

Impact CKD: The Growing Burden of CKD in Spain

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Key Findings

- ~46,000** Increase in number of patients on RRT from 2022 to 2032
- +€1.7 billion** Increase in total cost of RRT from 2022 to 2032
- >89%** Increase in RRT-related environmental consumption from 2022 to 2032
- ~138 million** Cumulative lost workdays from 2022 to 2032

Conclusions

- IMPACT CKD predicted increasing chronic kidney disease (CKD) prevalence, and an alarming elevation in stages 3-5 CKD and renal replacement therapy (RRT) patients, resulting in mounting burdens across multiple domains
- The observed impacts require the urgent attention of healthcare policy and decision makers to put strategies in place now to slow disease progression, through early intervention and optimized disease management.
- Understanding the convergence of clinical, economic, environmental, and social interventions is crucial, and minimizing those impacts requires unified efforts across sectors and policy fields to secure the wellbeing of people, society and the planet.

In 2032, the predicted environmental impact is equivalent to the **annual usage/consumption of:**

- Water usage of **23K houses**
- Power for **~2.3M light bulbs**
- CO₂ emissions of **~242K cars**

Introduction

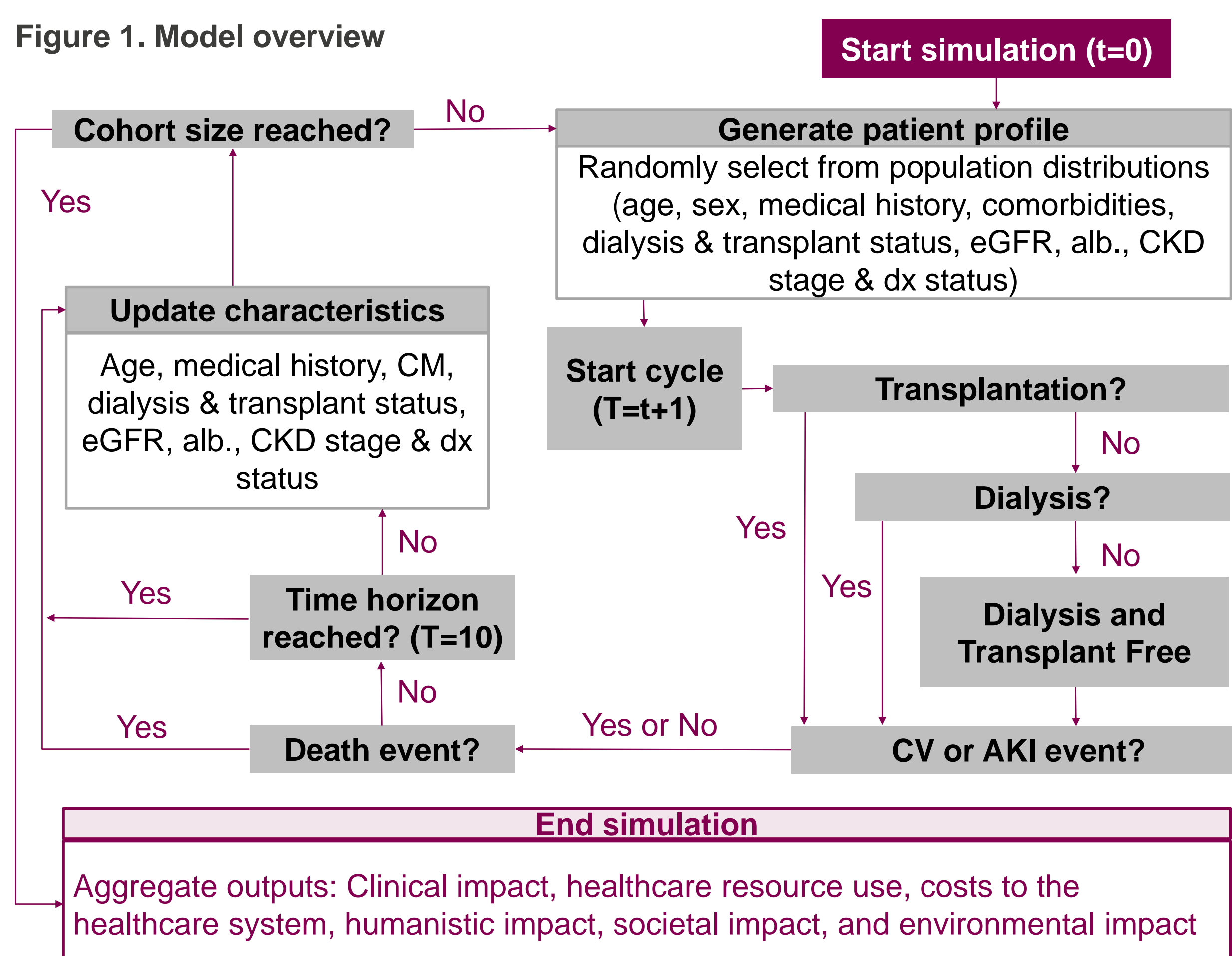
- The clinical impact, and significant cost and resource requirements associated with RRT are typically at the center of discussions on CKD burden. However, the broader environmental and societal implications of CKD require equally urgent exploration.
- To inform broader policy decision-making in healthcare, it is necessary to examine how CKD management correlates with burdens across clinical, economic, environmental, and societal domains, amongst other environmental factors.

Objective
To comprehensively quantify the clinical, economic, environmental, and societal burden of CKD in Spain over the next 10 years

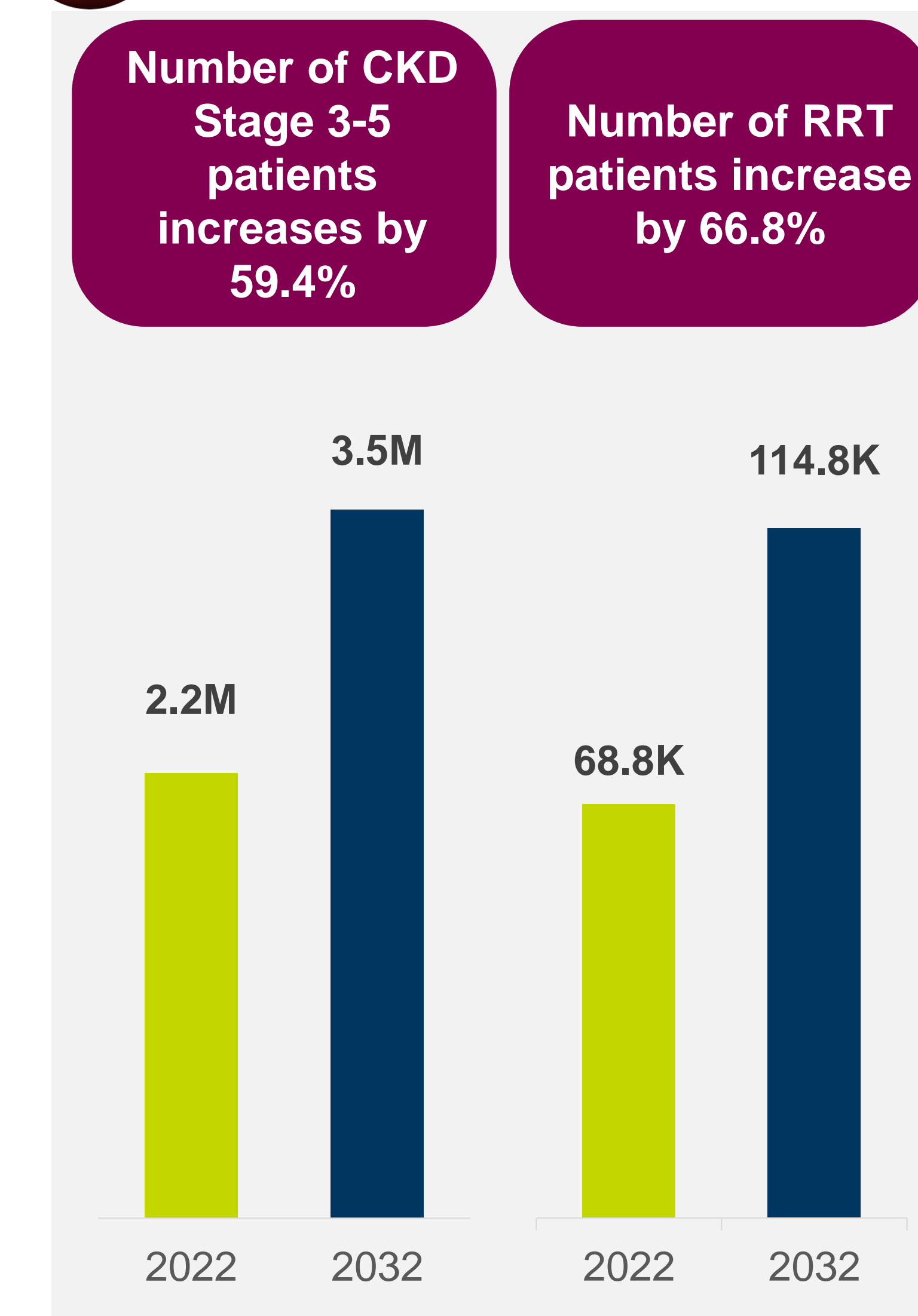
Methods

A patient-level simulation model, IMPACT CKD, was developed to simulate the natural history of CKD progression while incorporating the impact of acute kidney injury, cardiovascular (CV) events and comorbidities to assess the impact of CKD on environmental outcomes

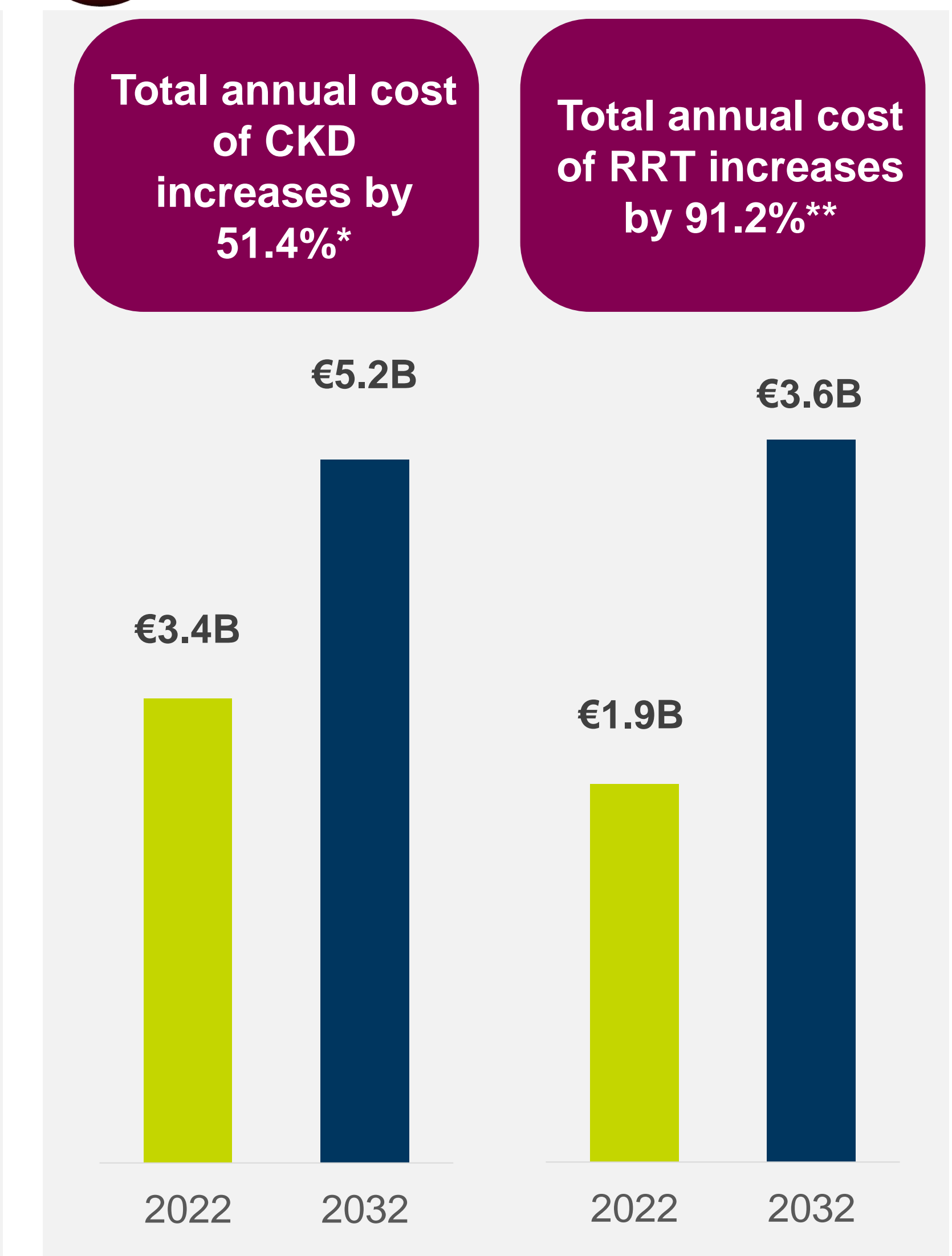
Figure 1. Model overview



Results – Clinical



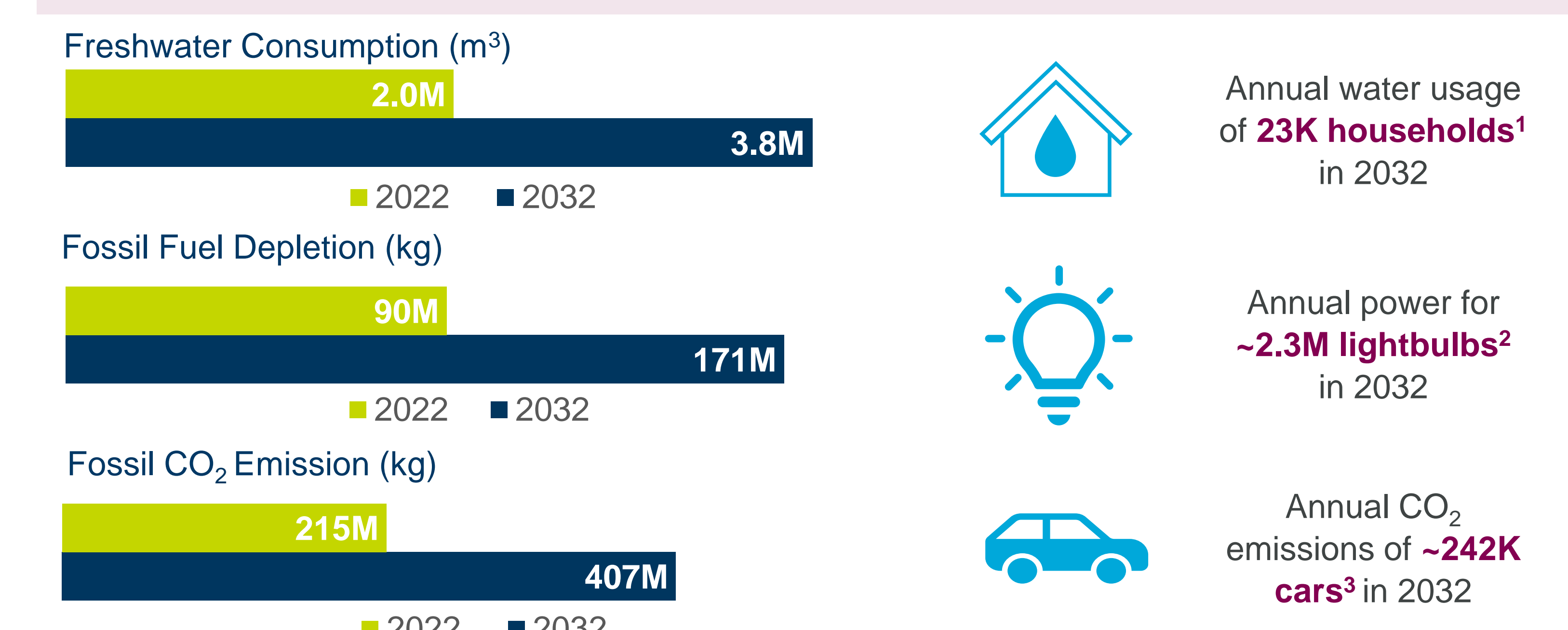
Results – Economic



*Includes costs for Stage 1 to pre-RRT stage 5 patients.
**Includes costs for dialysis and transplantations.

Results – Environmental

- Over the decade, IMPACT CKD predicted increases in freshwater consumption (93%), fossil fuel depletion (89%), and CO₂ emissions (89%), each comparable to the annual consumption or emission of several thousands of household units, lightbulbs, or cars, respectively.
- Visual representations of CKD's multifaceted environmental burden underscores the urgent need for sustainable solutions in CKD management.



Results – Societal

- From 2022 to 2032, CKD will result in **138M** cumulative missed workdays
- From 2022 to 2032, CKD will result in **105B** lost GDP (purchasing power parity)

Results – Clinical

~1 in 7 people will have CKD in 2032

- 65.8%** of CKD will remain undiagnosed in 2032
- From 2023 to 2032, CKD will result in a **58.0%** increase in cardiovascular events (from **52.0K** to **82.2K**)