EEG-trending for critical care
NeuroTrend

Hours of EEG on a single screen

A solution is needed
Continuous EEG monitoring is an important tool to recognize clinically invisible deteriorations in critically ill patients. However, manually reviewing continuous EEG recordings requires substantial resources, which are always limited in intensive care units. As a consequence, brain activity of critically ill patients is rarely monitored.

NeuroTrend, the solution for EEG monitoring
We introduce “NeuroTrend”, a new system for automatic analysis and trending of continuous EEG recordings from critically ill patients. NeuroTrend extracts the essential information from the EEG of ICU patients and compiles an easy to read condensed graphical representation on a single screen. This allows quickly reading off trends in the neurological state of the patient’s brain.

Automatic pattern detection
NeuroTrend detects periodic discharges, rhythmic delta-, theta- and alpha activity, spike-waves including their localization, frequency and amplitude. The physician gathers significant patterns and their changes and trends within a few seconds.

Many hours of EEG on a single screen
NeuroTrend graphically visualizes the results of several hours of EEG on a screen. The software works in real time and allows reading off trends in the functional state of the patient’s brain in one glimpse. You can zoom in from minutes to days in order to get the amount of details needed.

Quantitative EEG-analysis
NeuroTrend also shows essential information about the background EEG. Burst suppressions, the predominant frequency, general amplitude and symmetry can be read off easily in the quantitative EEG panels and in the amplitude-integrated EEG. This allows a quick assessment of the state and trend of the patient.

Implements the new ACNS standard
NeuroTrend is based on the American Clinical Neurophysiology Society’s Standardized Critical Care EEG Terminology. A summary of the patterns is displayed on the screen written in the nomenclature of the standard.

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<td>Rhythmic delta activity</td>
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<tr>
<td>RDA+S</td>
<td>RDA + superimposed sharp waves or spikes</td>
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<tr>
<td></td>
<td>Sharply contoured RDA</td>
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<tr>
<td>SW</td>
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<td>Localization</td>
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<td>Amplitude</td>
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<th>Background EEG</th>
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<td>Burst Suppression</td>
<td>Generalized/Lateralized</td>
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<td>Frequency Bands</td>
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<td>Amplitude-integrated EEG</td>
<td>0.25 – 16 Hz</td>
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NeuroTrend
Detect changes and trends within seconds

Localization, Frequency, Amplitude
The type of the detected patterns can be easily read off. Trends in frequency and amplitude are highly visible.

EEG-patterns
One marker is equivalent to one detected pattern. The length and intensity of the abnormal EEG-activity can be easily measured.

Color Code
A color code helps to identify the different EEG-patterns and quickly notice important events and changes over time.

Frequency Bands
The height of the color band shows the relative proportion of the frequency band. The intensity of the color is a measure of the amplitude of the signal.

Burst suppression
Red lines make burst suppressions easy to find. NeuroTrend gives additional information on relative amplitude attenuation and suppression time.

AEEG
Trends of the mean amplitude of the EEG can be tracked and asymmetries are quickly recognized by the color.

Jump to EEG
In one click you can synchronize NeuroTrend with the EEG displayed in the viewer.

Summary
A summary of the pattern can be simply copied into the final report.

Zoom
Zoom in and out.

NeuroTrend finds generalized and left lateralized rhythmic delta activity (RDA) with medium amplitude and a frequency of 1.5/s. An electrographic seizure of 10 min and a status epilepticus that lasts 1.5 h can be easily recognized.

NeuroTrend shows burst suppression (BS) with an amplitude attenuation of 82% (Amp) and a relative suppression time of 76% (Time).

NeuroTrend detects generalized periodic discharges (PD) of medium amplitude and a frequency of 1.5/s. The episode lasts 2 h and goes over into burst suppression again.

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NeuroTrend
Your benefits:

**Continous patient surveillance.**
NeuroTrend is the perfect tool to assist you during continuous EEG monitoring on the ICU. It can immediately detect degradations and changes of the patient’s state even in cases without or with very unclear clinical correlates.

**Quick EEG review – Saves time.**
NeuroTrend allows you to instantaneously get a good overview of several hours of EEG recordings. You can quickly find and zoom into epochs featuring relevant EEG patterns and easily look into the conventional EEG representation.

**Assisted EEG interpretation – Saves resources.**
Reviewing continuous EEG recordings is extremely time consuming and requires the expertise of an experienced neurologist. Using NeuroTrend simplifies the interpretation of EEGs such that only intermediate experience is required for monitoring and for a first EEG inspection. The expert neurologist can be consulted only if indicated by trends calculated by NeuroTrend.

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encevis NeuroTrend is not yet certified by the FDA