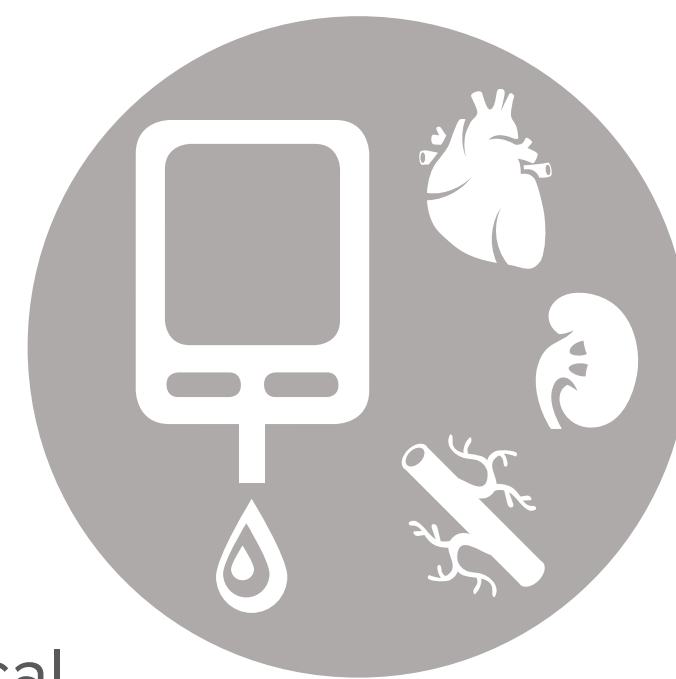


JOACHIM TRIER, PharmD, PhD; DAYAN GUNESEKERA, BA; WebMD Global, LLC

BACKGROUND

Atherosclerotic cardiovascular disease (ASCVD) is the leading cause of death in people with type 2 diabetes (T2D), who often have additional risk factors such as chronic kidney disease (CKD), hypertension, dyslipidemia, obesity, physical inactivity and smoking. Based on the results from large-scale cardiovascular (CV) outcome trials, international societies have recently adjusted their recommendations for the individualized treatment of persons with T2D.^{1,3}

The purpose of this analysis was to assess whether simulation-based online education improves the performance of ex-US cardiologists (C), diabetologists/endocrinologists (D/E) and primary care physicians (PCP) regarding tailored strategies for patients with T2D at high CV risk with CKD.



METHODS

Evaluated completers for the 2 cases:

Cardiologists (n = 296/154)

Diabetologists/Endocrinologists (D/Es) (n = 236/128)

Primary Care Physicians (PCPs) (n = 228/157)

- Two patient cases were presented in an immersive, virtual patient simulation (VPS) platform designed to replicate the real-life decision-making process allowing learners to order lab tests, assess patients, make diagnoses, and prescribe treatments.

- Tailored clinical guidance (CG) was provided for each clinical decision (CD) so learners could modify their CDs and indicate their rationale.

- Physicians who fully completed each case were evaluated. Each learner's pre-/post CDs were analyzed using a sophisticated decision engine and a paired t-test to assess statistical significance ($P < .05$ level).

- The activity posted on 1/31/2019; data were collected through 10/1/2019.

RESULTS

Upon completion of this educational activity C, D/E and PCP demonstrated improved performance in making appropriate, evidence-based Clinical Decisions (CD, all $P < .05$)

PATIENT CASE 1



HAZEL T. CASE SUMMARY

Hazel is a 78-year-old woman with a long history of T2D and previous non-ST-elevation myocardial infarction (NSTEMI). She presents today for an annual wellness exam.

Age: 78 years Gender: Female
Weight: 79.0 kg Height: 162.6 cm
BMI: 29.9 Allergies: None

- Ordering a suitable diagnostic workup to establish elevated reno-vascular risks resulting in a significantly higher proportion of correct diagnoses of CKD

Learning Objective One

Decision Points	Responses	% Improvement	P-Value
Diagnose: Chronic Kidney Disease (CKD) - Stage 2	9.79% 13.9% 10.5%	+47.2% +42.3% +49.1%	+482% ↑ <.001 +303% ↑ <.001 +466% ↑ <.001
	<div style="display: flex; justify-content: space-between;"> ■ Cardio % PRE ■ D/Es % PRE ■ PCPs % PRE </div> <div style="display: flex; justify-content: space-between;"> ■ Cardio % POST ■ D/Es % POST ■ PCPs % POST </div>		

- Tailoring a comprehensive risk management plan including increased patient education, weight management, foot examination and sodium glucose cotransporter-2 (SGLT2) inhibitor or glucagon-like peptide-1 (GLP-1) receptor agonist (RA) prescriptions

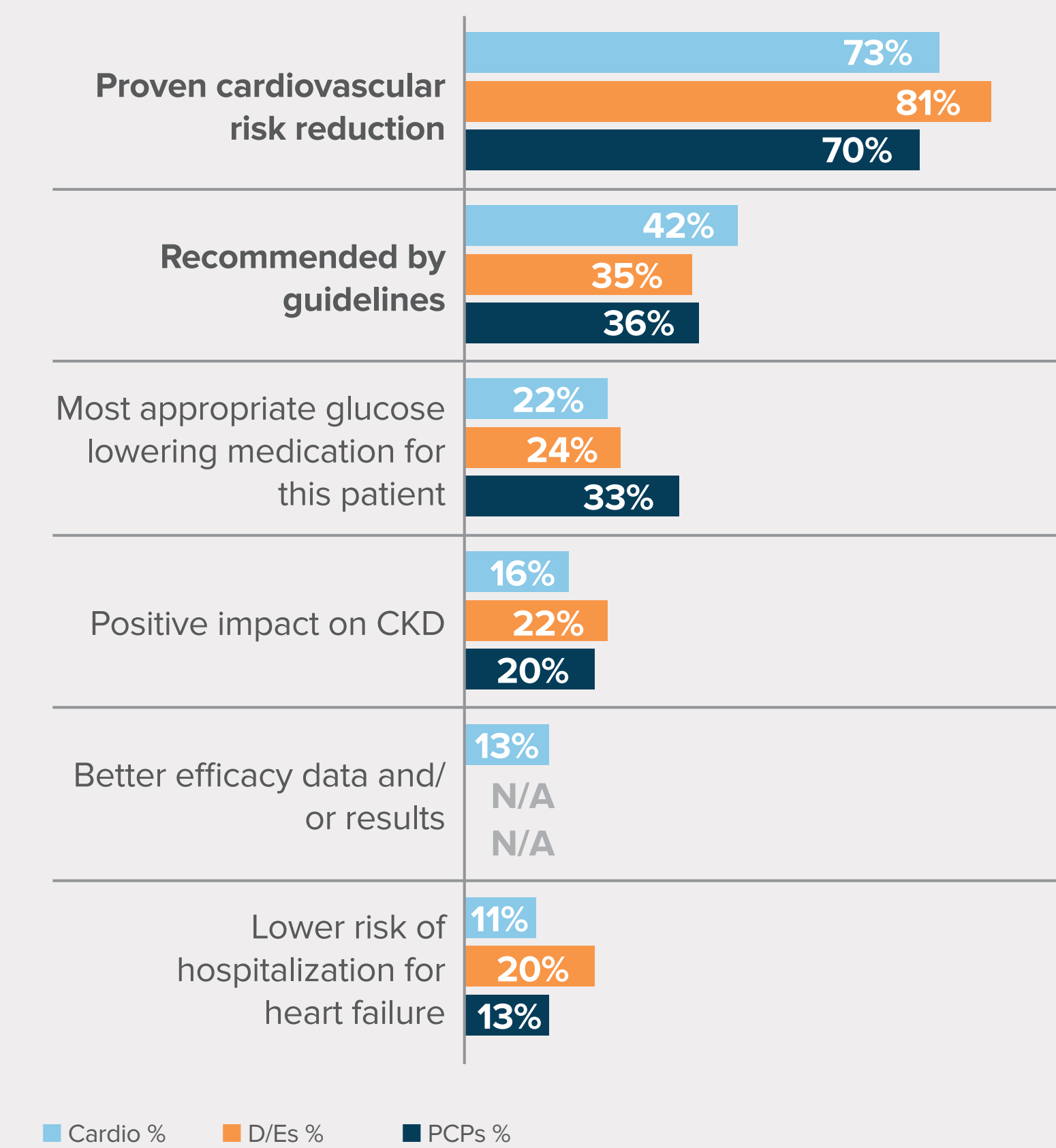
Treatment Selections

Decision Points	Responses	% Improvement	P-Value
Canagliflozin	1.01% .43% N/A	+2.7% +2.11%	+266% ↑ <.001 +500% ↑ =.004
Dapagliflozin	5.4% 5.5% 4.82%	+7.43% +4.23% +9.64%	+137% ↑ <.001 +76.9% ↑ <.001 +200% ↑ <.001
Empagliflozin	22.6% 29.2% 22.3%	+36.4% +42.3% +30.2%	+161% ↑ <.001 +144% ↑ <.001 +135% ↑ <.001
Exenatide	1.67% N/A N/A	0%	0% =.5
Liraglutide	2.36% 6.35% N/A	+3.4% +8.4%	+14.2% ↑ =.08 +13.3% ↑ =.06
Semaglutide	N/A .84% N/A	+4.3%	+50% ↑ NAN
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Predominant reasons for selecting an SGLT2 inhibitor (preferably empagliflozin)

- Proven CV risk reduction
- Recommended by guidelines

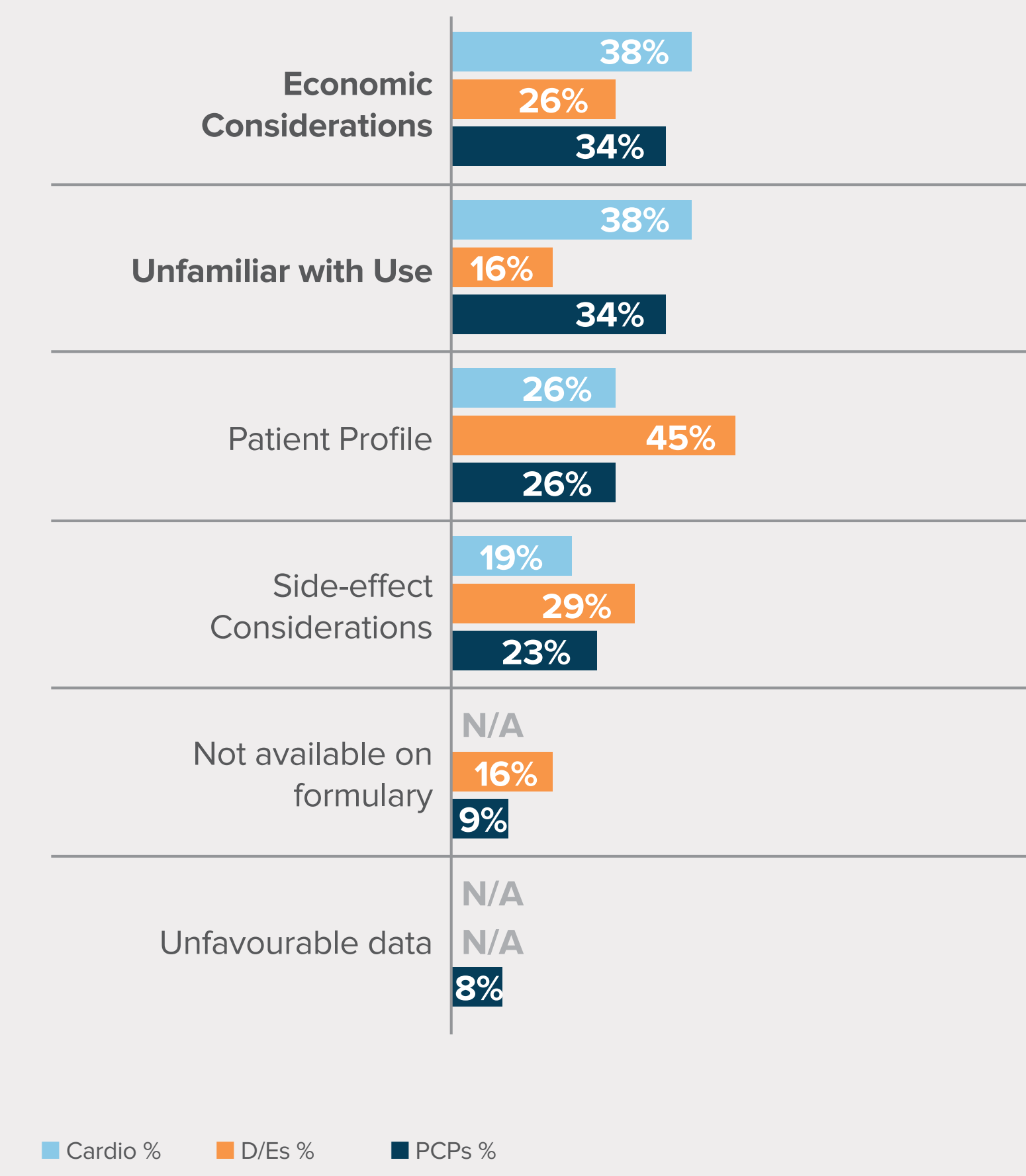
Start: Empagliflozin, Rationales



Main reasons for not choosing an SGLT2 inhibitor

- Economic considerations
- Unfamiliarity with use

Skipping a SGLT-2 Inhibitor, Rationale



PATIENT CASE 2



DECLAN A. CASE SUMMARY

The patient is a 69-year-old white man who was diagnosed with type 2 diabetes (T2D) 13 years ago. His medication regimen has been intensified over the years, and he has expressed concern about someday requiring insulin therapy. He does not want to have to give himself injections like his uncle.

Age: 69 years Gender: Male
Weight: 120.0 kg Height: 193 cm
BMI: 32.2 Allergies: Sulfa

- Ordering a suitable diagnostic workup to establish elevated reno-vascular risks resulting in a significantly higher proportion of correct diagnoses of hypertension

Learning Objective One

Decision Points	Responses	% Improvement	P-Value
Diagnose: Hypertension	10.2% 21.8% 15.9%	+36.3% +39% +41.4%	+224% ↑ <.001 +178% ↑ <.001 +260% ↑ <.001
	<div style="display: flex; justify-content: space-between;"> ■ Cardio % PRE ■ D/Es % PRE ■ PCPs % PRE </div> <div style="display: flex; justify-content: space-between;"> ■ Cardio % POST ■ D/Es % POST ■ PCPs % POST </div>		

- Tailoring a comprehensive risk management plan including increased patient education, weight management, foot examination and SGLT2 inhibitor or GLP-1 RA prescriptions

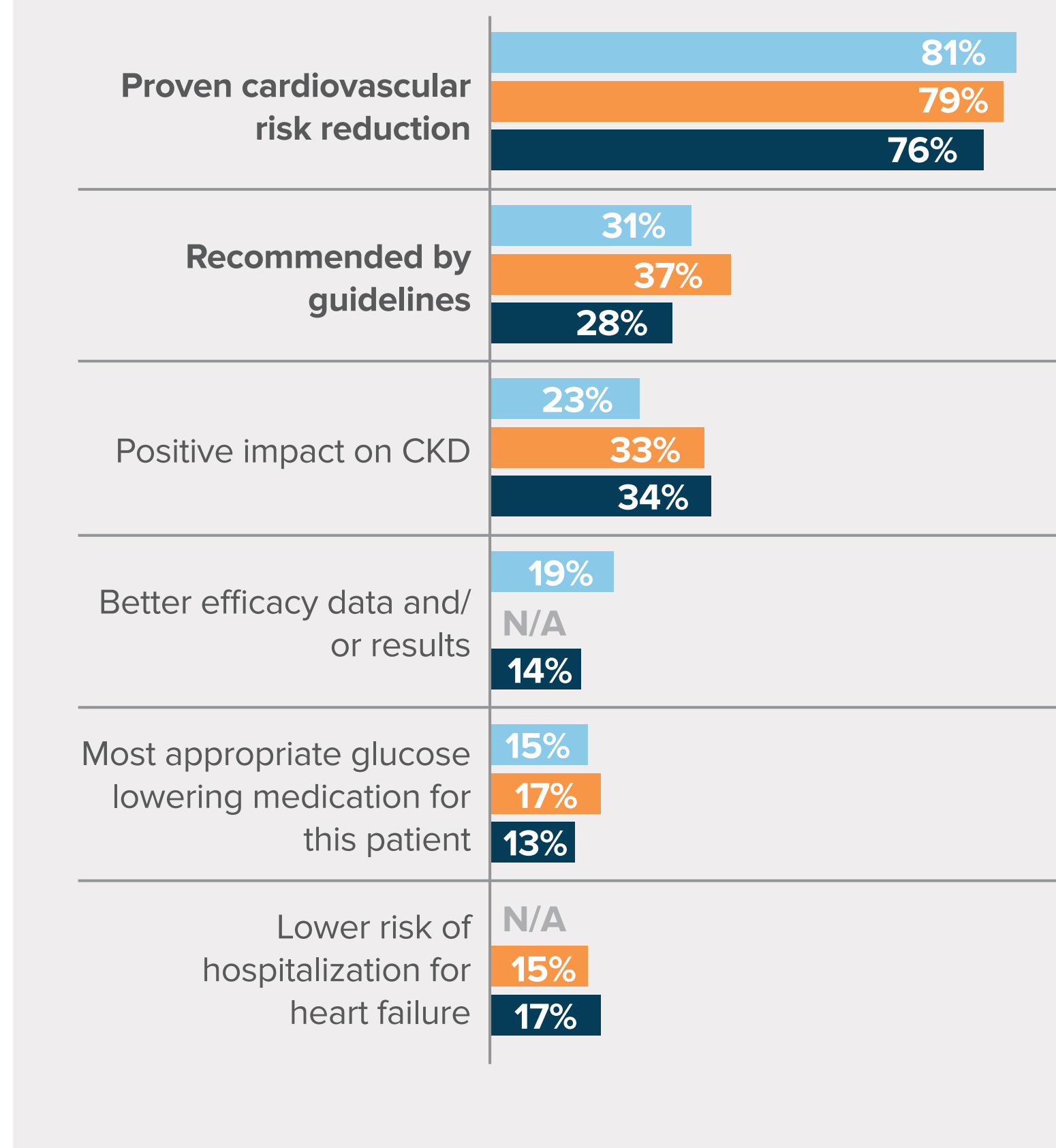
Treatment Selections

Decision Points	Responses	% Improvement	P-Value
Canagliflozin	.64% 2.34% N/A	+0% +1.56%	0% NAN +66.6% ↑ =.1
Empagliflozin	27.9% 43.7% 22.9%	+27.9% +28.9% +28.6%	+100% ↑ <.001 +66% ↑ <.001 +125% ↑ <.001
Exenatide	.64% N/A N/A	+1.29%	+200% ↑ =.18 0% =.42
Liraglutide	.67% 2.34% 1.91%	+21.4% +23.4%	3300% =.5 1000% <.001 1166% <.001
Semaglutide	N/A .78% N/A	+4.54% +2.34%	0% <.001 +300% ↑ =.039
	<div style="display: flex; justify-content: space-between;"> ■ Cardio % PRE ■ D/Es % PRE ■ PCPs % PRE </div> <div style="display: flex; justify-content: space-between;"> ■ Cardio % POST ■ D/Es % POST ■ PCPs % POST </div>		

Predominant reasons for selecting an SGLT2 inhibitor (preferably empagliflozin)

- Proven CV risk reduction
- Recommended by guidelines

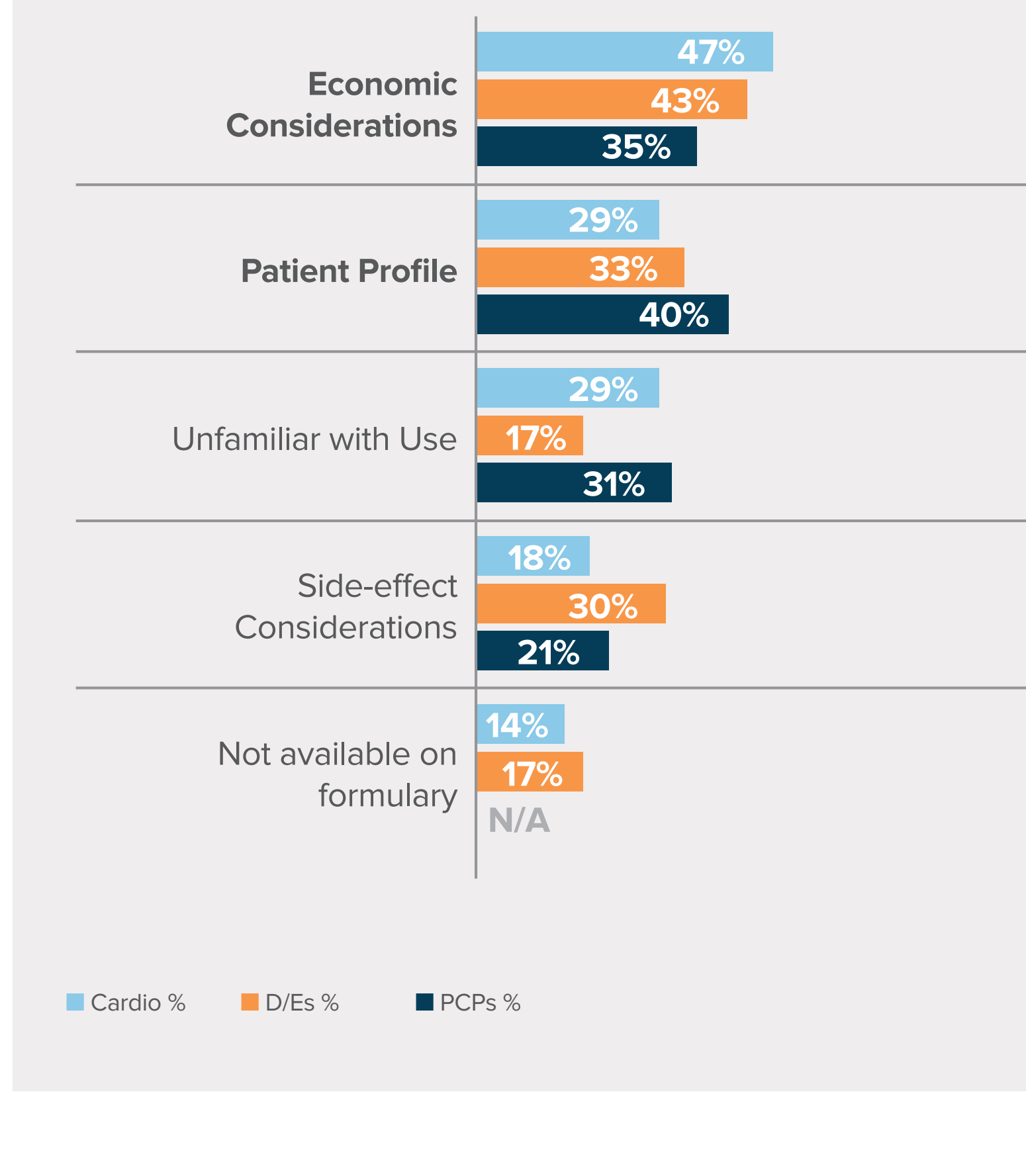
Start: Empagliflozin, Rationales



Main reasons for not choosing an SGLT2 inhibitor

- Economic considerations
- Patient Profile

Skipping a SGLT-2 Inhibitor, Rationale



CONCLUSIONS

- This study demonstrates that a virtual patient simulation (VPS)-based education that immerses and engages cardiologists, diabetologists/endocrinologists, and primary care physicians in an authentic and practical learning experience can improve evidence-based clinical decisions related to the crucial aspects of managing type 2 diabetes in patients at high cardiovascular risk with chronic kidney disease.

- Collection of learners' decision-making rationale data combined with the immersive and realistic nature of VPS provides insight into the decision-making process of physicians in actual clinical practice at the point of care.

ACKNOWLEDGEMENTS

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