

## SUPPLEMENTARY MATERIALS

**Title:** Budget impact analysis of expanding gliflozin coverage in the CKD population: a French perspective

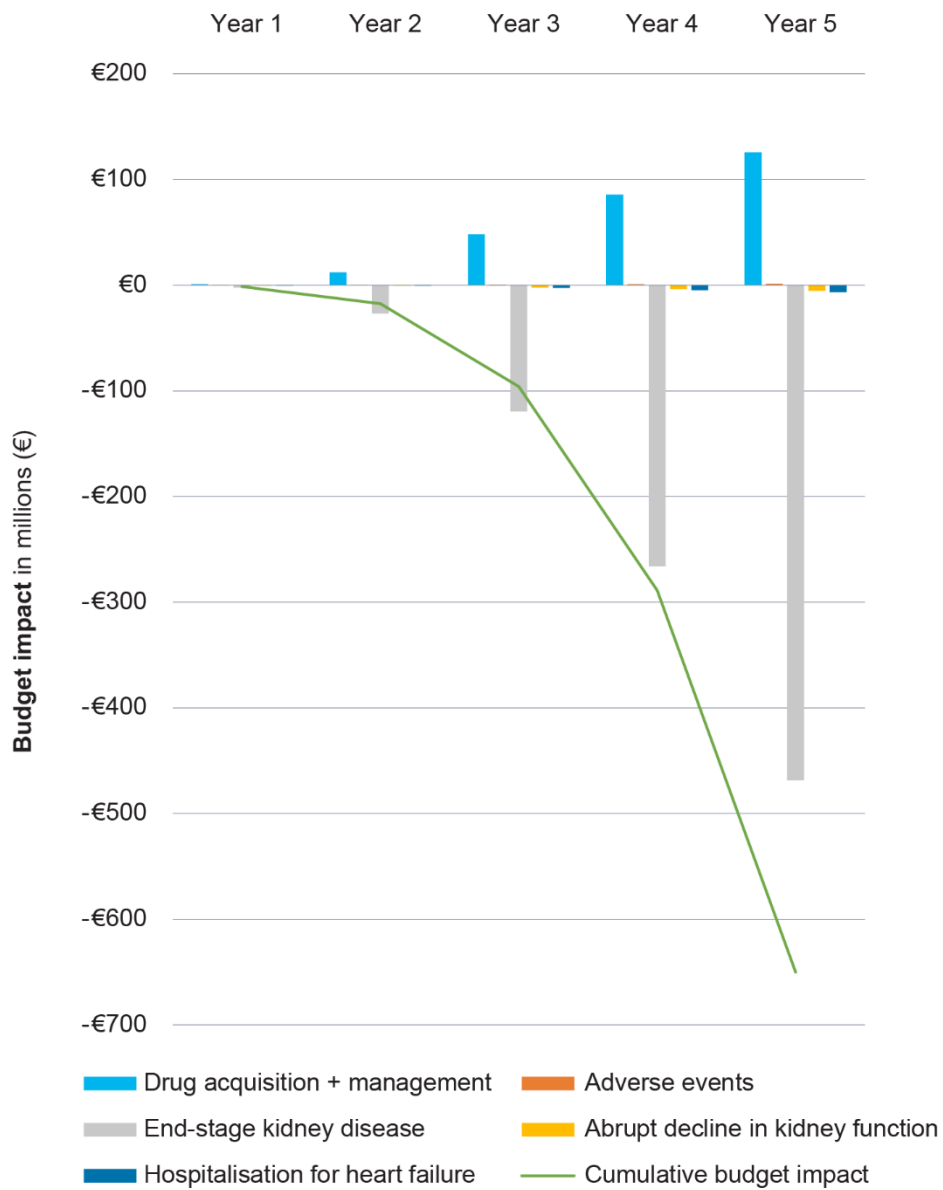
**Authors:** Gérard de Pouvourville,<sup>1</sup> Patrick Rossignol,<sup>2,3</sup> Meriem Boussahoua,<sup>4</sup> Julie Chevalier,<sup>4</sup> Peter D. Gabb,<sup>5</sup> Roch Poulmais,<sup>6</sup> Dorian Verboux,<sup>6,7</sup> Naveen Rao,<sup>8</sup> Elisabeth Sörstadius,<sup>9</sup> Juan Jose Garcia Sanchez<sup>8</sup>

*(1) ESSEC Business School, Cergy Pontoise, France, (2) Université de Lorraine, INSERM CIC Plurithématique 1433, Nancy CHRU, Inserm U1116, FCRIN INI-CRCT, Nancy, France, (3) Princess Grace Hospital, Monaco, (4) Vyo Agency, Paris, France, (5) Health Economics and Outcomes Research Ltd., Cardiff, United Kingdom, (6) AstraZeneca, Paris, France, (7) Laboratoire ERUDITE, Université Paris-Est Créteil, Créteil, France, (8) Global Market Access and Pricing, BioPharmaceuticals, AstraZeneca, Cambridge, UK, (9) Global Market Access and Pricing, AstraZeneca, Gothenburg, Sweden*

**Corresponding author:** Juan Jose Garcia Sanchez

Email: [juanjose.garciasanchez@astrazeneca.com](mailto:juanjose.garciasanchez@astrazeneca.com)

## Figures



**Figure S1. Five year budget impact outcomes in the central scenario with gliflozins versus the central scenario without gliflozins**

Cumulative budget impact outcomes are illustrated by the green line. Total annual costs are presented according to cost category. Negative values indicate that the scenario with gliflozins has lower costs than the scenario without gliflozins.

## Tables

*Table S1. Market shares of the modelled 10-year scenario analyses*

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>Lower scenario of public health action</b>										
<b>World without gliflozin</b>										
Standard therapy	379,000	380,445	381,860	383,249	384,615	385,963	387,296	388,617	389,928	391,229
<b>World with gliflozins</b>										
Gliflozins + standard therapy	758	11,413	64,916	99,645	123,077	135,087	143,299	155,447	179,367	203,439
Standard therapy	378,242	369,031	316,944	283,604	261,538	250,876	243,996	233,170	210,561	187,790
<b>Central scenario of public health action</b>										
<b>World without gliflozin</b>										
Standard therapy	379,000	416,689	479,318	553,917	641,746	705,921	737,687	763,506	776,486	781,921
<b>World with gliflozins</b>										
Gliflozins + standard therapy	2,143	26,772	105,859	187,925	275,951	340,254	387,286	419,928	446,479	466,025
Standard therapy	376,857	389,917	373,459	365,992	365,795	365,667	350,401	343,578	330,006	315,896
<b>Upper scenario of public health action</b>										
<b>World without gliflozin</b>										
Standard therapy	379,000	462,450	543,621	640,536	754,748	813,781	870,556	929,265	992,217	1,059,746
<b>World with gliflozins</b>										
Gliflozins + standard therapy	4,704	104,282	249,957	405,844	555,344	650,618	734,314	812,456	889,225	966,700
Standard therapy	374,296	358,214	293,610	234,692	199,404	163,163	136,242	116,809	102,893	93,046

**Table S2. Incremental clinical outcomes of lower and upper scenarios of public health action over a 10-year horizon**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
<b>Clinical outcomes (no. events avoided)</b>											
<b>Lower scenario of public health action</b>											
≥50% sustained decline in eGFR	-16	-242	-1,375	-2,111	-2,608	-2,862	-3,036	-3,294	-3,800	-4,310	-23,655
End-stage kidney disease	-10	-144	-817	-1,254	-1,549	-1,701	-1,804	-1,957	-2,258	-2,561	-14,055
<i>Dialysis</i>	-6	-89	-505	-775	-958	-1,051	-1,115	-1,209	-1,395	-1,583	-8,686
<i>Transplant</i>	-4	-55	-312	-479	-592	-650	-689	-748	-863	-978	-5,369
Hospitalisation for heart failure	-6	-90	-513	-787	-972	-1,067	-1,132	-1,228	-1,417	-1,607	-8,819
Abrupt decline in kidney function	-4	-67	-383	-587	-726	-796	-845	-916	-1,057	-1,199	-6,581
All-cause mortality	-4	-58	-332	-509	-629	-690	-732	-794	-916	-1,039	-5,703
<b>Central scenario of public health action</b>											
≥50% sustained decline in eGFR	-45	-567	-2,243	-3,982	-5,847	-7,209	-8,206	-8,897	-9,460	-9,874	-56,329
End-stage kidney disease	-27	-337	-1,333	-2,366	-3,474	-4,283	-4,875	-5,286	-5,621	-5,867	-33,468
<i>Dialysis</i>	-17	-208	-824	-1,462	-2,147	-2,647	-3,013	-3,267	-3,474	-3,626	-20,683
<i>Transplant</i>	-10	-129	-509	-904	-1,327	-1,636	-1,862	-2,019	-2,147	-2,241	-12,785
Hospitalisation for heart failure	-17	-211	-836	-1,484	-2,180	-2,688	-3,059	-3,317	-3,527	-3,681	-21,001
Abrupt decline in kidney function	-13	-158	-624	-1,108	-1,627	-2,006	-2,283	-2,475	-2,632	-2,747	-15,672
All-cause mortality	-11	-137	-541	-960	-1,410	-1,738	-1,978	-2,145	-2,281	-2,380	-13,580
<b>Upper scenario of public health action</b>											
≥50% sustained decline in eGFR	-100	-2,209	-5,296	-8,599	-11,766	-13,785	-15,558	-17,213	-18,841	-20,482	-113,849
End-stage kidney disease	-59	-1,313	-3,147	-5,109	-6,991	-8,191	-9,244	-10,227	-11,194	-12,170	-67,644
<i>Dialysis</i>	-37	-811	-1,945	-3,157	-4,320	-5,062	-5,713	-6,320	-6,918	-7,521	-41,804
<i>Transplant</i>	-23	-501	-1,202	-1,952	-2,671	-3,129	-3,531	-3,907	-4,276	-4,649	-25,840
Hospitalisation for heart failure	-37	-824	-1,974	-3,206	-4,387	-5,140	-5,800	-6,418	-7,024	-7,636	-42,446
Abrupt decline in kidney function	-28	-615	-1,473	-2,392	-3,274	-3,835	-4,329	-4,789	-5,242	-5,699	-31,676
All-cause mortality	-24	-533	-1,277	-2,073	-2,837	-3,323	-3,751	-4,150	-4,542	-4,938	-27,447

**Table S3. Deterministic sensitivity analysis outcomes**

Scenario	Lower limit			Upper limit		
	Without gliflozins (€)	With gliflozins (€)	Budget impact (€)	Without gliflozins (€)	With gliflozins (€)	Budget impact (€)
Base case	5,776,072,252	5,414,876,931	-650,139,246	NA	NA	NA
<b>Event rates (±20%)</b>						
Gliflozins; ESKD; prior to ESKD	5,776,072,252	5,229,487,405	-997,814,425	5,776,072,252	5,599,342,454	-304,196,919
Gliflozins; hospitalisation for heart failure; prior to ESKD	5,776,072,252	5,413,585,052	-652,941,856	5,776,072,252	5,416,166,745	-647,341,113
Gliflozins; abrupt decline in kidney function; prior to ESKD	5,776,072,252	5,412,452,784	-655,398,207	5,776,072,252	5,417,294,304	-644,894,978
Gliflozins; all-cause mortality; prior to ESKD	5,776,072,252	5,411,358,255	-660,078,545	5,776,072,252	5,418,392,846	-640,228,344
Placebo; ESKD; prior to ESKD	4,737,656,067	4,653,150,701	-130,396,214	6,806,631,751	6,170,839,918	-1,165,949,887
Placebo; hospitalisation for heart failure; prior to ESKD	5,770,183,592	5,411,520,394	-644,646,036	5,781,942,113	5,418,222,751	-655,614,917
Placebo; abrupt decline in kidney function; prior to ESKD	5,768,165,340	5,410,369,990	-642,763,319	5,783,947,622	5,419,365,892	-657,485,747
Placebo; all-cause mortality; prior to ESKD	5,809,087,208	5,450,571,573	-639,506,351	5,743,947,768	5,380,052,232	-660,750,984
Gliflozins; hospitalisation for heart failure; post-ESKD	5,776,072,252	5,414,844,249	-650,210,145	5,776,072,252	5,414,909,560	-650,068,460
Gliflozins; abrupt decline in kidney function; post-ESKD	5,776,072,252	5,414,815,606	-650,272,285	5,776,072,252	5,414,938,084	-650,006,578
Gliflozins; all-cause mortality; post-ESKD	5,776,072,252	5,414,710,959	-650,499,305	5,776,072,252	5,415,042,174	-649,780,765
Placebo; hospitalisation for heart failure; post-ESKD	5,775,844,336	5,414,747,019	-649,926,635	5,776,299,441	5,415,006,428	-650,351,177
Placebo; abrupt decline in kidney function; post-ESKD	5,775,766,222	5,414,702,493	-649,853,766	5,776,377,062	5,415,050,672	-650,423,586
Placebo; all-cause mortality; post-ESKD	5,775,257,499	5,414,412,521	-649,379,206	5,776,881,974	5,415,338,472	-650,894,590
<b>Adverse event rates (±20%)</b>						
Gliflozins; volume depletion rate	5,776,072,252	5,414,621,090	-650,694,268	5,776,072,252	5,415,132,771	-649,584,223
Gliflozins; major hypoglycaemia rate	5,776,072,252	5,414,737,403	-650,441,938	5,776,072,252	5,415,016,458	-649,836,553
Gliflozins; fracture rate	5,776,072,252	5,414,482,310	-650,995,338	5,776,072,252	5,415,271,551	-649,283,153
Gliflozins; diabetic ketoacidosis rate*	5,776,072,252	5,414,876,931	-650,139,246	5,776,072,252	5,414,876,931	-650,139,246
Gliflozins; amputation rate	5,776,072,252	5,412,529,606	-655,231,550	5,776,072,252	5,417,224,256	-645,046,941
Placebo; volume depletion rate	5,775,171,813	5,414,363,680	-649,299,275	5,776,972,692	5,415,390,181	-650,979,216
Placebo; major hypoglycaemia rate	5,775,599,368	5,414,607,387	-649,698,117	5,776,545,137	5,415,146,475	-650,580,374
Placebo; fracture rate	5,775,516,701	5,414,560,266	-649,621,002	5,776,627,804	5,415,193,595	-650,657,489
Placebo; diabetic ketoacidosis rate*	5,776,003,316	5,414,837,637	-650,074,938	5,776,141,189	5,414,916,225	-650,203,553
Placebo; amputation rate	5,771,411,925	5,412,220,544	-645,791,881	5,780,732,580	5,417,533,317	-654,486,610
<b>Event costs (±20%)</b>						
Dialysis; prior to ESKD	5,540,874,248	5,213,846,476	-576,015,904	6,011,270,257	5,615,907,385	-724,262,587
Transplant; prior to ESKD	5,650,328,641	5,307,400,274	-610,510,778	5,901,815,863	5,522,353,588	-689,767,713
Hospitalisation for heart failure; prior to ESKD	5,770,145,749	5,410,202,804	-647,422,329	5,781,998,756	5,419,551,057	-652,856,162
Abrupt decline in kidney function; prior to ESKD	5,768,101,747	5,407,895,973	-647,992,513	5,784,042,758	5,421,857,888	-652,285,978
All-cause mortality; prior to ESKD	5,767,226,171	5,407,535,870	-646,874,241	5,784,918,334	5,422,217,991	-653,404,250
Hospitalisation for heart failure; post-ESKD	5,775,842,872	5,414,713,398	-649,996,395	5,776,301,633	5,415,040,464	-650,282,096

Scenario	Lower limit			Upper limit		
	Without gliflozins (€)	With gliflozins (€)	Budget impact (€)	Without gliflozins (€)	With gliflozins (€)	Budget impact (€)
Abrupt decline in kidney function; post-ESKD	5,775,763,760	5,414,639,421	-649,985,257	5,776,380,745	5,415,114,441	-650,293,234
All-cause mortality; post-ESKD	5,775,729,872	5,414,623,620	-649,946,017	5,776,414,633	5,415,130,242	-650,332,474
Dialysis (maintenance); prior to ESKD	5,156,027,596	4,831,717,252	-593,984,466	6,396,116,909	5,998,036,609	-706,294,025
Transplant (maintenance); prior to ESKD	5,702,687,997	5,345,858,130	-643,493,149	5,849,456,508	5,483,895,732	-656,785,342
Volume depletion cost	5,775,171,813	5,414,107,840	-649,854,297	5,776,972,692	5,415,646,022	-650,424,194
Major hypoglycaemia cost	5,775,599,368	5,414,467,859	-650,000,810	5,776,545,137	5,415,286,003	-650,277,681
Fracture cost	5,775,516,701	5,414,165,646	-650,477,094	5,776,627,804	5,415,588,216	-649,801,397
Diabetic ketoacidosis cost	5,776,003,316	5,414,837,637	-650,074,938	5,776,141,189	5,414,916,225	-650,203,553
Amputation cost	5,771,411,925	5,409,873,219	-650,884,186	5,780,732,580	5,419,880,642	-649,394,305

*ESKD: end-stage kidney disease*

*Note: negative values indicate the budget savings in the “world with gliflozins” scenario versus the “world without gliflozins” scenario.*