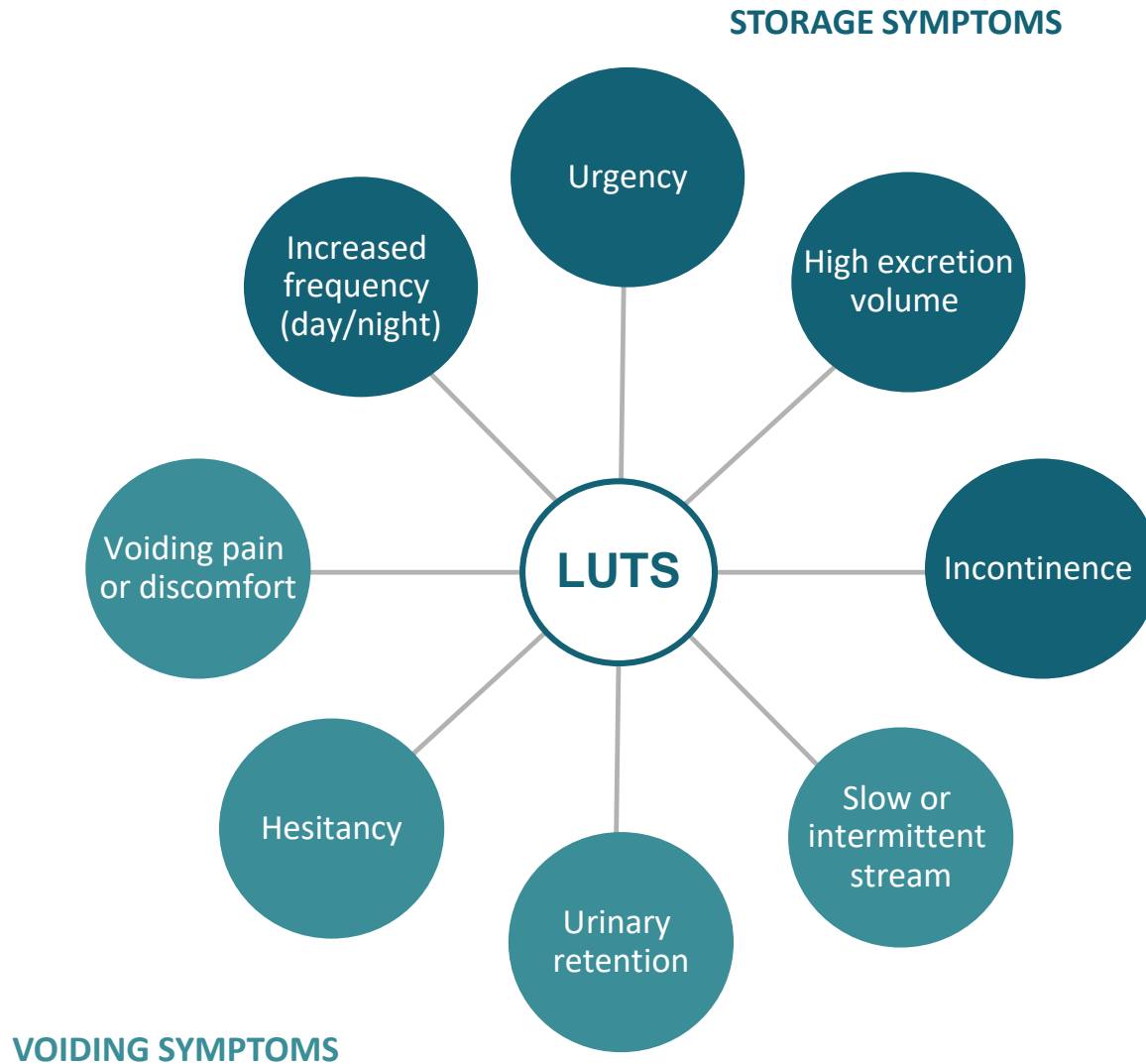


# THE VALUE OF A BLADDER DIARY IN THE MEDICAL JOURNEY OF LUTS PATIENTS



# LOW URINARY TRACT SYMPTOMS



# HETEROGENOUS POOL OF PATIENTS WITH LUTS

**2.3  
BILLION**

**PEOPLE WORLDWIDE SUFFER FROM  
LOWER URINARY TRACT SYMPTOMS**



**WOMEN, MEN & CHILDREN SUFFER FROM LUTS**

Urinary Incontinence (stress, urge, mixed), BPH, Overactive Bladder, Nocturia, Urinary Tract Infections, Bedwetting



Affecting **QUALITY OF LIFE** by leading to depression and fostering reluctance to travel, to have sex or participate in social activities and sports



**1 IN 3**

**ONLY SEEK MEDICAL CARE**

# CLINICAL CASE STUDY



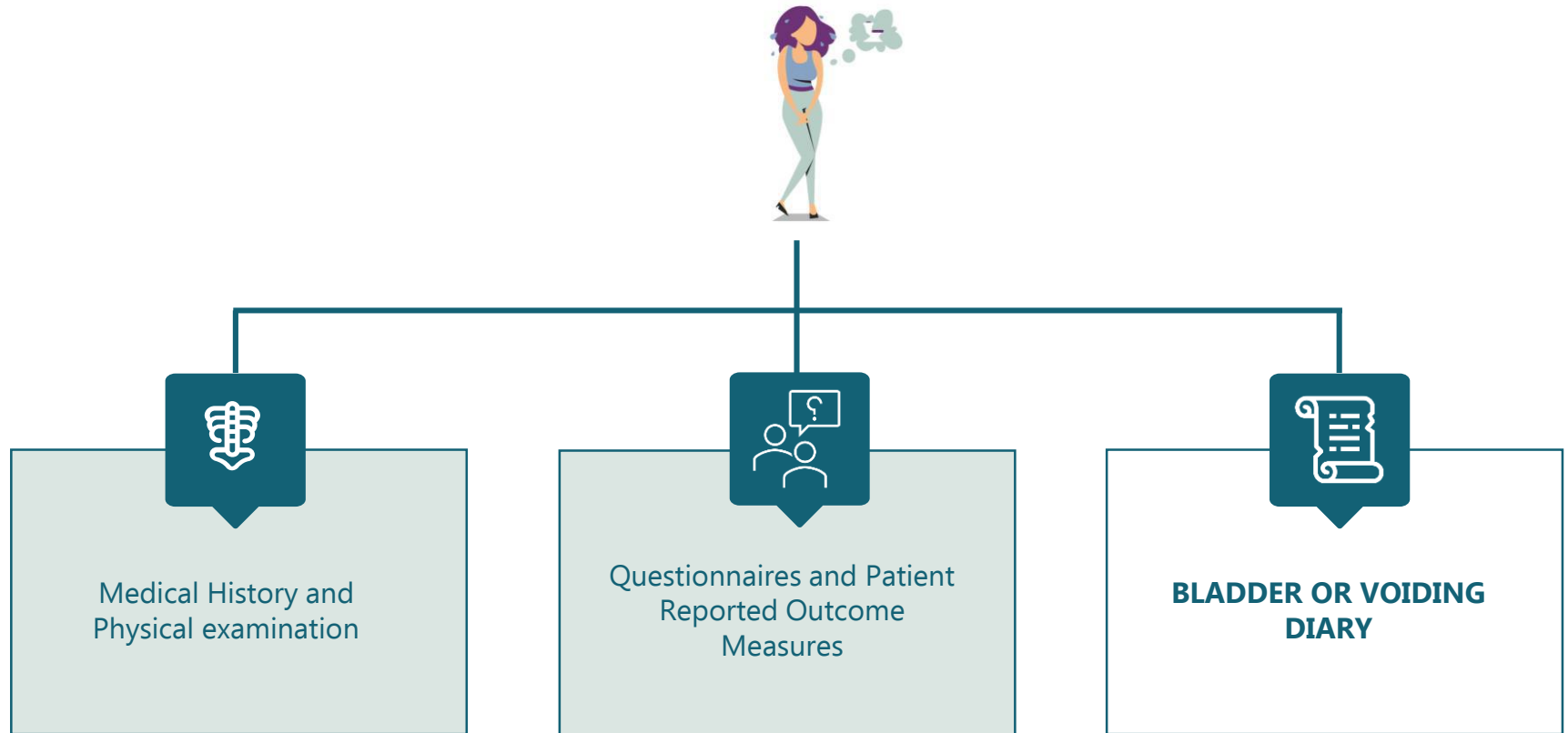
**Agitated 35 year old female**

**Loss of urine**

**Frequent voiding**

# CLINICAL CASE STUDY

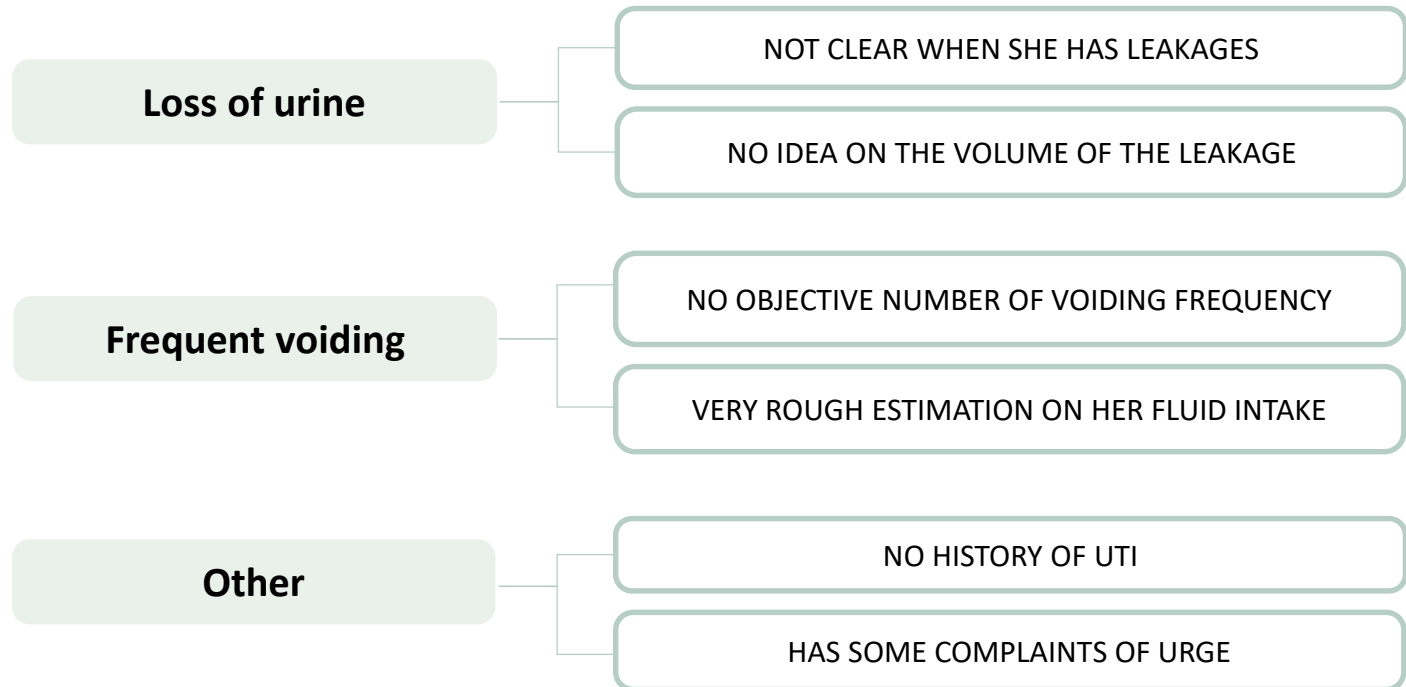
## Diagnosis



# CLINICAL CASE STUDY



## ANAMNESIS

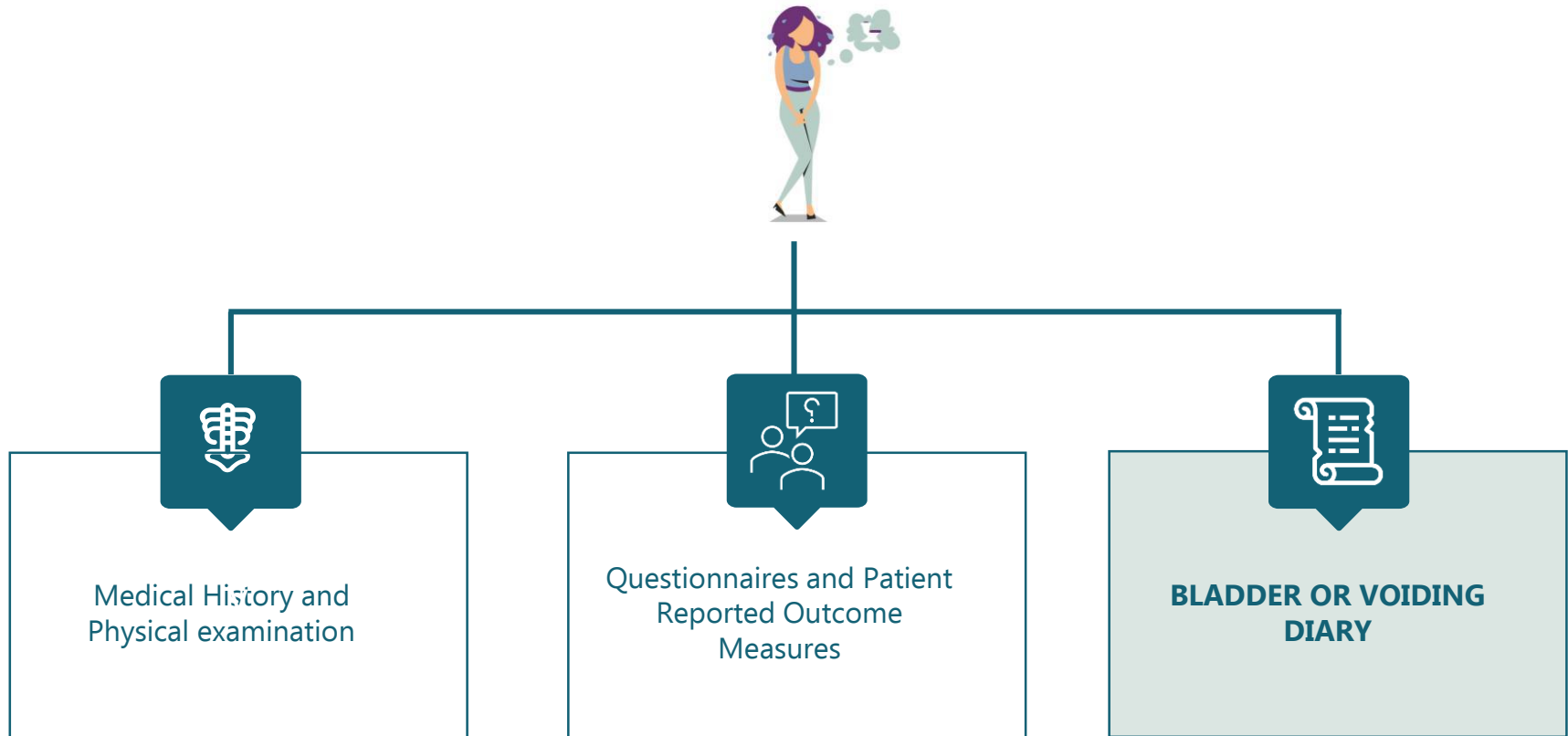


**VAGUE SYMPTOMS → DIFFICULT TO DIAGNOSE**

STRESS INCONTINENCE  
OVERACTIVE BLADDER  
NOCTURIA  
....

# CLINICAL CASE STUDY

## Diagnosis



# WHAT IS A BLADDER DIARY?

---

MICTURITION DIARY  
 VOIDING DIARY  
 FREQUENCY-VOLUME CHART



## DIARY BLADDER

A NON-INVASIVE TOOL TO SUPPORT LUTS PATIENTS

### WHAT?

OBJECTIVE LOG OF FLUID INTAKE, VOIDING FREQUENCY, AND VOIDED VOLUME FOR 3-7 DAYS

### WHY?

USED FOR DIAGNOSIS (DIFFERENTIATE BETWEEN PATHOLOGIES) AND FOR TREATMENT MONITORING

### HOW?

PAPER, ELECTRONIC OR AUTOMATED BLADDER DIARIES

	DAY 1	DAY 2	DAY 3
Time	Volume	Volume	Volume
6.00 am		85.2 ml	86.02 227 ml
7.00 am	85.2 ml		
8.00 am			
9.00 am		99.4 ml	64.02 170 ml
10.00 am			
11.00 am		85.2 ml	
NOON	71 ml		
1.00 pm			76.02 198 ml
2.00 pm	85.2 ml		
3.00 pm			58.02 142 ml
4.00 pm			
5.00 pm		76.02 98 ml	113 ml
6.00 pm	85.2 ml		



## BLADDER DIARIES

RECOMMENDED BY INTERNATIONAL GUIDELINES FOR LUTS PATIENTS

### ICS STANDARDS 2019

#### EVALUATION AND TREATMENT OF URINARY INCONTINENCE, PELVIC ORGAN PROLAPSE AND FAECAL INCONTINENCE

#### B. RECOMMENDED FURTHER ASSESSMENT PRIOR TO, OR DURING, SPECIALIST ASSESSMENT

#### 1. FURTHER SYMPTOM AND HEALTH-RELATED QOL ASSESSMENT

##### 1.1. Bladder Diary

In patients with urinary symptoms the use of a bladder diary (examples in Annex 1) is highly recommended to document the frequency of micturition, the volumes of urine voided, incontinence episodes and the use of incontinence pads.

### EAU GUIDELINES ON NON-NEUROGENIC MALE LUTS INCLUDING BENIGN PROSTATIC OBSTRUCTION

Recommendations for the diagnostic evaluation of male LUTS	Strength rating
Take a complete medical history from men with LUTS.	Strong
Use a validated symptom score questionnaire including bother and quality of life assessment during the assessment of male LUTS and for re-evaluation during and/or after treatment.	Strong
Use a bladder diary to assess male LUTS with a prominent storage component or nocturia.	Strong
Tell the patient to complete a bladder diary for at least three days.	Strong
Perform a physical examination including digital rectal examination in the assessment of male LUTS.	Strong

### EAU GUIDELINES ON NON-NEUROGENIC FEMALE LUTS

Recommendations	Strength rating
Ask patients with LUTS to complete a bladder diary as part of the standardised assessment of female LUTS.	Strong
Use a bladder diary with a duration of $\geq 3$ days.	Strong

### AUA/SUFU Guideline

#### DIAGNOSIS AND TREATMENT OF OVERACTIVE BLADDER (Non-Neurogenic) IN ADULTS: AUA/SUFU GUIDELINE

##### Guideline Statements

##### Diagnosis:

- The clinician should engage in a diagnostic process to document symptoms and signs that characterize OAB and exclude other disorders that could be the cause of the patient's symptoms; the minimum requirements for this process are a careful history, physical exam, and urinalysis. *Clinical Principle*
- In some patients, additional procedures and measures may be necessary to validate an OAB diagnosis, exclude other disorders and fully inform the treatment plan. At the clinician's discretion, a urine culture and/or post-void residual assessment may be performed and information from bladder diaries and/or symptom questionnaires may be obtained. *Clinical Principle*
- Urodynamics, cystoscopy and diagnostic renal and bladder ultrasound should not be used in the initial workup of the uncomplicated patient. *Clinical Principle*

**NICE** National Institute for Health and Care Excellence

## Urinary incontinence and pelvic organ prolapse in women: management

### Bladder diaries

- 1.3.13 Use bladder diaries in the initial assessment of women with urinary incontinence or overactive bladder. Encourage women to complete a minimum of 3 days of the diary covering variations in their usual activities, such as both working and leisure days. [2006]

## TRADITIONAL PAPER BLADDER DIARY

### NEED FOR INNOVATION

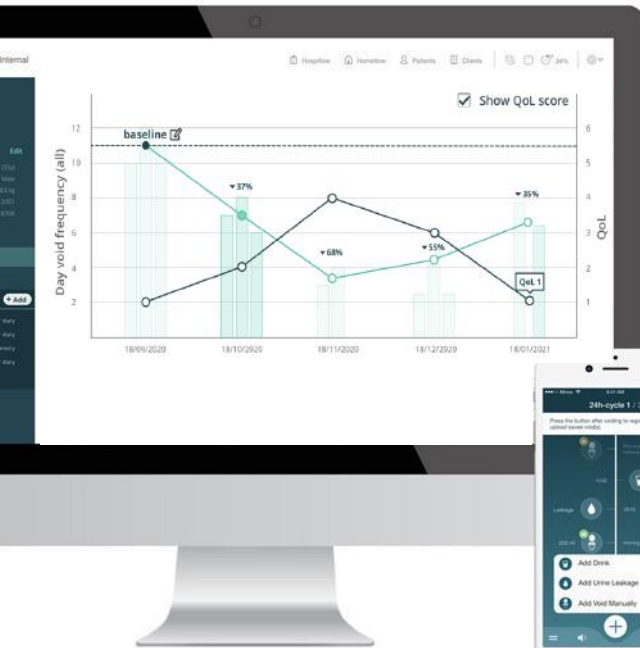
	DAY 1	DAY 2	DAY 3
Time	Volume	Volume	Volume
6.00 am	<del>6.00</del> 85.2	<del>6.00</del> 113 ml	8.00 227 ml
7.00 am	<del>7.00</del> 85.2		
8.00 am			
9.00 am		<del>9.00</del> 99.4 ml	6.00 170 ml
10.00 am			
11.00 am		<del>11.00</del> 85.2 ml	
NOON	<del>NOON</del> 71 ml		
1.00 pm	<del>1.00</del> 85.2 ml		7.00 198 ml
2.00 pm	<del>2.00</del> 85.2 ml		
3.00 pm			5.00 142 ml
4.00 pm			
5.00 pm		<del>5.00</del> 98.8 ml	
6.00 pm	<del>6.00</del> 85.2 ml		



- Paper bladder diaries can be **unreliable**
- **Time consuming** for clinicians
- **Cumbersome** for the patient
- Difficult to **store and process** in patient records
- **No evidence-based** follow-up

# AUTOMATED BLADDER DIARY

## MEET THE DIARY POD



Clinician portal



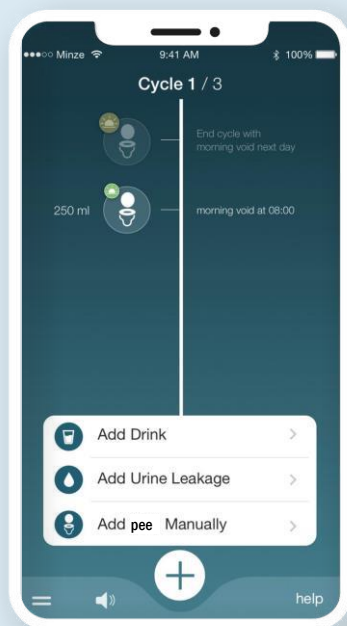
Patient App



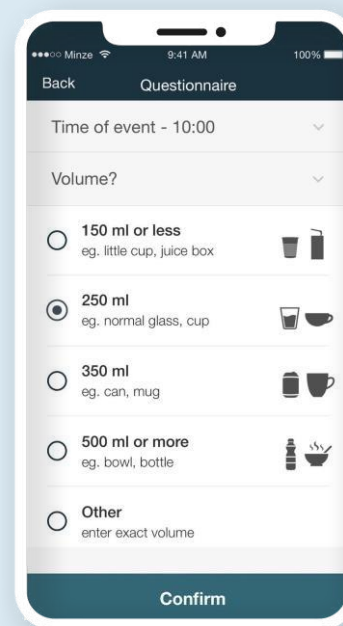
Diary Pod

- **Portable** and **single-patient use** bladder diary
- **Increased accuracy and compliance** through **automated registration** of data
- Connects to the **Minze Flow App** to track **liquid intake and leakage** episodes
- **Automated calculations, clinical decision support & lifestyle advice**

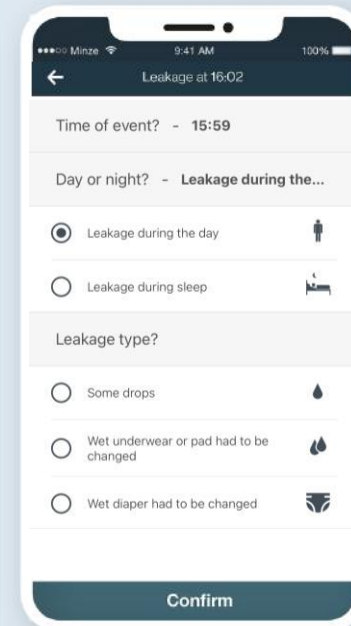
# MINZE FLOW APP – ASSISTS THE PATIENT WITH THE DIARY



Add drinks,  
leakages or pees  
you forgot to  
register

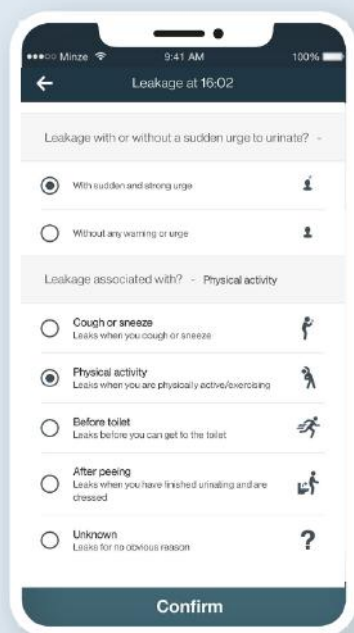


Answer the  
questions related  
to each event

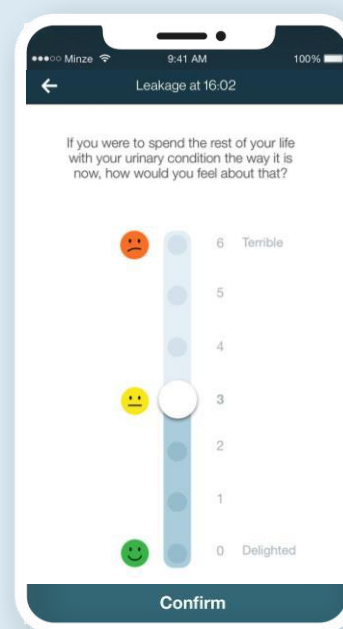


Leakage  
intensity

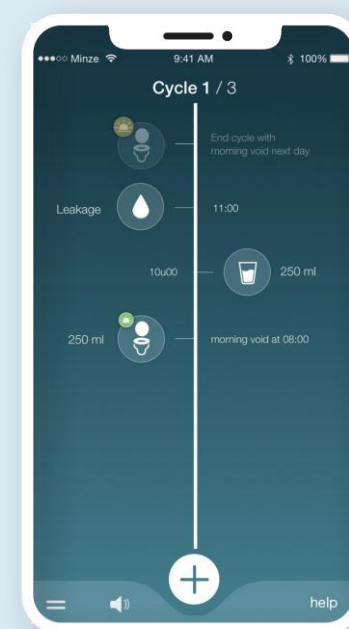
# MINZE FLOW APP – ASSISTS THE PATIENT WITH THE DIARY



Leakage episodes  
urge / stress



QOL or other  
relevant questions

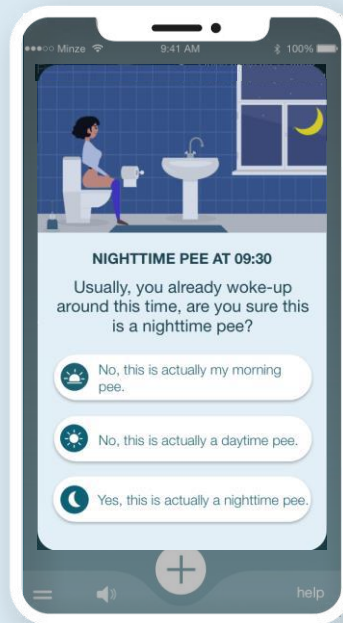


Notice the  
events you just  
added to your  
timeline

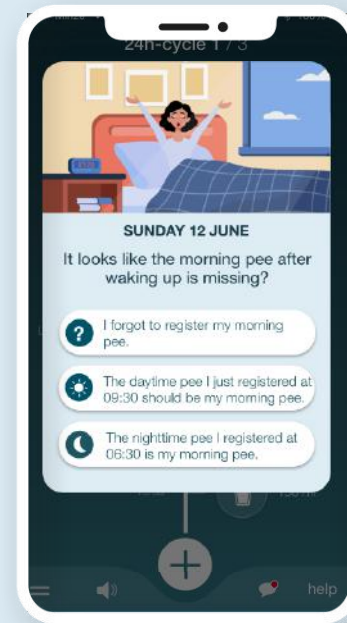


# MINZE FLOW APP – ASSISTS THE PATIENT WITH THE DIARY

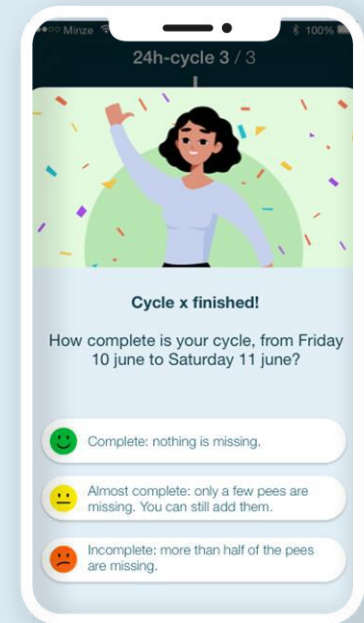
## ARTIFICIAL INTELLIGENCE ASSISTS IF INCORRECT ENTRIES



App makes sure that entries are actually correct



App assists with missing entries



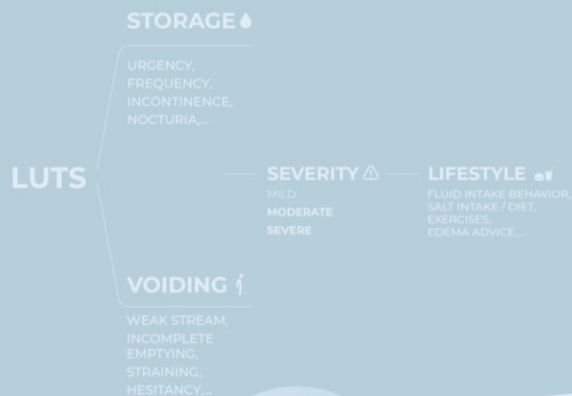
Asks patient about completeness before finishing off



# CLINICAL CASE

## Use of automated bladder diary





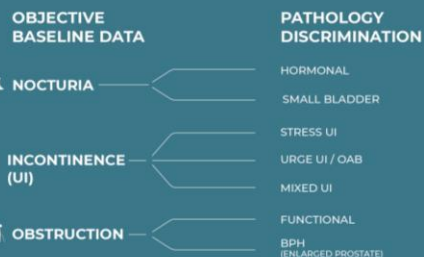
01

## SCREENING

Self-assessment

Three day screening with an interactive, momentary questionnaire. Contains questions about symptoms and quality of life. **Filters out patients who simply need to change their lifestyle.**

App



02

## DIAGNOSIS

Accurate diagnostic tools



App + Diary Pod

## CONSERVATIVE MANAGEMENT

- 🌱 **BEHAVIORAL THERAPY** (bladder training, pelvic floor exercises, timed voiding, watchful waiting...)
- 💊 **AND/OR PHARMACOTHERAPY**

03

## BEHAVIORAL THERAPY

Training and feedback

The App and Pod facilitate behavioral therapy and provide patient support. Progression tracking motivates the patient during therapy.

App + Diary Pod

## SPECIALIZED THERAPY

- 🔪 SLING SURGERY,
- 💉 BOTOX INJECTIONS,
- 🧠 NEUROMODULATION (PTNS, SNM)
- 🔪 PROSTATE SURGERY...

04

## SPECIALIZED THERAPY

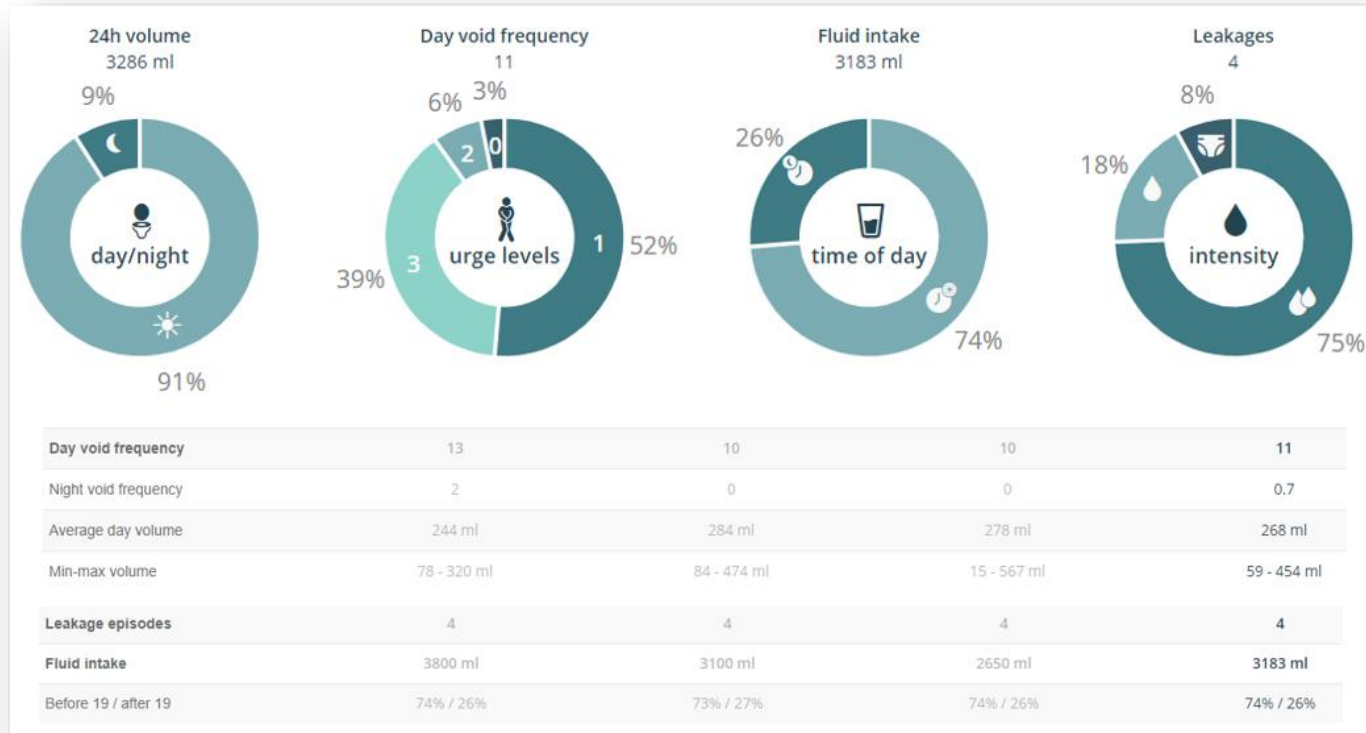
Evidence based follow-up

Prolonged treatment pathway or follow-up after medical intervention. **The effectiveness of the specialized treatment is monitored with the App and Pod.**

App + Diary Pod

# CLINICAL CASE STUDY

## Diagnosis – 2/3 Day Bladder Diary



**DIAGNOSIS: OVERACTIVE BLADDER**

# CLINICAL CASE STUDY

## Treatment - Behavioral Therapy



### MANAGE FLUID INTAKE

Lifestyle information on optimal hydration, spreading of fluid intake and bladder irritants

**BLADDER TRAINING**  
Instructions on bladder training technique to increase bladder capacity, control and urination intervals



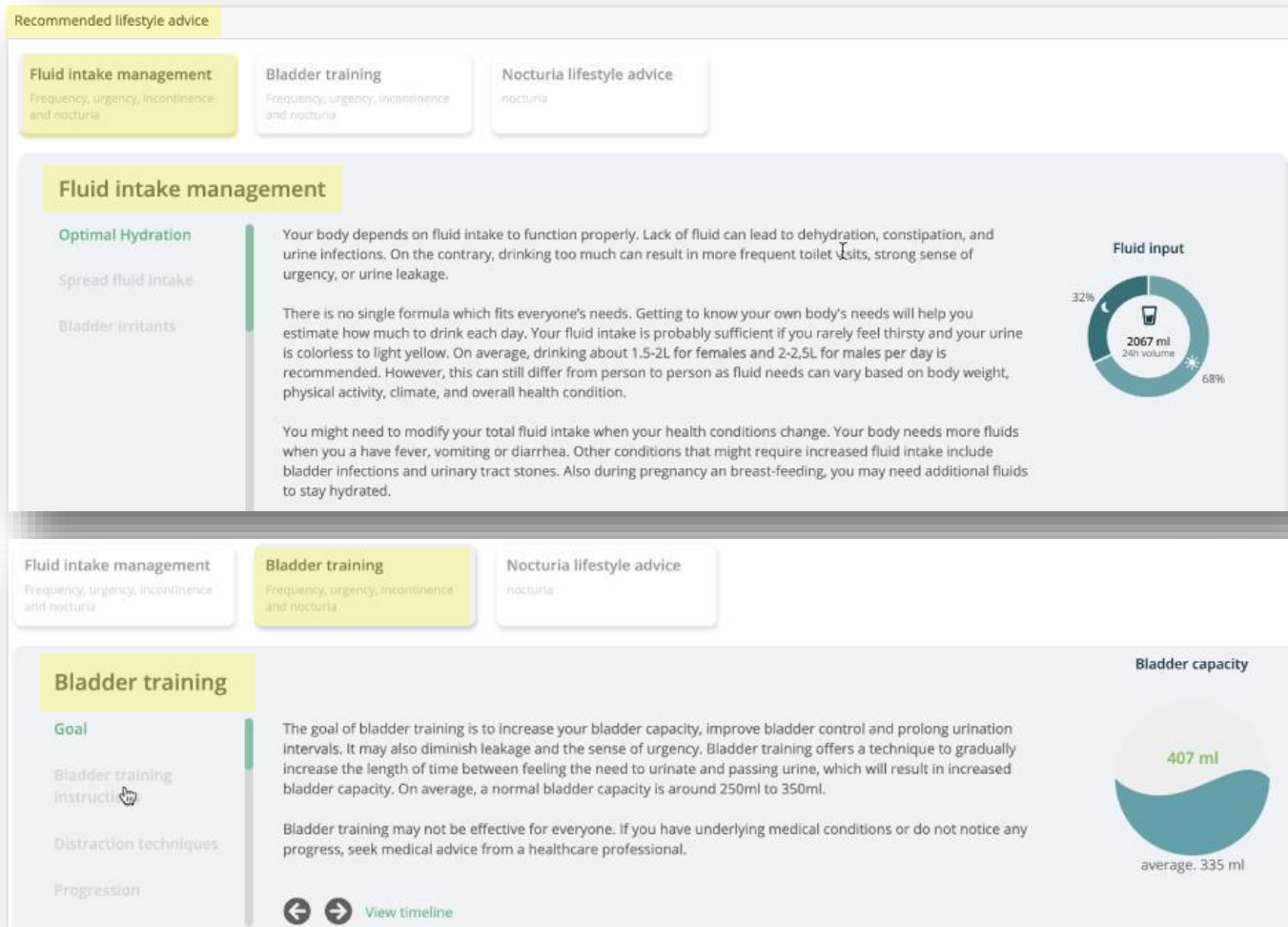
**LUTS**

Increased frequency

Leakages

# CLINICAL CASE STUDY

## Treatment - Behavioral Therapy



LUTS

Increased frequency

Leakages

SOURCES: AUA, NHS, EAU, Mayo Clinic, Bladder and Bowel UK, Urology Care Foundation

**LUTS**

**STORAGE** 💧

URGENCY, FREQUENCY, INCONTINENCE, NOCTURIA...

**VOIDING** ⚡

WEAK STREAM, INCOMPLETE EMPTYING, STRAINING, HESITANCY...

**SEVERITY** ⚠️

MILD  
MODERATE  
SEVERE

**LIFESTYLE** 🍷

FLUID INTAKE BEHAVIOR, SALT INTAKE / DIET, EXERCISES, EDEMA ADVICE...

**01**

**SCREENING**  
Self-assessment

Three day screening with an interactive, momentary questionnaire. Contains questions about symptoms and quality of life. **Filters out patients who simply need to change their lifestyle.**

App

**OBJECTIVE BASELINE DATA**

🌙 NOCTURIA —

💧 INCONTINENCE (UI) —

⚡ OBSTRUCTION —

**PATHOLOGY DISCRIMINATION**

HORMONAL  
SMALL BLADDER  
STRESS UI  
URGE UI / OAB  
MIXED UI  
FUNCTIONAL  
BPH (ENLARGED PROSTATE)

**02**

**BLADDER DIARY**  
Accurate diagnosis

Records urination, fluid intake and leakage. After three days, **an accurate diagnosis and a personalized treatment are formed**, in consultation with a physician.

App + Diary Pod

## CONSERVATIVE MANAGEMENT

- 🌟 **BEHAVIORAL THERAPY** (bladder training, pelvic floor exercises, timed voiding, watchful waiting...)
- 🧪 **AND/OR PHARMACOTHERAPY**

**03**

## BEHAVIORAL THERAPY

Bladder training & follow-up

App + Diary Pod

## SPECIALIZED THERAPY

- ✓ SLING SURGERY,
- ✓ BOTOX INJECTIONS,
- ✓ NEUROMODULATION (PTNS, SNM)
- ✓ PROSTATE SURGERY...

**04**

## SPECIALIZED THERAPY

Evidence based follow-up

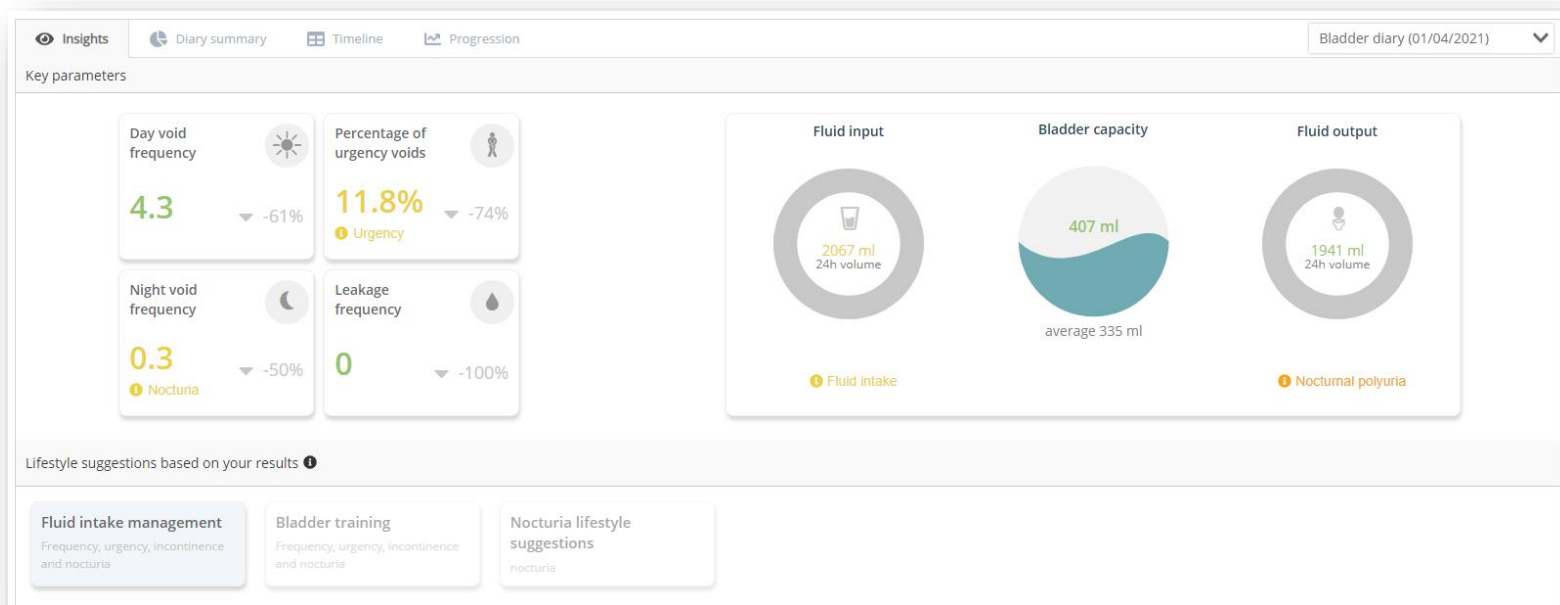
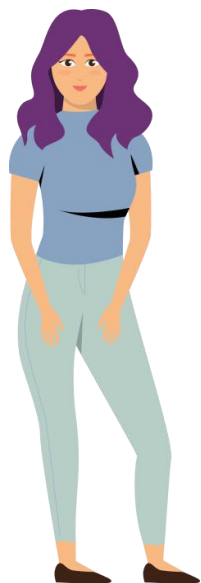
Prolonged treatment pathway or follow-up after medical intervention. **The effectiveness of the specialized treatment is monitored with the App and Pod.**

App + Diary Pod



# CLINICAL CASE STUDY

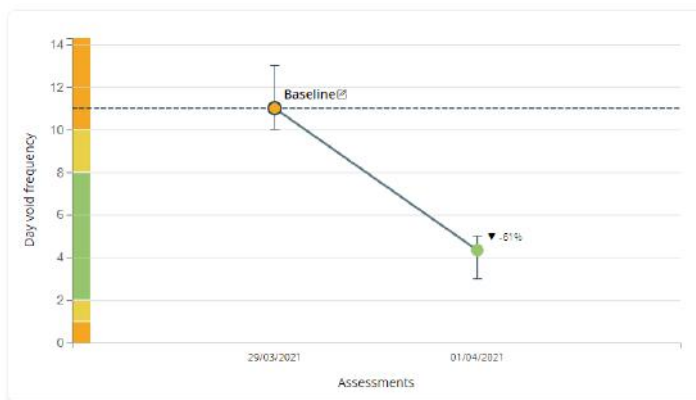
## Treatment monitoring



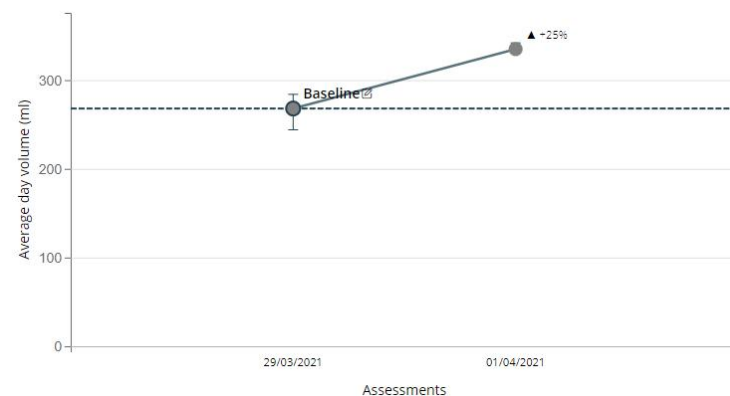
# CLINICAL CASE STUDY

## Treatment monitoring

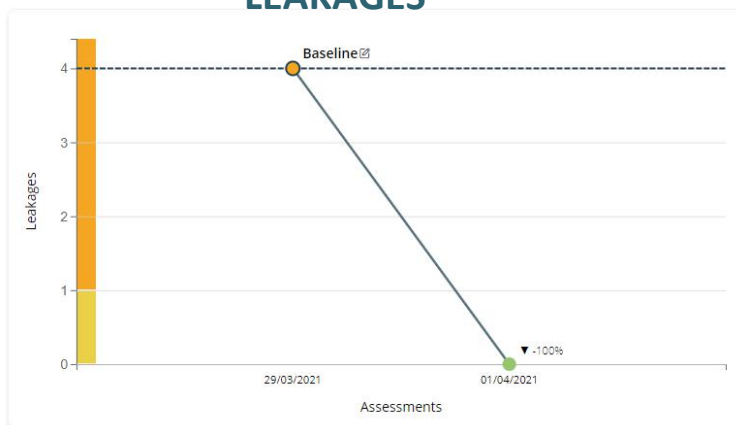
### DAY VOID FREQUENCY



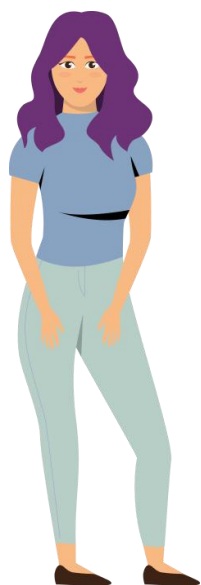
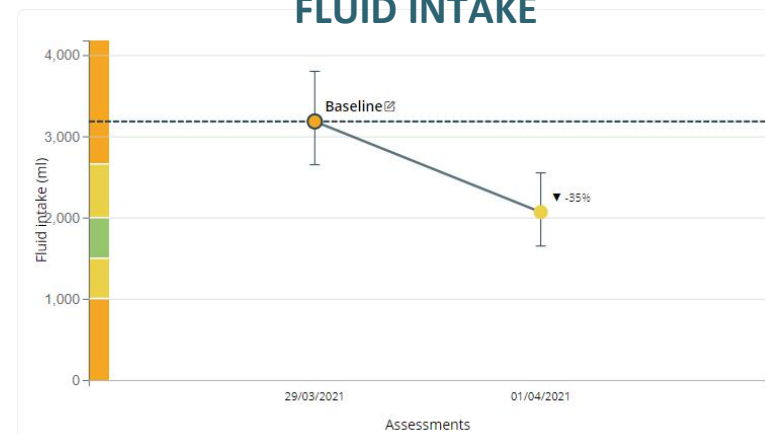
### AVERAGE DAY VOLUME



### LEAKAGES

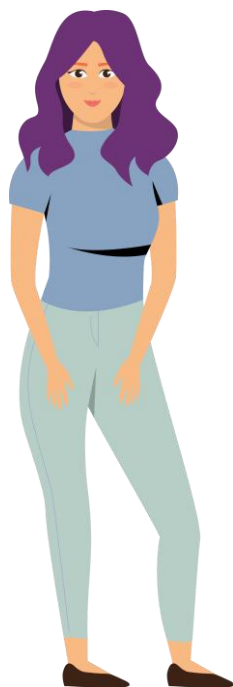


### FLUID INTAKE



# CLINICAL CASE STUDY

## Conclusions



**Happy 35 year old female**

**No more leakages**

**Less day voiding**

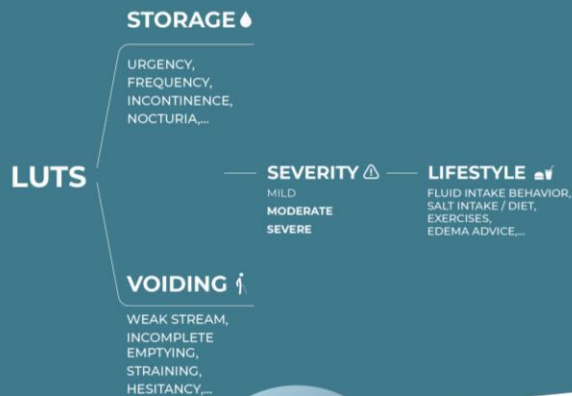
**Rarely has urgency**



**BLADDER DIARY is essential in the DIAGNOSIS and TREATMENT pathway of LUTS patients**



# DIARY POD SUPPORTS THE COMPLETE LUTS PATIENT PATHWAY



01

## SCREENING

Awareness & lifestyle advice

App



02

## DIAGNOSIS

Accurate diagnostic tools

App + Diary Pod

### CONSERVATIVE MANAGEMENT

- 🌱 **BEHAVIORAL THERAPY** (bladder training, pelvic floor exercises, timed voiding, watchful waiting,...)
- 🧬 **AND/OR PHARMACOTHERAPY**

03

## BEHAVIORAL THERAPY

Bladder training & follow-up

App + Diary Pod

### SPECIALIZED THERAPY

- 🔪 SLING SURGERY,
- 🔪 BOTOX INJECTIONS,
- 🔪 NEUROMODULATION (PTNS, SNM)
- 🔪 PROSTATE SURGERY,...

04

## SPECIALISED THERAPY

Monitor therapy effect

App + Diary Pod