

Creating dimensions in treatment quality

The Dialog⁺ Dialysis System



Haemodialysis



Communication on all treatment levels

The Dialog+ system forms the central means of the dialysis process, a means which is designed for the global requirements of patients, physicians, and nursing staff. A challenging medical technology of superb quality is combined with intelligent components, with one consistent common denominator: optimal treatment quality for the patients.





The Dialog⁺ treatment system – certainly the right option for the future

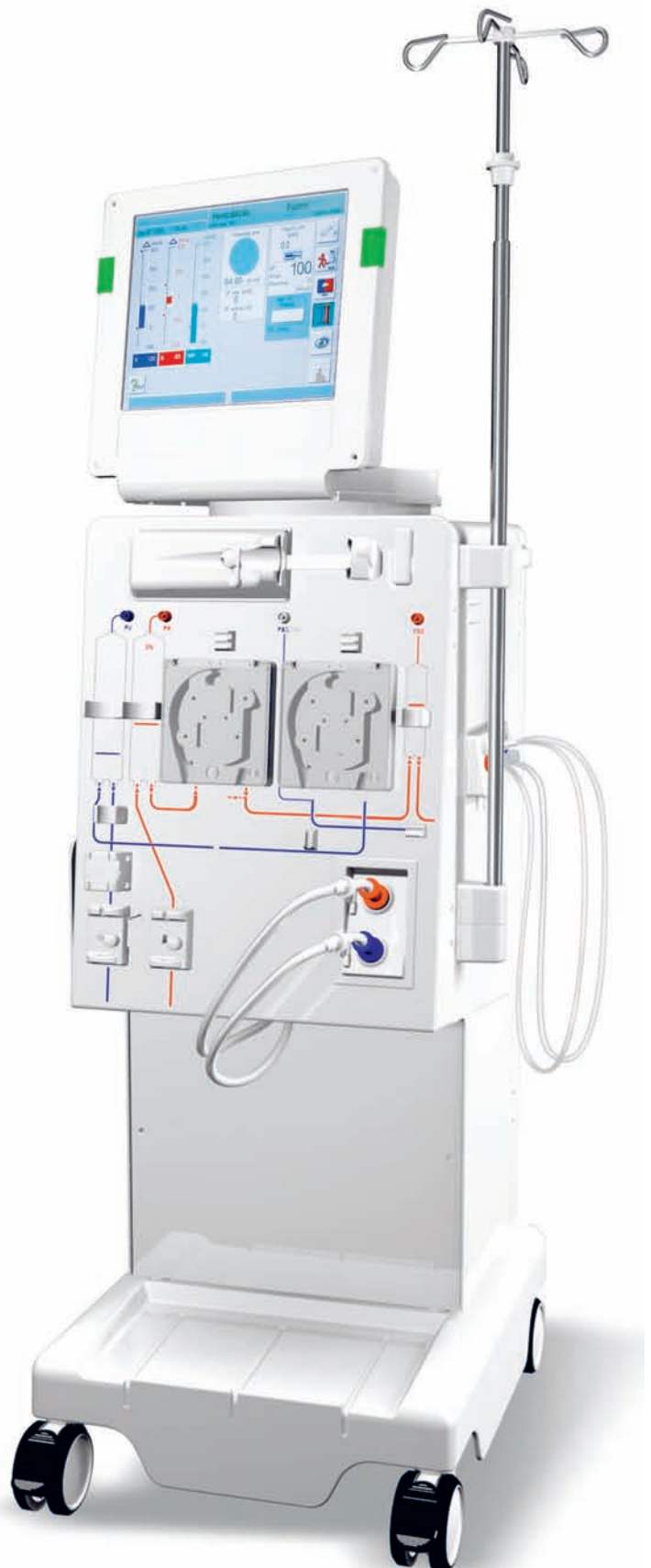
The Dialog⁺ treatment system – a product based on B. Braun's expertise

The knowledge that high treatment quality is not just dependent on one component gives us a decisive competitive edge.

We are one of the leading companies on the health care market and know the factors which are decisive for an integrated high treatment quality. Our expertise results from more than 170 years of tradition and is based on our trend-setting innovative strength in the diverse areas of the health care market. B. Braun's portfolio comprises 30,000 products which are sold in 50 countries across all of the five continents. More than 38,000 employees worldwide work on B. Braun's success. In 2008, they achieved an annual turnover of more than 3.7 billion Euros.

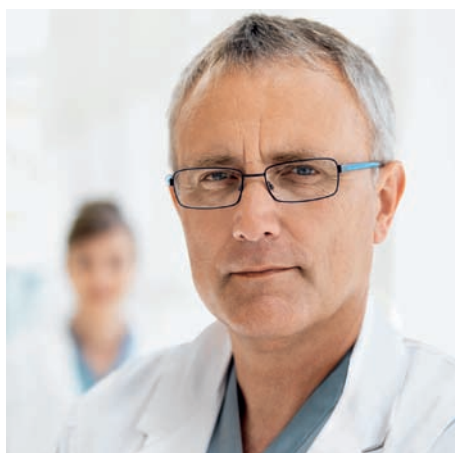
B. Braun is one of the biggest system providers in the field of extracorporeal blood treatment and offers a holistic range of treatments for the patient's benefit.

Through its operating reliability and treatment safety, the Dialog⁺ system meets the requirements for a high treatment quality. Our powerful dialyzers ensure highest treatment quality, which can also be measured by means of the optional Adimea system. The bioLogic RR[®] Comfort biofeedback system and the Nexadia[®] data management system contribute to optimising the procedures and quality of dialysis. Based on their perfect interaction, new dimensions of quality can be achieved for dialysis treatments.



Our commitment to treatment quality

The comprehensive Dialog⁺ dialysis system is intended to accompany and support the treatment procedure in the best way possible.



Meeting requirements through operating reliability and treatment safety

Optimising the operating reliability and treatment safety for both user and patient creates the prerequisites for advanced technologies. Dialog⁺ is based on the practical workflows and requirements of the dialysis treatment and relieves the user of numerous steps through the interaction of its excellent hardware and intelligent software components. Thanks to its perfectly harmonised system, its high-quality original accessories, excellent services and reliable worldwide logistics, the Dialog⁺ treatment system is an intelligent and proactive investment.



Providing reliable and measurable treatment quality

xevonta is a new dialyzer generation which is characterised by highly efficient clearance data and an optimal selectivity. A high percentage of middle-molecular uraemic toxins, such as β_2 -microglobulin, can be removed with simultaneous extremely low albumin loss. xevonta is ideally suited for the right dialysis dose – and Adimea can be used to measure it. Adimea measures dialysis efficiency (Kt/V) by determining the reduction in molar concentration of urinary excreted substances in the dialysate drain. As a result, Adimea allows continuous monitoring of dialysis efficiency throughout the treatment procedure.



Optimising treatment quality and procedures

The bioLogic RR[®] Comfort biofeedback system and the Nexadia[®] data management system contribute to optimising the procedures and quality of dialysis. Through intelligent regulation of the ultrafiltration rate, bioLogic RR[®] Comfort helps to monitor and stabilise the blood pressure of a specific patient while the treatment is still in progress. Nexadia[®] is a data management system which documents the entire treatment procedure with a new dimension of safety and efficiency. The intelligent software optimises and facilitates the management of patient data in a perfect workflow and reliably collects all treatment parameters.

Meeting requirements through operating reliability and treatment safety



Reliability

With our more than fifty years of experience in the field of extracorporeal blood treatment, we can ensure that the excellent quality of all our products remains on a reliably high level. With its HD 105, B. Braun placed the first haemodialysis system featuring ultrafiltration measurement on the market, thus increasing treatment safety. It was followed by the Dialog, which was the first system to be equipped with a user-friendly touch screen. These two novelties formed the basis of new standards in extracorporeal blood treatment.

As a result of continuous further development, the current Dialog+ dialysis system convinces with its sophisticated product design and concept. The well-engineered technology ensures reliable functionality. But ergonomic and aesthetic aspects also play an important role in the configuration of the systems. The Dialog+ system can be completed by manifold options and accessories, and can thus be individually configured according to the customer's wishes.

Our requirement for high treatment quality is also reflected by our commitment to high safety standards. The system not only provides maximum safety but can at the same time be individually adapted to the conditions of a specific country or user as well as to special treatment requirements.

Intuitive user guide

The neatly arranged touch screen allows easy and fast operation. Even users with less experience benefit from the self-explanatory icons and the clear user guide. Online help functions and messages in plaintext support the user in all operating phases. As a result, medical staff can quickly and reliably take the appropriate measures. Reminder functions – e.g. for drug administration, blood pressure measurements and heparin administration – assist the user, thus assure optimised treatment procedures even in phases of frenzied activity. The intuitive operation of the system is also ensured in stress situations so that the user can always rely on the system's safety. A list comprising up to six storable languages facilitates language changes while the treatment is in progress, meeting the requirements of multilingual dialysis staff.

Numerous automatic functions, such as the weekly disinfection program and the bidirectional connection to the Nexadia® system, noticeably reduce the staff's expenditure of time and amount of work – an essential feature for the efficiency of the Dialog+ system.

An intelligent investment



Intelligent investment

Thanks to its perfectly harmonised system consisting of an intelligent hardware and software, high-quality original accessories, excellent services and reliable worldwide logistics, the Dialog+ is a powerful and proactive investment. The balanced price-performance ratio is convincing over the entire system runtime and proves to be economically efficient even in daily operation.

The standby mode combines economical and ecological aspects. Activated on the user's request, the standby mode saves operating costs by turning off the dialysate flow after a preset rinse time has elapsed. The consumption of water, concentrate and electric current can be reduced.

By purposely refraining being bound to a particular product, we can consider global economic aspects and have considerable flexibility with the use of consumables. Our objective is to convince with the quality of our products, without limiting user's individual freedom of choice.

In addition, the auto-priming function saves saline solution in online systems, and this not only during HDF/HF online treatments but also during standard haemodialysis procedures without the use of additional or special consumables.

Ensuring treatment quality

Outstanding performance profile:
superior dialysis dose

Optimal selectivity: maximal $\beta_2\text{m}$ -elimination with
simultaneous minimal albumin loss

Highly efficient phosphate clearance

Excellent biocompatibility

Complete product range:
6 high flux and 6 low flux variants

xevonta – a new dimension of efficiency and effectiveness

Using trendsetting high-tech production, B. Braun has developed xevonta, a new high-performance generation that meets the most sophisticated dialyser requirements.

The fibre development for dialysis is characterised by high and unique demands in order to ensure excellent conditions for optimised treatment.

With the amembris membrane various complex demands clearly have been realised. Innovative fibre technology, combined with state-of-the-art housing design and continuous and diligent quality controls in production, have created xevonta.

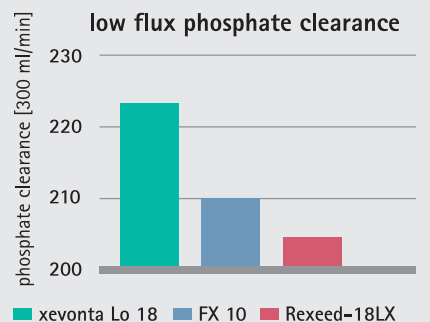
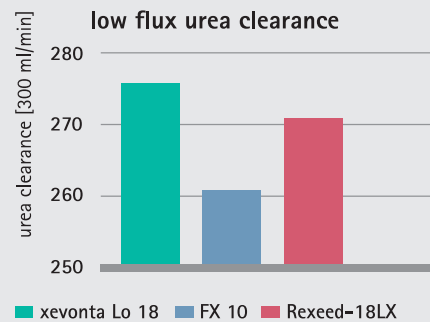
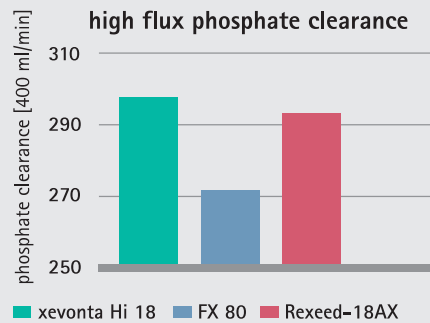
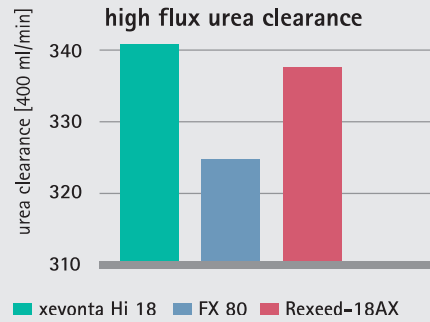
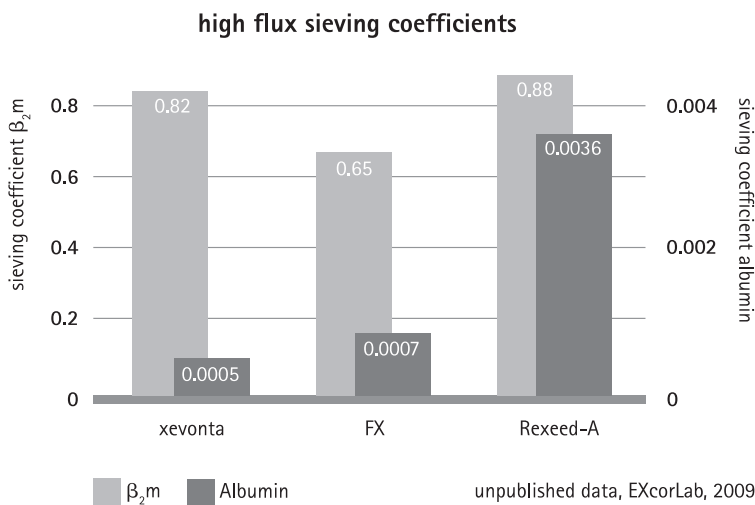


Excellent preconditions for optimal patient outcome

Dialysis adequacy, assessed by urea kinetics, is an important clinical performance indicator¹. xevonta with its outstanding clearance data offers best possible preconditions for an optimal dialysis dose and patient outcome.

xevonta ensures an optimum clearance spectrum in particular exceptionally high phosphate clearance values and thus may contribute to increased phosphate removal.

With its outstanding selectivity, xevonta allows for an efficient elimination of middle molecules and concurrently shows an impressively good retention for albumin. amembris ensures the best conditions for a highly efficient treatment and for achieving the recommended target ranges of serum albumin². Especially elderly, malnourished or multimorbid ESRD patients may benefit from these performance characteristics.



$Q_d = 500 \text{ ml/min}$, $Q_f = 0 \text{ ml/min}$

Data from manufacturers' published specification sheets

¹ Couchoud C et al.: Assessment of urea removal in haemodialysis and the impact of the European Best Practice Guidelines, NDT 24: 1267-1274 (2009)

² European Best Practice Guidelines for Haemodialysis (Part 2): EBP guideline on nutrition, NDT 22: ii45-ii87 (2007)

Making treatment quality measurable



Focus on the patient:

One of B. Braun's aims is to provide doctors and nursing teams with the best possible support for giving patients the optimum dialysis dose. The basis for this is continuous precise measurement and display of the dialysis effectiveness during treatment.

To achieve this, B. Braun has developed the Adimea real-time monitoring method. Adimea measures dialysis efficiency by determining the reduction in molar concentration of urinary excreted substances in the spent dialysate.

Adimea is an innovative measurement method for reliable and continuous dialysis dose control (Kt/V) throughout the entire treatment. Medical and nursing staff can selectively adjust the treatment parameters as early as during the treatment, which is of great benefit to the patient. In other words, the equipment provides an optimum means for reaching the set treatment goals.

Precise, innovative real-time measurement method

Precise, innovative determination of the reduction of urinary excreted substances in the spent dialysate using UV technology

Real-time monitoring during the entire treatment period via continuous effectiveness measurement

Easy and flexible operation

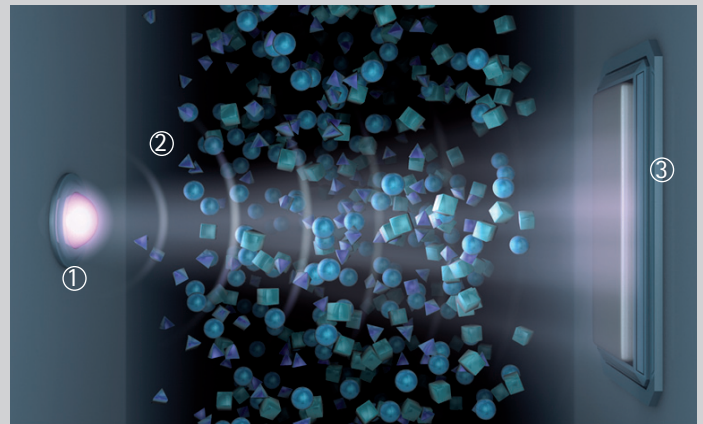
Only one input parameter:
„patient weight pre-dialysis“

Configurable and clear display of URR, spKt/V, eKt/V as well as result prognosis

Changes to treatment parameters possible at any time

Advanced dialysis technology

The innovative Adimea system utilizes the principles of spectroscopy for determining the reduction in molar concentration of urinary excreted substances in the dialysate drain. A light source ① transmits ultraviolet (UV) light ② through the dialysate. The particles contained in the dialysate, which were removed from the plasma during dialysis, absorb the light. This absorption is measured by a sensor ③. The pioneering technology enables measurement **in the spent dialysate**. Adimea continuously analyses the changes in molar concentration and is therefore in direct contact with the patient. On the basis of this characteristic, Adimea is a highly reliable and accurate instrument for an online determination of the current Kt/V value during treatment. Adimea is impressive, not only in terms of its technology, but also with regard to its simple and clear operation: The application merely requires the input of a single patient-specific parameter – the patient's weight before dialysis.



This means that time can be saved because the urea distribution volume (V) no longer need to be determined and entered. Various treatment indices, from the simple urea reduction ratio through spKt/V, or alternatively, eKt/V, are available for continuous real-time control.

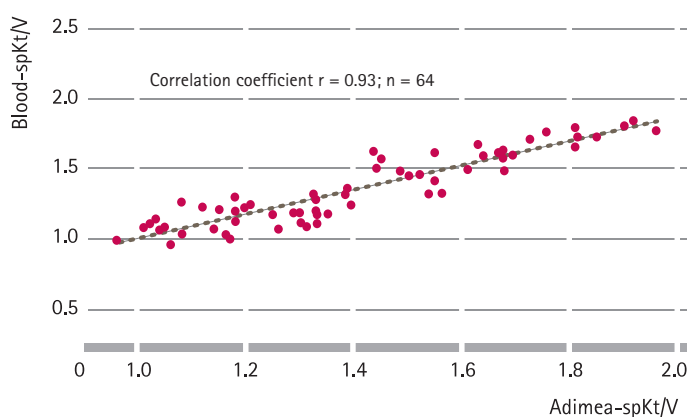


Fig.: Scatter diagram: correlation between blood spKt/V and Adimea spKt/V

Clinical trials¹ reveal a very close correlation between the laboratory-determined blood-spKt/V and the spKt/V determined by Adimea.

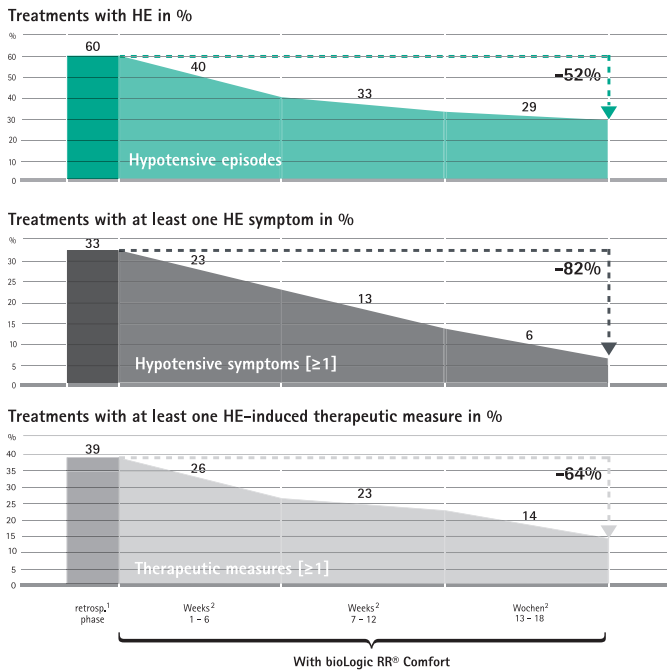
During a total of 64 treatments, blood was serially taken every twenty minutes for urea testing so as to determine the spKt/V from the blood as exactly as possible. The spKt/V value determined by Adimea was recorded at the same time.

The comparison of the data results in $r = 0.93$ which is an excellent correlation between the blood Kt/V and the Adimea Kt/V and hence a high degree of accuracy for the method. The measurement error recorded in these studies for the overall determination of the Kt/V is merely 7 %.

Adimea – the technical innovation in Kt/V monitoring.

¹ Werner, Günthner et al: data on file (B. Braun Avitum AG, Melsungen), 2009.

Optimising treatment quality



▶ Reduction of treatments with hypotensive episodes (HE) by 52 %

▶ Reduction of treatments with at least one HE symptom by 82 %

▶ Reduction of treatments with at least one HE-induced therapeutic measure by 64 %

Intelligent blood pressure stabilisation

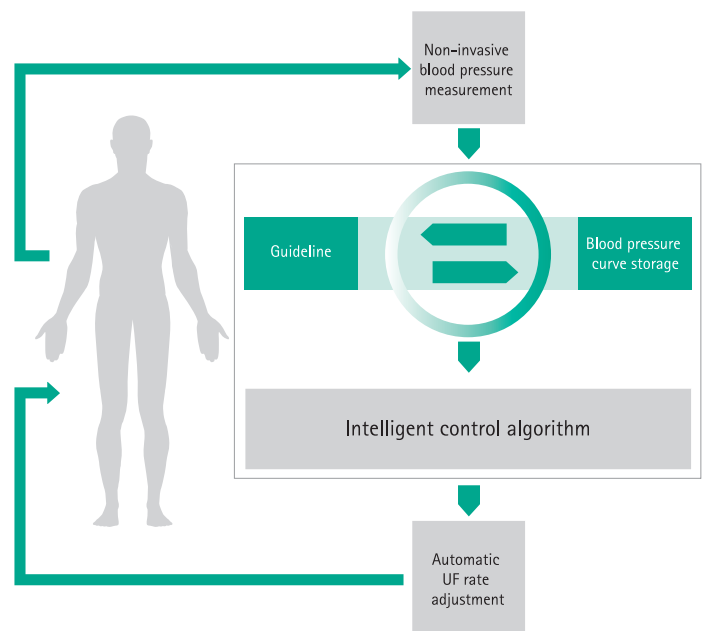
The patients' well-being is one of the most important treatment parameters in dialysis and is therefore a focal point of the Dialog⁺ system technology. The innovative bioLogic RR[®] Comfort biofeedback system of B. Braun monitors and stabilises the patients' blood pressure drop through its intelligent regulation of the ultrafiltration rate (UF rate) during the treatment.

The bioLogic RR[®] Comfort significantly reduces hypotensive episodes and the associated symptoms while dialysis is in progress. It has been particularly designed for the long-term treatment of chronically ill haemodialysis patients who often suffer from blood pressure drops, as is well-known.

bioLogic RR[®] Comfort is the only biofeedback system which measures the blood pressure directly on the patient. In addition, it also utilises stored blood pressure curves of previous treatments, owing to its intelligent guideline technology. This results in an especially reliable system. Since it adjusts the ultrafiltration rate automatically and proactively, bioLogic RR[®] Comfort is able to prevent an excessively sharp drop in blood pressure during the treatment.

The use of bioLogic RR[®] Comfort is not limited to one single treatment type alone – when combined with the Dialog⁺, the system is also compatible with other procedures, such as haemodialysis (HD), haemofiltration (HF) and single-needle (SN).

Control algorithm of bioLogic RR[®] Comfort



¹ Retrospective period without bioLogic RR[®] Comfort (7 weeks)

² Means over each period

³ Roehrer o, Schmidt R, Korth S et al: bioLogic RR[®] Comfort reduces hypotensive episodes in patients prone to intradialytic hypertension, 38th Congress of the German Society of Nephrology, Munich, 2007



bioLogic RR® Comfort – beneficial from any perspective

... for the user

bioLogic RR® Comfort contributes not only to **optimising the treatment** but also to improving many processes at the dialysis centre.

bioLogic RR® Comfort also convinces with its economical aspects. Since the therapeutic measures required by hypotensive episodes are reduced, nursing staff is effectively relieved and the expenses for blood-pressure-stabilising saline solutions can be cut down. What is more, additional costs for special consumables are not incurred either.

The system is easily operated by just two key settings on its touch screen, thus providing nursing staff with additional safety.

Owing to its fast and easy handling, bioLogic RR® Comfort saves time and allows enhanced individual patient care.

... for the patient

bioLogic RR® Comfort significantly reduces the frequency of hypotensive episodes and the associated symptoms as well as any possibly required therapeutic measures.

Since it is a learning system, bioLogic RR® Comfort steadily increases the quality of the treatment. Usually, the system helps to keep the treatment time and ensure increased dialysis efficiency.

Since the number of blood pressure measurements is significantly reduced as compared with the predecessor version, and the ultrafiltration rate is subject to special control, the patient's well-being is noticeably improved both during and after dialysis.

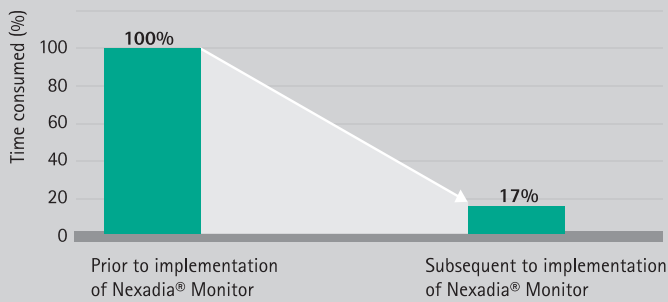
Significant reduction of hypotensive episodes

Continuously improved treatment quality

Ease to operate

Significantly improving treatment procedures

Results with Nexadia®



As has been proven by the study, Nexadia® considerably reduces the time required for the various workflows – time which nursing staff can instead devote to the patient.¹



Nexadia® and Dialog+ in combination

Used in combination, the Nexadia® system and the Dialog+ haemodialysis machine allow intelligent retrieval and management of data.

The Dialog+ has outstanding network capabilities and can therefore optimally support and relieve users in their daily duties. The basic requirements for a data management system are flexibility and ease of operation. That is why the Nexadia® system is adapted to the function – not vice versa.

The Nexadia® data management system enables the automation of labour- and time-intensive tasks, which ultimately allows doctors and nursing staff more time to dedicate to the individual treatment of patients.¹

Moreover, the system provides consistent documentation for an optimal quality management as well as valuable help in the evaluation of the data collected. From treatment to archive, Nexadia® contributes to continuously optimising the quality of dialysis treatments.

In its modular structure, the Nexadia® data management system takes not only data retrieval into account, but also allows for the processing, transmitting and archiving of any treatment- and patient-related data incurred in a dialysis practice.

More time for what is essential means more time for the patient

Nexadia® Monitor is intended for automatic retrieval, documentation and monitoring of data as well as for treatment visualisation.

The easy-to-use graphical user interface can be freely configured according to individual requirements. The data generated is displayed with self-explanatory icons.

The manifold automation processes of Nexadia® Monitor noticeably reduce the amount of work for the user while the dialysis treatment is in progress so that nursing staff can focus on what is essential – the patient.

Reliable quality

Patient scale and analysers

Nexadia[®] Monitor

Nexadia[®] Monitor: automatic retrieval, documentation and monitoring of data as well as treatment visualisation

External management systems

Nexadia[®] Expert

Nexadia[®] Expert: treatment and quality management

Excellent treatment and quality management

Nexadia[®] Expert is the database for treatment management at the dialysis centre. Nexadia[®] Expert is precisely attuned to Nexadia[®] Monitor.

Nexadia[®] Expert offers the complete range of a digital patient file. You can keep diagnoses and findings as well as medications and parameters from external laboratories, hospitals or medical specialists. Nexadia[®] Expert allows accurate scheduling of future dialysis treatment, including exact dates, durations, UF rates, as well as prescriptions and medications.

Nexadia[®] Expert provides all of the important features required for optimum quality management. Nexadia[®] Monitor collects much of the relevant data during the treatment and therefore significantly improves the treatment procedures.

Easy operation meeting practical requirements

Less administrative activities and more time for the patient

Consistent documentation for optimum quality assurance

Systematic optimisation of processes

Increased cost efficiency

¹ Osterkorn D.: "Networking for success in dialysis centers: A prospective comparative analysis". Gesundheitsökonomie und Qualitätsmanagement 2006; 11: 112-116.

Dialog⁺ dialysis system: detailed perfection

Synergy provided by the integrated system

B. Braun's innovative solutions focus on an excellent dialysis and an economical treatment routine. To achieve this, we offer an integrated system which is composed of perfectly harmonised components.

Our services include technical service, process advice, business management, consulting, planning, development, installation, and training. Our customers profit from the comprehensive expertise of one of the leading companies on the medical market.

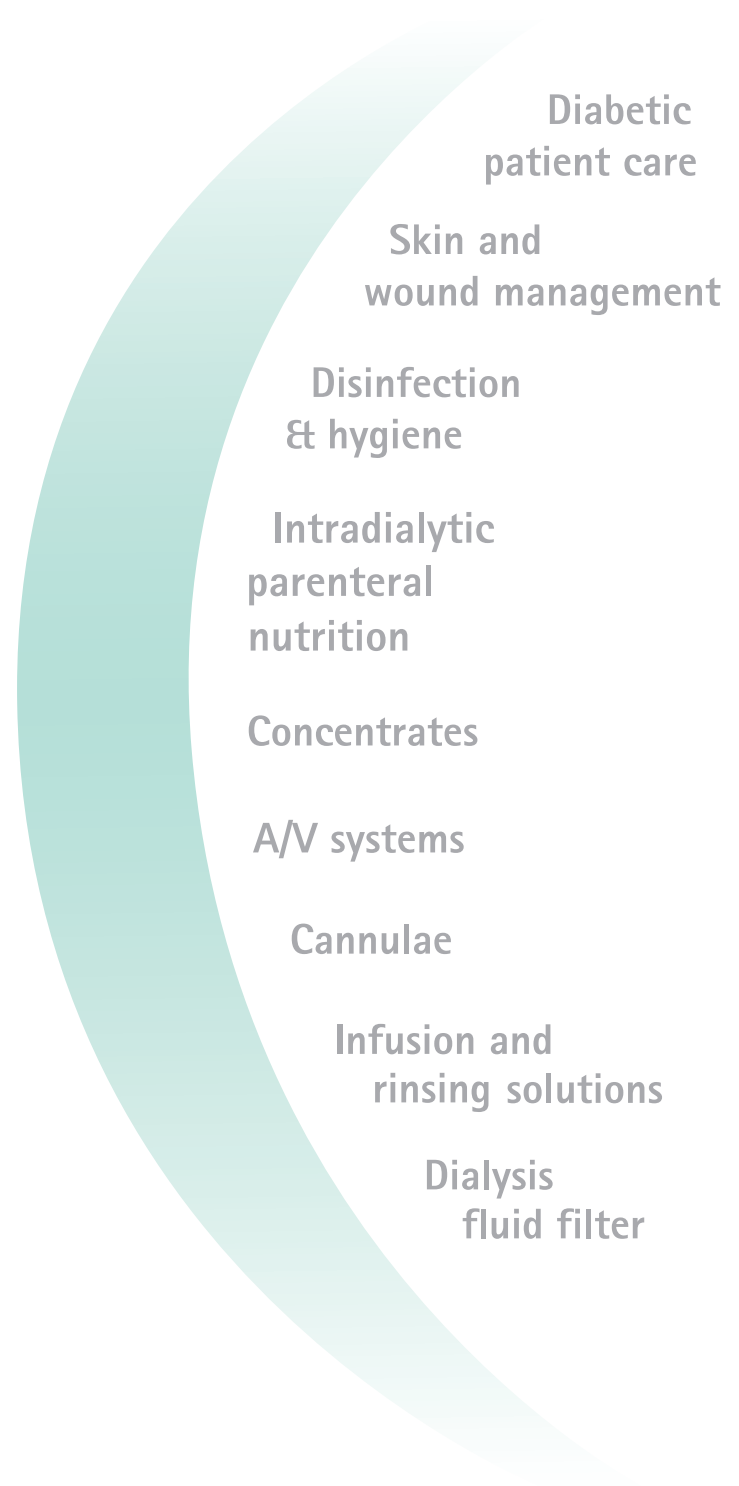
Our service involves customer proximity

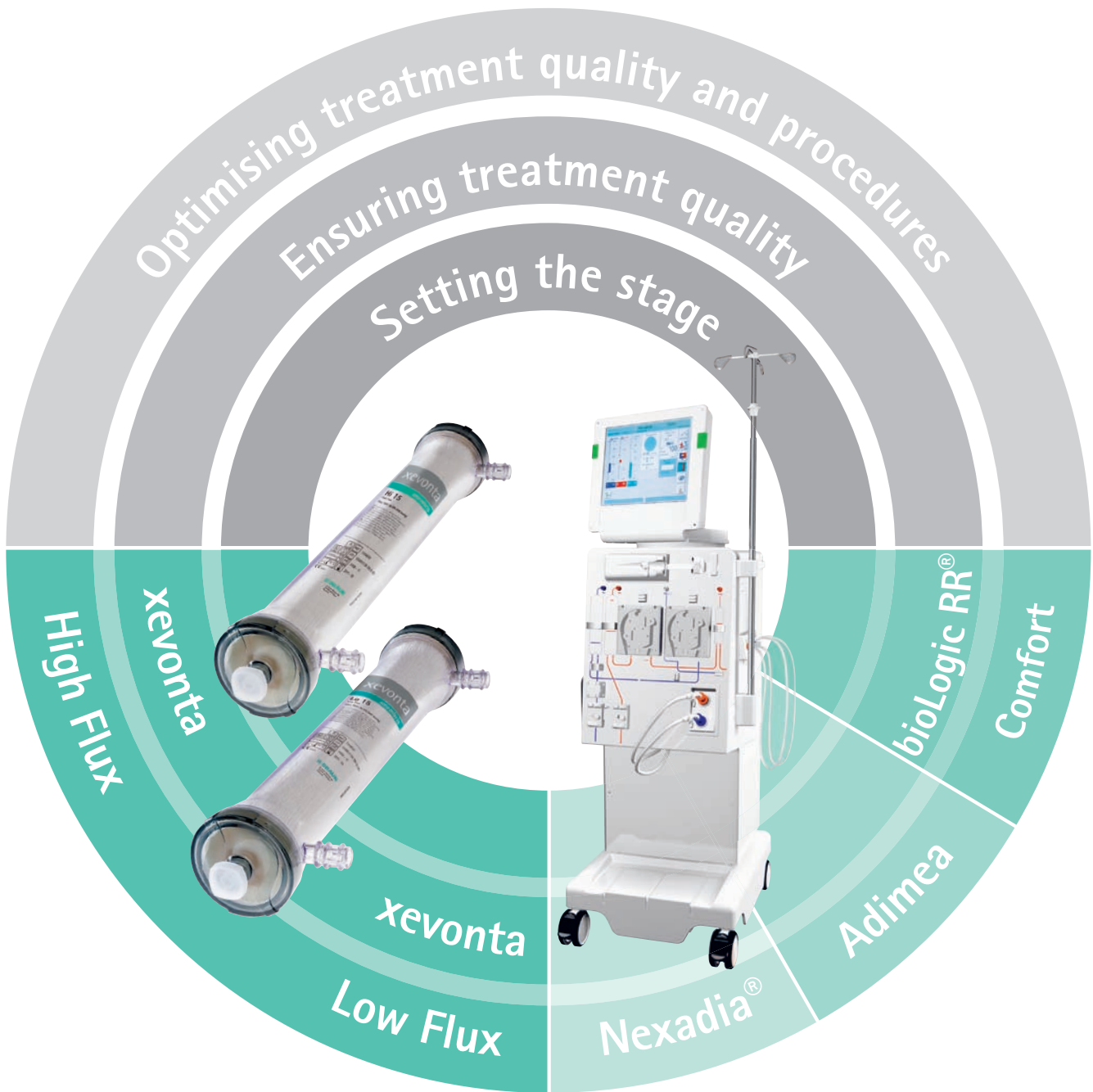
Our performance focuses on how we can realise optimal medical care. To achieve this, we need a wide range of services, including instruction and training courses in various medical fields.

At B. Braun Avitum, we offer individual and personal customer support. It is our goal to meet requirements of our customers. As we know from our many years of experience, this goal can only be reached if individual situations are considered holistically, in a way that goes beyond the mere provision of high-quality products.

Our customers profit from the comprehensive expertise of one of the leading companies on the medical market through individual and personal services:

- Individual and personal support, including investment consulting, trial equipment, instruction courses, refresher training, and ongoing support with questions or problems
- High-quality technical service and support
- Comprehensive training courses: product and user courses, certified further education on medical subjects
- Information and training material for patients, for example patient information on dialysis with appropriate nutritional counselling
- Status-quo analyses at dialyse centres and proposal for process optimisation







"Innovative technologies with many great features provide more time for the essential: proximity to the patient."





"Our patients' confidence is based on an excellent and efficient treatment quality which is ensured by the superior B. Braun technology."



