



Enabled by PROvision

Discover how D-PROm™ enabled by PROvision is refining hemodialysis delivery for patients and clinicians



# ROUTINE PATIENT-REPORTED OUTCOME CAPTURE

CAN POSITIVELY INFORM STANDARD AND NOVEL INTERVENTION CARE PLANNING

**D-PROm™, dynamic patient-reported outcome measures, enabled by PROvision is a cloud-based data information system that provides a secure and easy way for a dialysis clinic to routinely integrate patient-reported, standardized health-related quality of life measures into the plan of care of each patient.**

*Empowering Life. Enhancing Health.™*



# WHAT A DIFFERENCE D-PROM™ MAKES

1

## POSITIVE OUTCOMES

Standardized quality of life measures underpin clinical decisions and encourage patient involvement in their hemodialysis care plan.

2

## PATIENT-ENGAGING, PATIENT-SPECIFIC

Mainstream health-related quality of life surveys are associated with aggregate data for groups – not individuals.

3

## UNIQUE INSTRUMENT

D-PROM more accurately represents the fluctuations in daily symptoms and the impact of intervention, both novel and standard.

4

## PROVEN RESULTS

D-PROM enabled by PROvision has a consistently growing evidence base.

# ROUTINE PATIENT-REPORTED OUTCOME CAPTURE HAS BEEN CHALLENGING



Patient Access

Patient involvement in the decision-making process is an evolution of patient-centered efforts dating back decades with the intent to improve outcomes.



Missing Data

Within dialysis care, many initiatives are recognizing the importance of patient involvement in the decision-making process. However, despite continued technological innovations and clinical practice guideline advancements, clinical outcome improvements remain muted when quality of life considerations, collected via historically available measurement tools, have been incorporated.<sup>1-3</sup>



Frustrated Workflow

Pragmatic, repeated use of standardized instruments in the clinical practice management setting is challenging:<sup>4</sup>

- Assessing the patient directly is not always possible due to cognitive or communication deficits or age/developmental level, as examples.
- There is the potential for missing data when relying on the patient for data entry.
- For the facility, having the patient complete the survey upon arrival at the clinic can frustrate the clinic workflow, manifesting in missing data, patient anxiety due to the entry of personal information in a public setting, and increased staff burden to ensure survey completion.
- Conversely, having the patient complete the survey at home before or between clinic visits raises challenges as well: accessibility, health information privacy, data security, patient safety.



Staff Burden



Data Privacy



Data Security

D-PROM enabled by PROvision is a patient-reported outcome measures information system that addresses these hurdles and enables patients to regularly and actively engage in their dialysis care planning, satisfying the long-held desire for consistent patient involvement in the clinical decision-making process dating back decades.

# ROUTINE PATIENT-REPORTED OUTCOME CAPTURE

## IS NOW PRACTICAL

Patient-reported outcome measures (PROMs) may help guide clinicians in determining when a traditional HD intervention has not sufficiently managed patient symptoms and improved their health-related quality of life.

The use of a simple, relevant, and repeated PROM tool could guide clinical decisions about the most appropriate intervention for a specific patient. D-PROM is such an instrument. Developed with user input, this tool measures well-being, energy level, sleep quality, bodily pain, appetite, and shortness of breath using visual analog scales. **D-PROM takes only seconds to complete, provides real-time monitoring, allows a 24-hour recall period, and is intended for repeated use.**

An initial study has proven that **D-PROM is easy to use, acceptable to patients, and sensitive to clinical changes in the short- and long-term.**<sup>5</sup>



Time Efficient



Easy Recall



Repeated Use



Easy to Use

# ROUTINE PATIENT-REPORTED OUTCOME CAPTURE

## GUIDES NOVEL INTERVENTION ASSESSMENT

In general, instruments like KDQOL™ are considered cumbersome for regular administration both by the patient and by facility staff. Further, KDQOL provides a “snapshot in time” (typically only annually or semi-annually) rather than regularly-repeating assessments by the individual patient. This sporadic snapshot can impact the validity of any change to a patient’s care plan.

**Integrating D-PROM into routine clinical practice may serve as a guide for introducing novel interventions** aiming to alleviate the burden of symptoms.<sup>6</sup>



Acceptable



Sensitive



Novel

# ROUTINE PATIENT-REPORTED OUTCOME CAPTURE IS PATIENT-SPECIFIC AND PROVEN

## Routine patient-reported outcome capture is about the individual.

Mainstream health-related quality of life surveys are associated with aggregate data for groups – not individuals. As a consequence, instruments like KDQOL™ make the presumption that scores that are more than 1 standard deviation below the mean may signify a degree of health risk that could perhaps be preventable. For these lower scores, the patient scoring language of these instruments should be precautionary.<sup>7</sup>

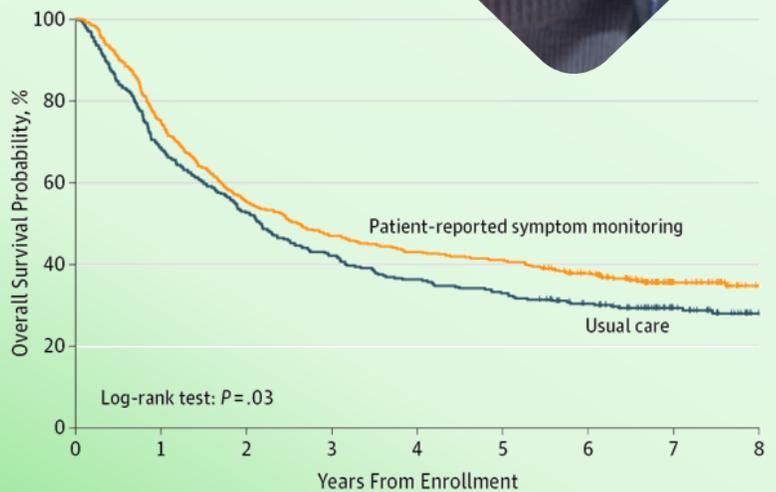


D-PROm enabled by PROvision is designed to highlight aspects of patient-reported outcomes that when coupled with clinical outcomes are associated with the best overall outcome for dialysis patients.

## Survival benefit when routine patient-reported outcome capture is incorporated in treatment regimen.

Overall survival results from a randomized controlled trial of 766 patients undergoing chemotherapy for solid tumors were followed for 8 years.

Assessing patient-reported outcomes for symptom monitoring triggered an alert to a clinical nurse with 77% of these resulting in a clinical intervention.<sup>8</sup>



No. at risk	0	1	2	3	4	5	6	7	8
Patient-reported symptom monitoring	441	331	244	207	190	181	148	65	33
Usual care	325	223	171	137	118	107	89	50	27

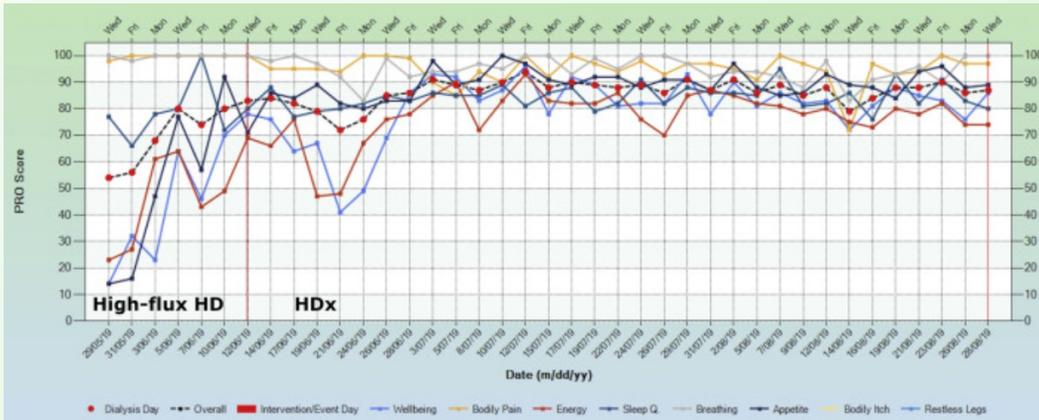


# ROUTINE PATIENT-REPORTED OUTCOME CAPTURE

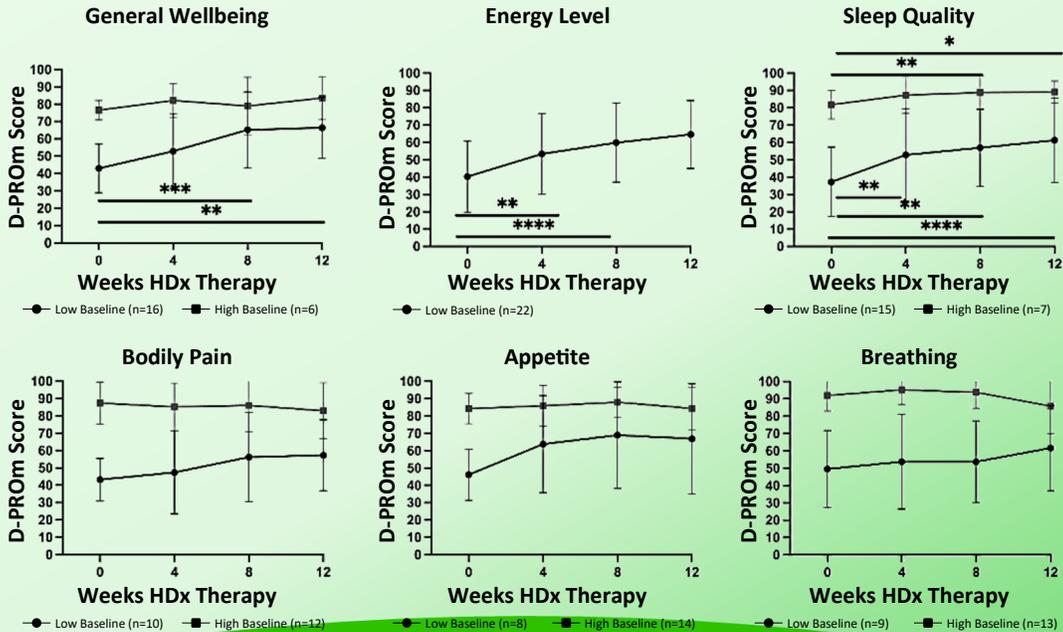
## IS PATIENT-SPECIFIC AND PROVEN

### Symptom burden alleviated with novel intervention

Expanded Hemodialysis utilizes a novel medium cut-off dialyzer and is associated with changes in health-related quality of life that are dose-dependent and durable over time.<sup>9</sup>



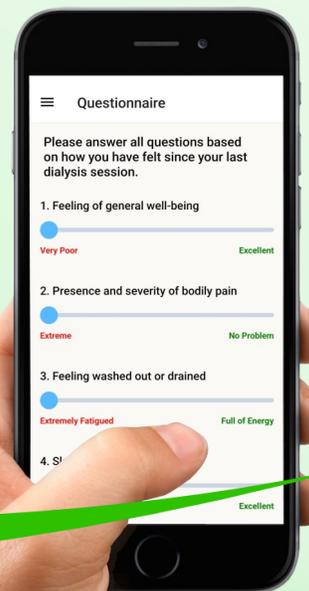
Example of a patient's response to Expanded Hemodialysis (D-PROM graphical output).



Subgroup analysis: domain specific analysis. Abbreviations: HDx, Expanded Hemodialysis

# D-PROm™ enabled by PROvision

INCLUDES 10 BASE QUESTIONS ALIGNED THROUGH A CONSENSUS OF HEMODIALYSIS PATIENTS AND NEPHROLOGISTS.<sup>10</sup>



## PRO Domains





## PROview™ enabled by PROvision INCORPORATES A CONFIGURABLE DASHBOARD SUPPORTING THE INTEGRATED CARE TEAM - CLINICIAN, DIETICIAN AND SOCIAL WORKER.

A flagging and notification capability along with focus views enable the care team to address those patients in need ensuring efficient use of staff resources.

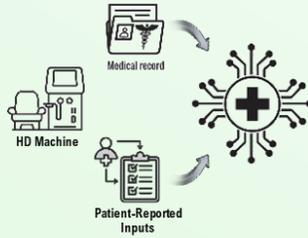
One-time patient configuration is fast and easy with pulldown menus providing pre-populated options of the most common items.

# D-PROM™ enabled by PROvision

## THE CONCEPTUAL FRAMEWORK POWERING PATIENT-REPORTED OUTCOME MEASURES

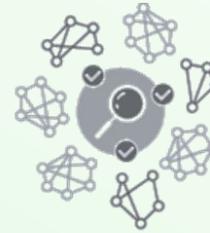
An integrated information platform assisting hemodialysis treatment delivery.

### 1 Multi-Modal Input



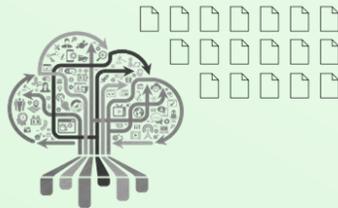
Data produced by modalities supporting a hemodialysis treatment session is automatically sent to an integrated AI assistant.

### 2 Intelligent Dispatching



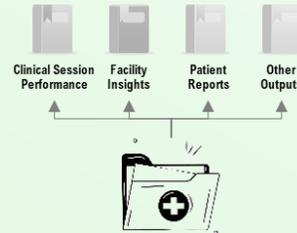
The algorithms to be executed are automatically selected from a global library depending on the data content.

### 3 Automated Results Generation



AI-powered analysis (e.g. measurements) are performed and structured reports are generated.

### 4 Multi-Channel Output



Results are dispatched to the appropriate target systems.

## THE PRACTICAL APPLICATION POWERING PATIENT-REPORTED OUTCOME MEASURES

**Patient**  
Data entry  
(Daily, <1 minute)



The patient and the integrated care team—both desiring and providing routine feedback, simply, efficiently and effectively.

**Integrated Care Team**  
Data review  
(Each shift, <1 minute)



**Clinician, Patient**  
Feedback  
(Each treatment, <1 minute)

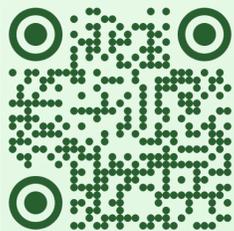


## How D-PROm™ is changing dialysis

### ONE PATIENT, ONE CLINIC, ONE STUDY AT A TIME.

- Dynamic Patient-Reported Outcome Measures Evaluate Durability of Expanded Hemodialysis on Health-Related Quality of Life (HR-QoL) and Symptom Variability
- LEVIL<sup>11</sup> evaluates the impact of HDx on HR-QoL and symptoms, including durability-of-effect and variability
- Study Summary: Impact of expanded hemodialysis using medium cut-off dialyzer on quality of life: application of dynamic patient-reported outcome measurement tool
- Impact of Expanded Hemodialysis Using Medium Cut-off Dialyzer on Quality of Life: Application of Dynamic Patient-Reported Outcome Measurement Tool
- Determining The Threshold Of Symptom Burden In Hemodialysis Patients: The Utilization Of The London Evaluation of Illness
- Middle Molecule Clearance & Expanded Hemodialysis: What Is The Impact on Patient-Reported Symptom Burden Through the Lens of The London Evaluation of Illness (LEVIL<sup>11</sup>)
- Expanded Dialysis (HDx): Is There an Impact on Patient Reported Symptom?
- The effect of blood flow rate on dialysis recovery time in patients undergoing maintenance hemodialysis: A prospective, parallel-group, randomized controlled trial.
- The effects of laughter therapy on depression symptoms in patients undergoing center hemodialysis: A pragmatic randomized controlled trial.

Visit the PROvision website.

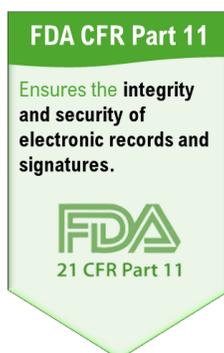


Discover the future of how D-PROm™ enabled by PROvision may further refine hemodialysis delivery not just for patients and clinicians but also healthcare systems...[contact your PROvision sales associate today.](#)



## REFERENCES

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10. Pittman, Zoe C.L. (2020) Developing and understanding the use of patient reported outcomes in advanced renal disease. PhD thesis, University of Nottingham.
11. LEVIL, London Evaluation of Illness, is an alias of D-PROm.



**Empowering Life. Enhancing Health.™**

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