

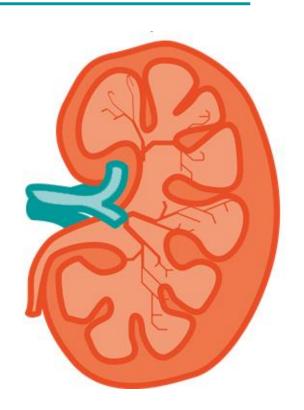


CHRONIC KIDNEY DISEASE

FACTS AND FIGURES

SYMPTOMS INCLUDE¹

NAUSEA POOR APPETITE WEIGHT LOSS SWELLING OF FEET, ANKLES, OR HANDS SHORTNESS OF BREATH CHANGES IN URINE OUTPUT MUSCLE CRAMPS INSOMNIA ITCHY SKIN



🔆 COVID - 19

Chronic kidney

disease is a key risk

factor for severe

COVID-19⁷

Stages of CKD²



With normal or high GFR

(GFR>90 mL/min/1.73 m²)

Stage 2

With mildly decreased GFR

 $(GFR = 60-89 \text{ mL/min}/1.73 \text{ m}^2)$

Stage 3A

With mildly to moderately decreased GFR

 $(GFR = 45-59 \text{ mL/min}/1.73 \text{ m}^2)$

Stage 3B

With moderately to severely decreased GFR

 $(GFR = 30-44 \text{ mL/min}/1.73 \text{ m}^2)$

Stage 4

With severely decreased GFR

 $(GFR = 15-29 \text{ mL/min/1.73 m}^2)$

Stage 5

Kidney failure

(GFR<15 mL/min/1.73 m²)

RISK FACTORS^{3,4}

- Diabetes
- **High blood pressure**
- **Heart disease**
- **Family history of CKD**
- Inherited kidney disorders
- Past damage to the kidneys
- Older age
- **Smoking**

Women have a higher prevalence of CKD, but



In a single day, kidneys filter about 200 liters of blood and remove 2 liters of toxins, wastes, and water in the process⁸

Global CKD statistics, 2019⁶

men are more likely to

suffer kidney failure⁵

Incidence :19M Prevalence: 697M **Deaths** : 1.43M

: 41.5M



Renal replacement therapy is projected to double to 5.4 million patients between **2015 - 2030**⁹

Chronic kidney disease **Deaths per** 100,000 people, **2019**¹⁰ *CKD - Chronic Kidney Disease *GFR -Glomerular Filtration Rate *DALYs - Disability Adjusted Life Years 0 - 1020 - 30Disclaimer: This publication on the chronic kidney disease Not applicable 10 - 20pathway framework was on 15.09.2022. It cannot be taken as a

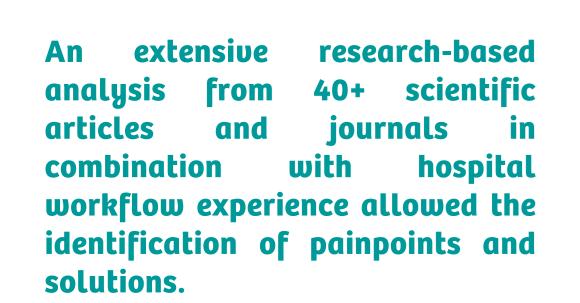
DALYs

recommendation for the readers, especially not as a guideline for treatment, and it is not a medical document. There is no guarantee for completeness or global correctness, the various pain points, solutions, and statistical data are examples only. Sources are multiple, such as public statistics, expert opinions, open innovation workshops, research, own data and many more (see references). The products and features mentioned may not be available in all countries and their future availability cannot be guaranteed. Some products mentioned are planned and under development.

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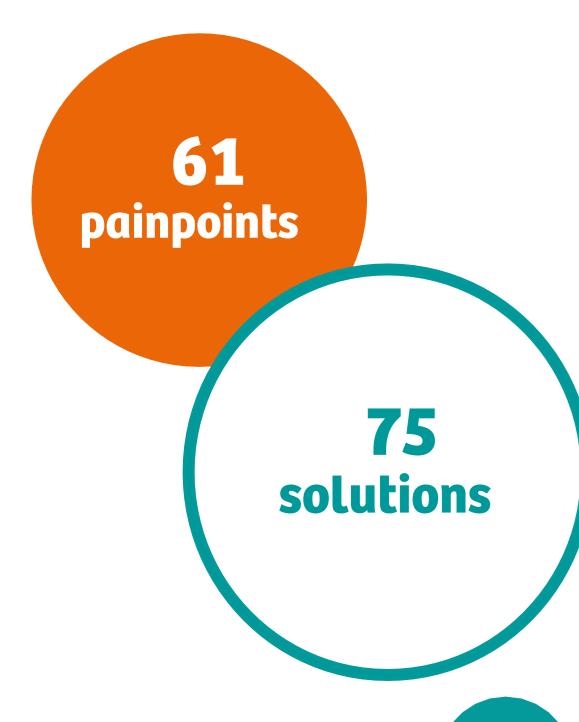
CHRONIC KIDNEY DISEASE

Disease pathway analysis with painpoints and solution examples



These solutions were proposed IoMT, AR/VR, biosensors, nanorobotics smart wearable technologies.

THROUGH THIS CAREPLAN WE HIGHLIGHT DATA FROM A COLLECTION OF



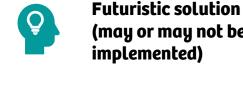
connected to different stakeholders

Solution categories





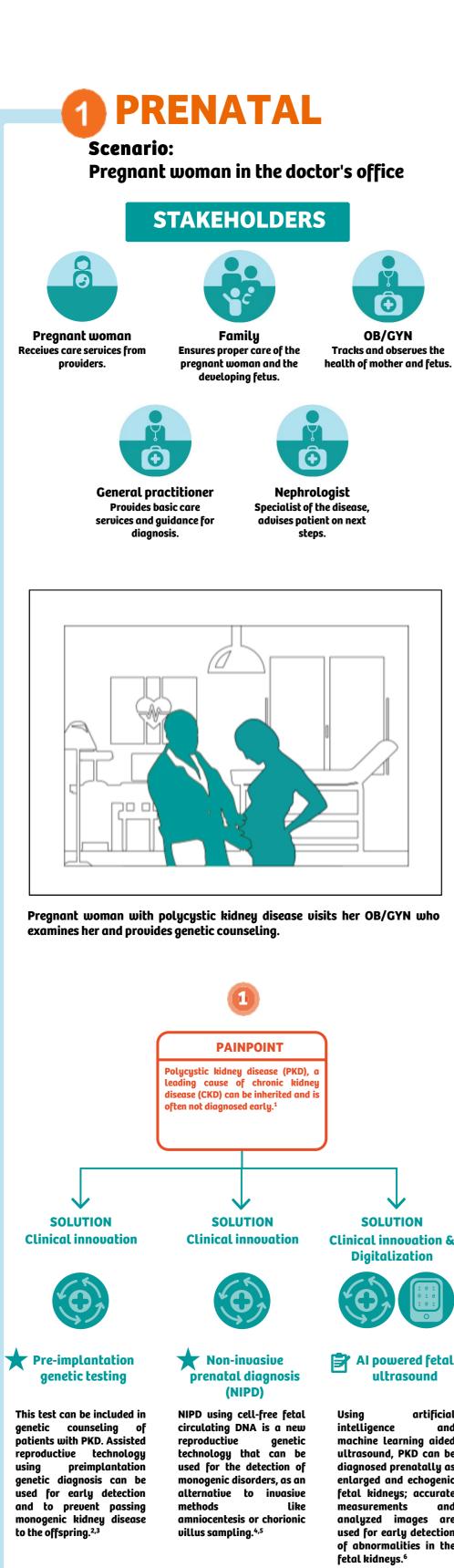
Ongoing research in

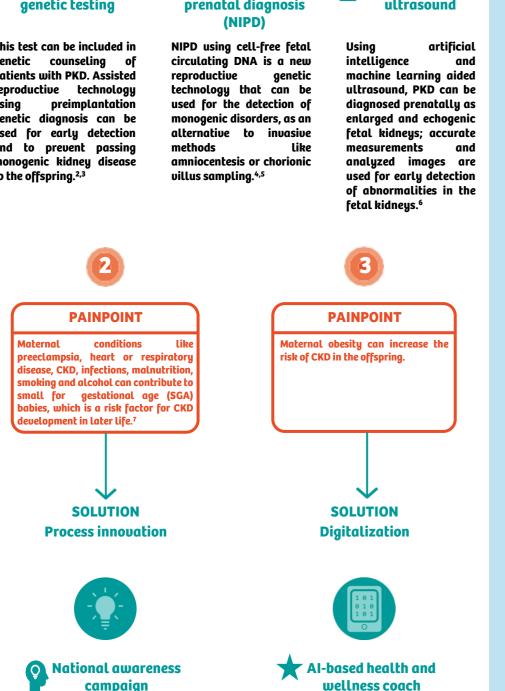


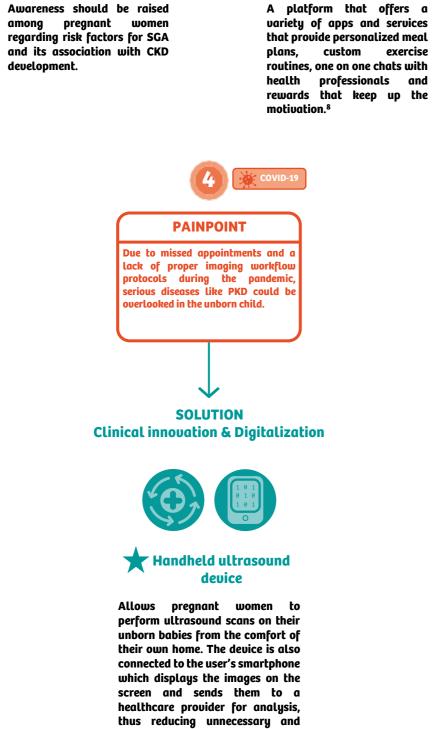
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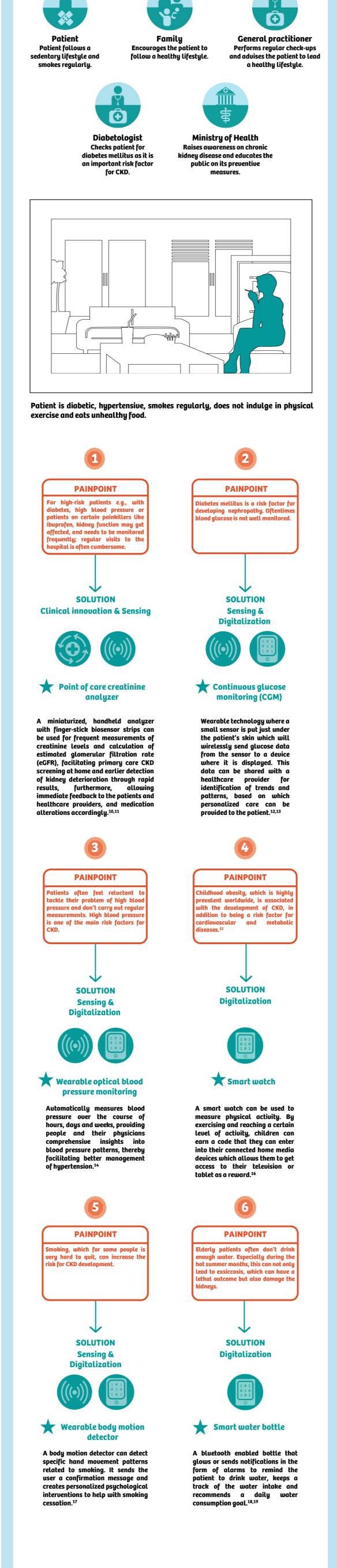
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costly hospital visits.9

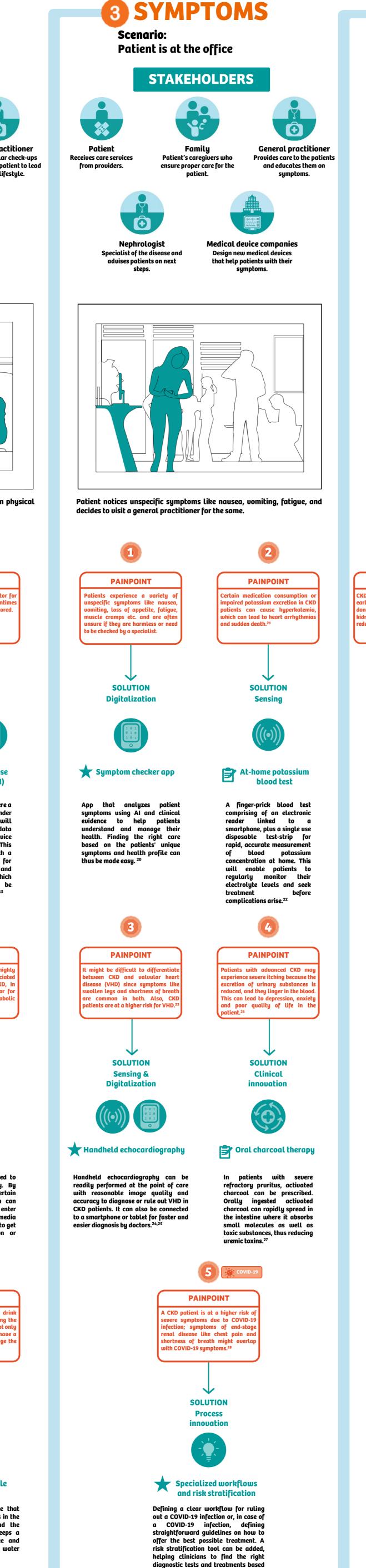


2 PREVENTION

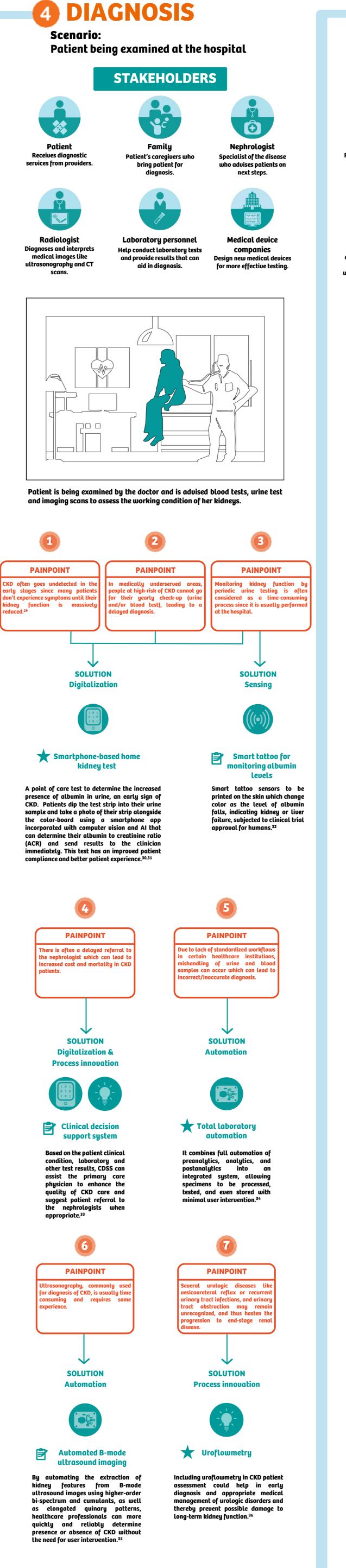
STAKEHOLDERS

Patient resting at home

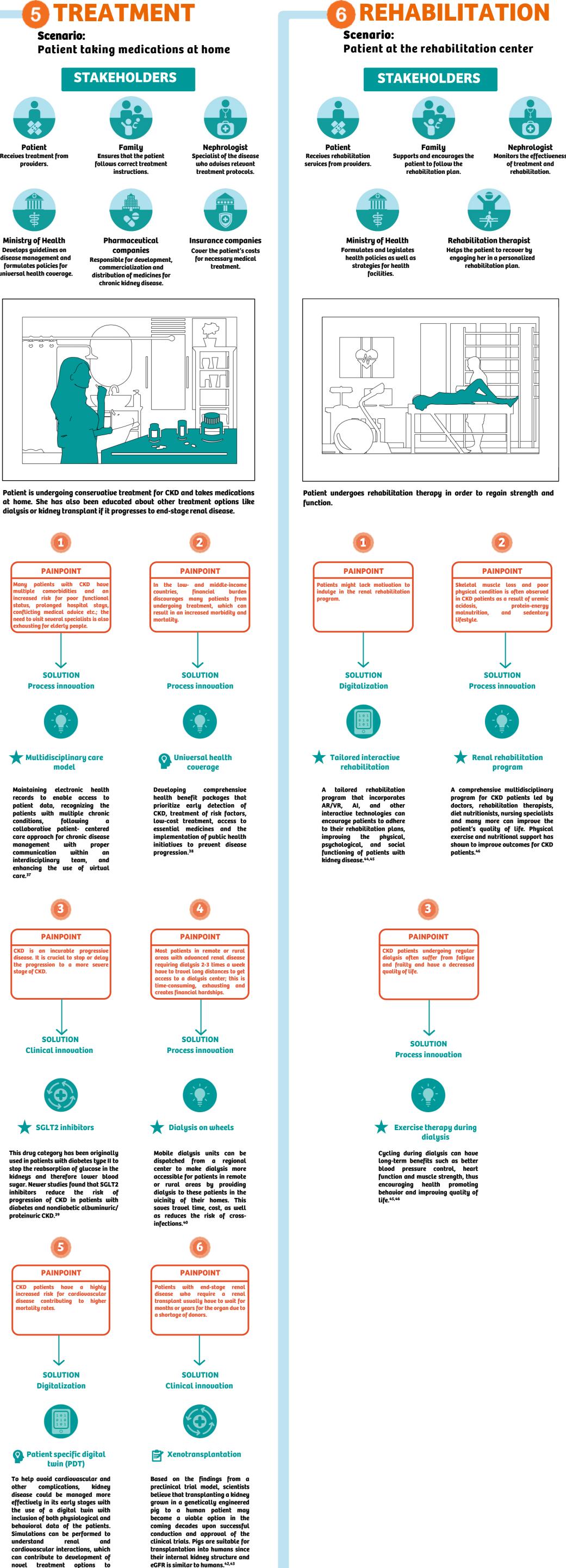
Scenario:



on the patient presentation.



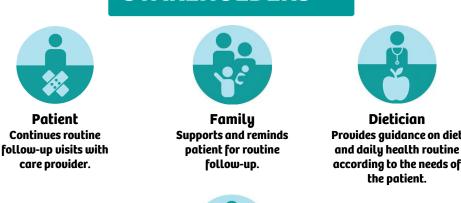


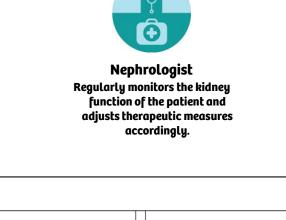


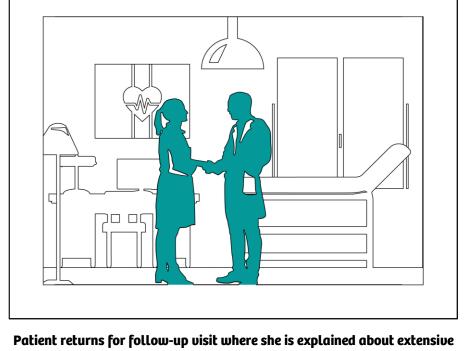


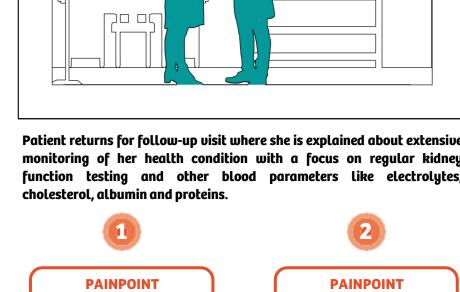
Innovation Think Tank

Proactively drive innovation to improve human life









fe-long therapy and follow-up co

hamper mental well-being of the

Process innovation

