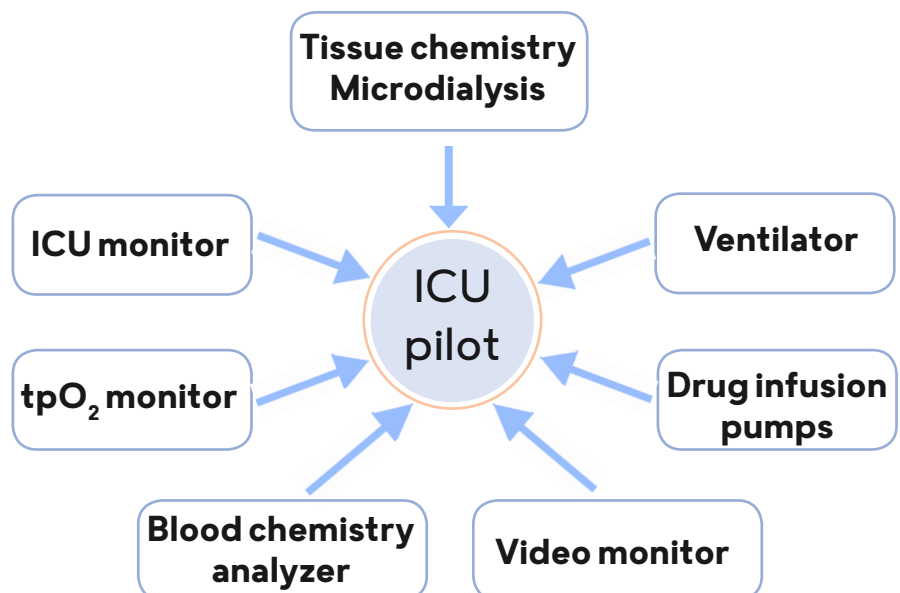
µ dialysis

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Tissue chemistry Microdialysis

ICU monitor

Ventilator

ICU pilot

tpO$_2$ monitor

Drug infusion pumps

Blood chemistry analyzer

Video monitor

NEURO MONITORING

with ICUpilot

The computer screen gives you instant access to all "multimodal" information: The information is presented as trend curves and the screen is continuously updated as ICUpilot collects data from the ICU instruments.

You can follow the effect of interventions: Examine the effect of changing the ventilation or administering drugs or fluids. Move to any time point during the entire period of intensive care in order to examine the effect of a previous intervention.

You can see the gradual changes in physical and chemical parameters: Find out which effect a gradual increase in ICP or temperature has on ischemic markers.

You can predefine separate windows highlighting important relationships: Create combinations of the different variables recorded bedside: For example information from the ventilator, infusion pumps, blood chemistry, brain chemistry, tissue gasses etc.
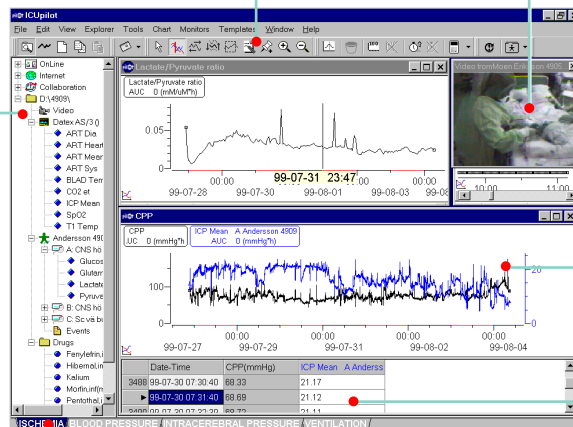
You can drag and drop the variables you want to compare into separate windows: Examine, for example, the relationship between blood pressure and the infusion of phenylephrine by simply dropping the two variables into the same window. The variables are live and will be continuously updated.

Tools for manipulating the graphs

Video window. A picture of the patient is recorded every minute. A sudden rise in ICP may be explained by, e.g. a change in the position of the patient.

List of all recorded variables:
- Microdialysis analyzer
- Tissue oxygen monitor
- Pressure & temperature monitors
- Ventilator
- Infusion pumps etc.

All data displayed as trend curves. The curves are live and change as new data arrive.

All data displayed as times and numbers

Tabs for selecting predefined windows. Each window displays variables of special interest to particular conditions, for example cerebral perfusion pressure plotted against tissue ischemia markers, catechol infusions plotted against blood pressure or "avoidable factors" such as too low CPP or too high brain glucose.