

Adimea on Dialog iQ[®]

Quick Reference Guide

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This quick reference guide provides a basic overview. Refer to the Information For Use (IFU) and other training materials provided by B. Braun Medical Ltd for more detailed information.

Introduction

What is Adimea?

Adimea is a real-time dialysis monitoring system on the B. Braun Dialog iQ® dialysis machine.

Adimea stands for Accurate Dialysis Measurement.

Adimea uses spectroscopy to continuously measure the UV light absorption of the spent dialysate, which correlates to the concentration of waste products being removed from the patient's blood.

Adimea continuously calculates and displays the achieved, predicted, and target Kt/V and URR-key indicators of dialysis adequacy and quality throughout the entire treatment session. If the predicted clearance deviates from the target, an alarm is triggered, supporting the user to make evidence-based adjustments to treatment parameters.

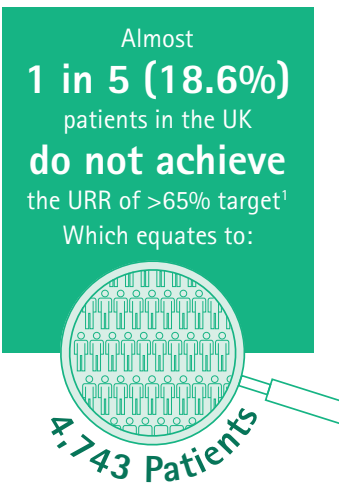
Why is Adimea Important?

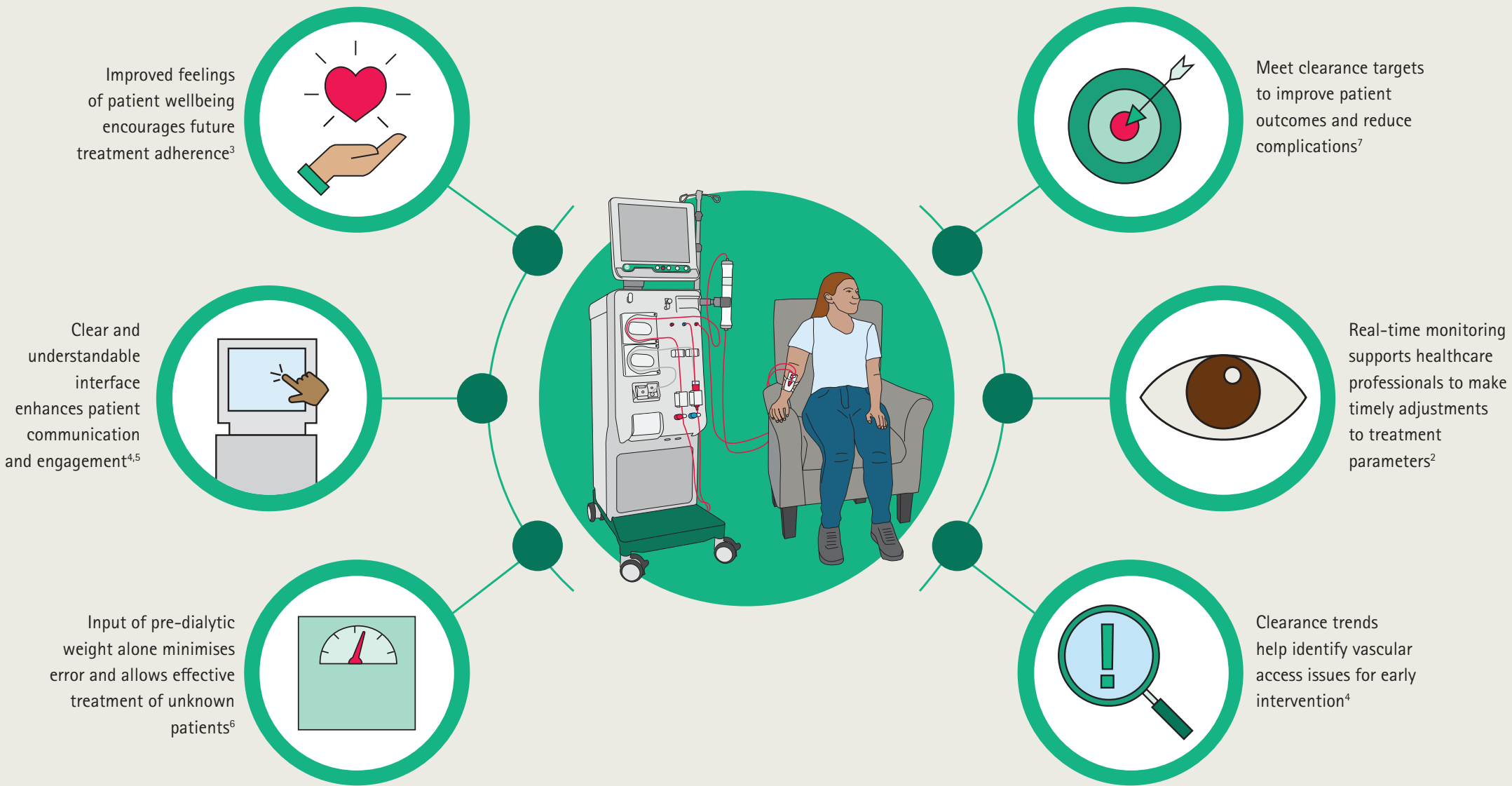
Achieving dialysis adequacy is crucial for patients with end-stage renal failure.

Almost 1 in 5 patients do not achieve their target URR of >65%¹ and this can lead to medical complications as well as having a detrimental impact on quality of life.

The number of patients achieving a URR >65% has been declining since 2015¹.

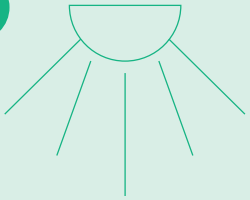
Dialog iQ® with Adimea technology supports clinical decision making by providing both the nurse and patient with real-time visibility of clearance against target, helping identify potential improvements, so that patients can achieve their treatment goals².





How Does Adimea Work?

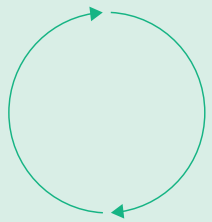
1



UV Light Absorption

Dialog iQ® transmits UV light through the spent dialysate as it flows to the drain, whilst the sensor measures the absorption of UV light by the waste products.

2



Correlation with Urea Concentration

The amount of UV light absorbed by the waste within the spent dialysate, directly correlates to the concentration of urea, a key marker of dialysis adequacy.

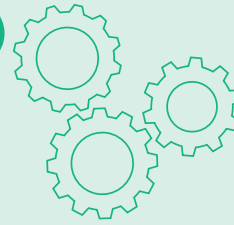
3



Real-time Kt/V Calculation

Adimea uses the measured UV absorption data to calculate and display the Kt/V value in real-time throughout the dialysis session. The system also displays the urea reduction ratio (URR).

4



Treatment Adjustment

If the Kt/V is not on track to meet the target, Adimea provides visual and audible alerts, allowing nurses to make adjustments to treatment parameters such as:

A Blood flow rate

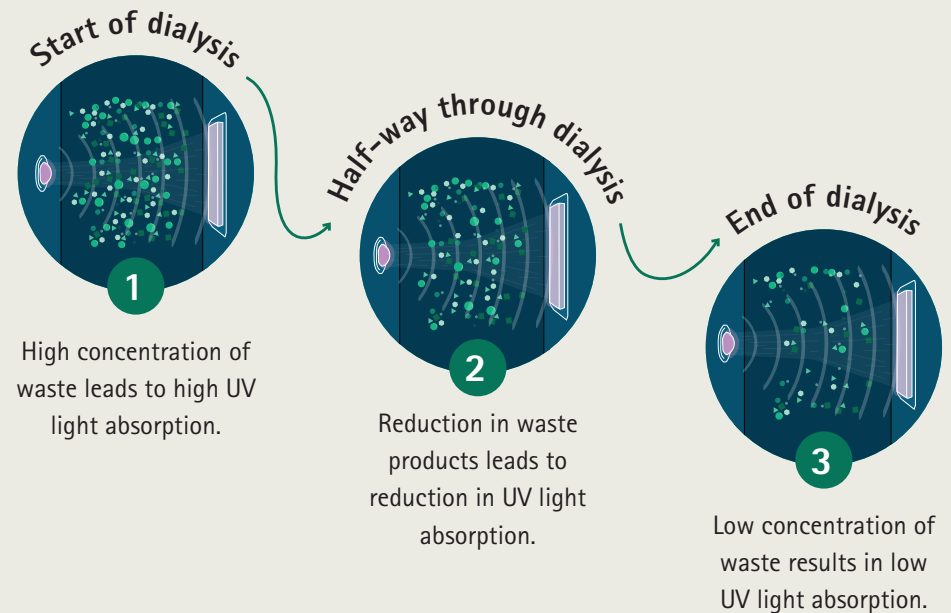
Increasing blood flow typically increases clearance, leading to a higher Kt/V, but this can be affected by access recirculation. Adimea allows nurses to see the impact of blood flow adjustments in real-time.

B Dialysate flow rate

While important for clearance, adjusting the dialysate flow has a less dramatic effect compared to blood flow adjustments.

C Dialysis time

Extending the dialysis time is generally the most effective way to increase Kt/V and demonstrating this visually to patients can help with patient education and treatment adherence.



Key Features of Adimea

User-Friendly Interface



Adimea is integrated into the Dialog iQ®'s existing user interface with clear menus and displays, making it easy for nurses to navigate and interpret data.

Treatment Data Storage



Kt/V data from each treatment session can be stored on a Patient Card or in the Nexadia® data management system, allowing nurses to track progress over time and identify potential trends.

No Need for Urea Distribution Volume



Unlike other methods, Adimea does not require nurses to manually input the patient's urea distribution volume (V). Only the patient's pre-dialysis 'wet' weight is needed.

Target Kt/V Setting



Nurses can set an individual target Kt/V for each patient based on their specific needs.

Visual and Audible Alerts



If the target Kt/V is at risk of not being achieved, the system will display a warning message and provide an audible alert, prompting intervention.

Settings and Customisation

During commissioning, it is possible to choose between single-pool Kt/V (spKt/V) and equilibrated Kt/V (eKt/V) which considers the urea rebound effect after dialysis. This will be a trust-led decision and can only be changed by qualified engineers.

Inputting Parameters



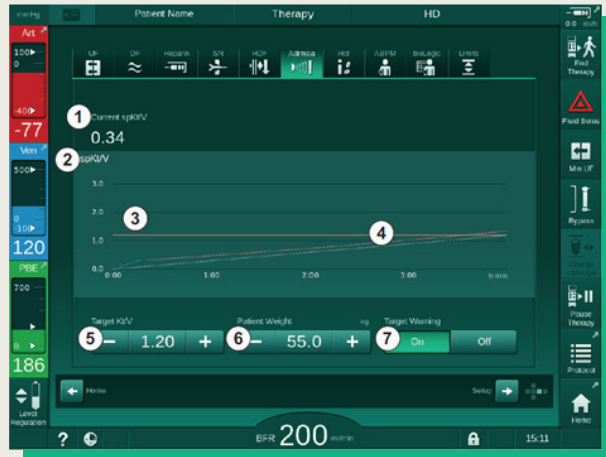
- 1 Touch **Adimea icon** on Input screen to open the Adimea screen.
- 2 Enter patient wet weight (weight before dialysis).
*Entering the patient weight **6** before dialysis enables calculation and display of Kt/V, URR and UV absorbance from the beginning of therapy.*
- 3 Enter/adapt target Kt/V **5**.
- 4 Enable/disable target warning **7**.
With target warning enabled, a corresponding warning is displayed on the screen if the target Kt/V is unlikely to be reached by the end of therapy.
Users can adapt parameters to reach the target dialysis dose.
- 5 Press on the graph to change between Kt/V, URR and UV absorbance.

Using a Patient Card allows patients' individual Kt/V and URR values of up to 50 completed therapies to be stored and displayed on the screen for evaluation. In addition, the trends of several other parameters of the last six completed therapies can be displayed and graphically compared.



Settings and Customisation

Example of Kt/V Graph



KEY:

- | | | | | | |
|---|---|---|---|---|-------------------------------------|
| 1 | Current Kt/V or URR | 4 | Orientation line | 7 | Enable/disable target value warning |
| 2 | Touch to select graph of Kt/V, URR or UV absorbance | 5 | Target Kt/V value | | |
| 3 | Target value line | 6 | Patient wet weight (weight before dialysis) | | |

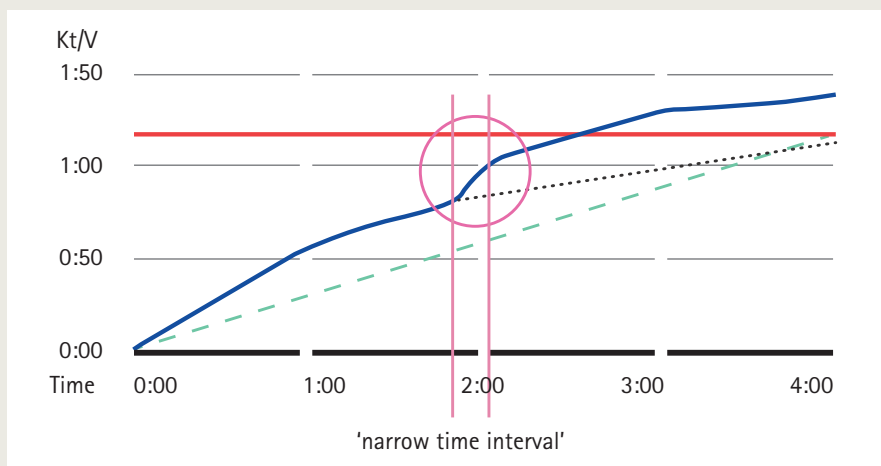
- The **blue line** indicates the actual progress of the respective parameter up to the current point in therapy.
- The **green dashed line** provides a reference for the user to assess whether the ongoing therapy is on track to meet the target dialysis dose.
- The **dashed line** that follows the blue actual progress line is the recalculated linear orientation line. If this line is blue (with the endpoint above the target value), the target value is likely to be reached. If this line is red (with the endpoint below the target value), the target value is likely not to be reached by the end of the preset therapy time.

Example of Kt/V Table on Info Screen When Using Patient Card

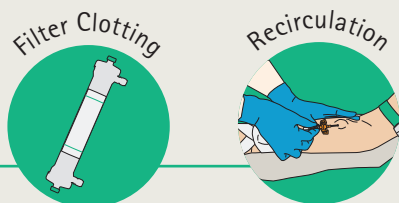
Date	Target Kt/V	spKt/V	Patient Weight (kg)	Blood Flow (ml/min)	DF Flow (ml/min)	URR
25.01.2022 12:39	1.33	0.00	87.00	280.00	600.00	0.00
16.07.2020 08:58	1.33	0.00	87.00	0.00	0.00	0.00
31.10.2017 15:55	1.32	1.64	89.00	280.00	600.00	80.58
31.10.2017 15:48	1.33	1.30	87.00	280.00	600.00	74.11
31.10.2017 15:40	1.33	1.36	86.00	270.00	600.00	74.27
31.10.2017 15:23	1.32	1.42	87.00	270.00	600.00	75.76
31.10.2017 03:36	1.20	1.81	88.00	280.00	600.00	83.71
31.10.2017 00:34	1.20	1.65	88.00	290.00	600.00	80.81
31.10.2017 00:29	1.20	1.48	87.00	280.00	600.00	77.26

Interpreting Atypical Curves

Sharp Rise in Kt/V Curve



Two factors may cause this effect, sudden and severe:

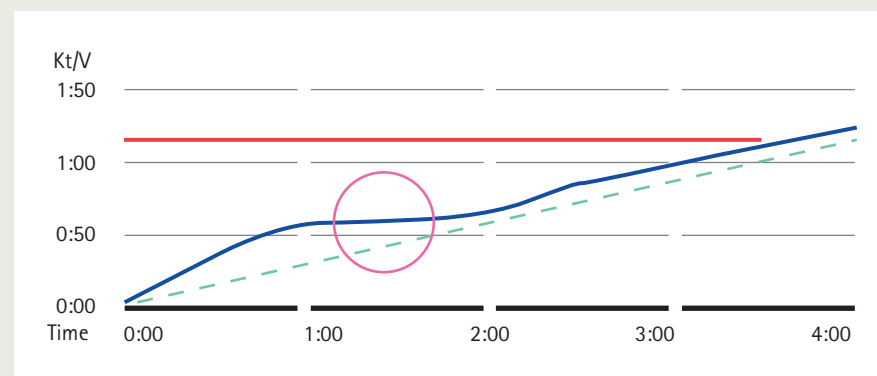


Both lead to a significant reduction of waste in the spent dialysate.

Clotting blocks the membrane, while recirculation prevents fresh blood, rich in waste, from being delivered to the haemofilter.

The UV sensor detects fewer substances in the spent dialysate and therefore overestimates the Kt/V. The real-time calculation enables users to identify the issue quickly and respond appropriately by checking for clotting and changing the haemofilter or correcting needle positioning if needed.

Flattening of Kt/V Curve



A common clinical phenomenon is the temporary flattening of the Kt/V curve during treatment, often occurring at the same point for individual patients.

This happens due to the varying speed at which substances move from extravascular compartments into the intravascular space. This shift causes the concentration of waste in the spent dialysate to remain temporarily constant, rather than decreasing as usual. Consequently, the Kt/V does not increase.

Eventually, this inter-compartmental shift slows down, leading to a steady decrease in the concentration of waste in the spent dialysate as per usual. The exact reason for this rapid, short-term mobilisation in some patients is unknown, but fluid redistribution between compartments might explain it. This curve flattening is often observed when blood pressure drops.

In case of a target warning, the following parameters can be adapted (in most cases only in agreement with the physician in charge) to improve the target Kt/V:

- Target Kt/V
- Therapy time
- Dialysate flow
- Blood flow



Things to Keep in Mind

- Adjustments to treatment parameters should always be made in consultation with the physician.
- Adimea can be used with haemodialysis, haemodiafiltration and Single-Needle Cross-Over therapies.

WARNING

Risk to the patient due to wrong treatment parameters! The function does not release the user from the duty of regular patient checks. Transmitted and/or displayed information shall not be used as source of information for medical indication solely.

- Regularly check the patient.
- Calculation of Kt/V does not replace the demand to verify that treatment is performed as prescribed by the physician.
- Never make treatment decisions on the basis of displayed values solely.
- The physician in charge is responsible for the medical indication.

Conclusion

Adimea, available on the B. Braun Dialog iQ[®] dialysis machine, represents a significant advancement in dialysis treatment by offering real-time monitoring and analysis of key indicators like Kt/V and URR, allowing healthcare professionals to make timely adjustments to treatment parameters. By providing this level of monitoring and insight, Adimea empowers healthcare professionals to optimise dialysis adequacy for each patient at the point of care and improve their clinical outcomes as well as their overall quality of life.

We
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and
IMPROVE
the
HEALTH
of people
around the world.

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