Operational and clinical drivers of subcutaneous PD-1/PD-L1 inhibitor adoption: A mixed-methods analysis of U.S. oncology practice patterns.

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Background:

Subcutaneous (SC) formulations of PD-1/PD-L1 inhibitors have recently been approved across multiple solid tumors. While these agents offer operational and patient-centric advantages, their perceived clinical value relative to established intravenous (IV) formulations remains unclear. Understanding real-world oncologist perceptions may inform future adoption patterns and practice impact.

Methods:

A national mixed-methods study surveyed 102 U.S. hematologist-oncologists from academic (44%, n=45) and community (56%, n=57) practices across all U.S. regions (Nov-Dec 2025). A structured online questionnaire assessed brand utilization, regimen sequencing, physician satisfaction, switching behavior, and perceived comparative benefit between pembrolizumab- and nivolumab-based therapies using Likert-type scales and utilization metrics. All participants met predefined patient volume and clinical practice criteria. Eight qualitative interviews explored drivers of brand choice, sequencing, and switching decisions.

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Disclosures:

S. Hendry and O. Parry are employees of Spherix Global Insights; no industry funding was received. K.P. Ku reports consulting/advisory roles with AstraZeneca; travel support from Illinois Cancer Care and US Oncology; expert testimony for Gerson Lehrman Group; other relationships with the University of Chicago; and honoraria from Research to Practice.

Research Methodology

Quantitative Sample

- 30-minute online survey
- Participants (n=102) were offered an honorarium for participating
- Fieldwork was conducted November 10 through December 3, 2025

Qualitative Sample

- 30-minute tele-web interview
- Participants (n=8) were offered an honorarium for participating
- Fieldwork was conducted November 10 through December 12, 2025

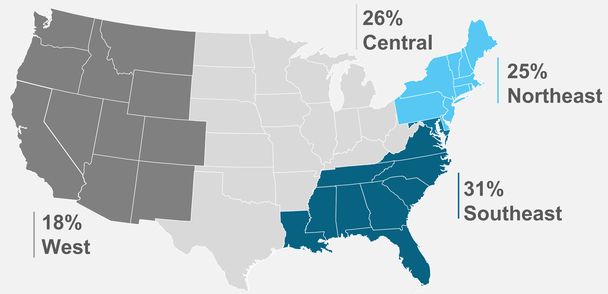

Figure 1 **Greatest Benefits to Subcutaneous Modality**
% of respondents

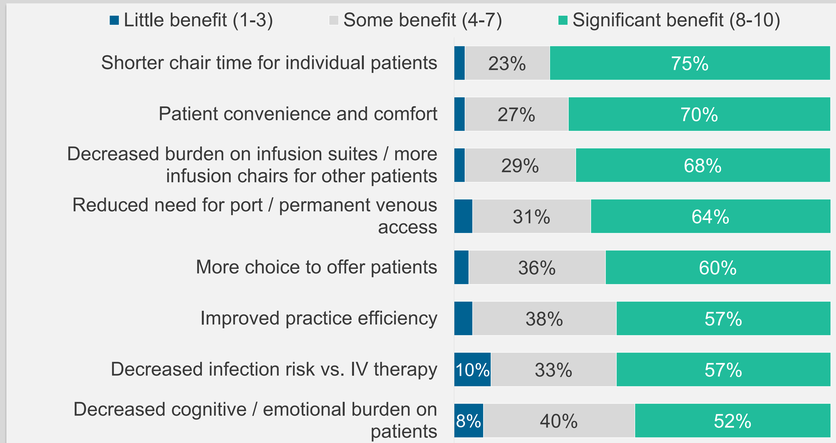

Figure 2 **Greatest Barriers to Subcutaneous Modality**
% of respondents

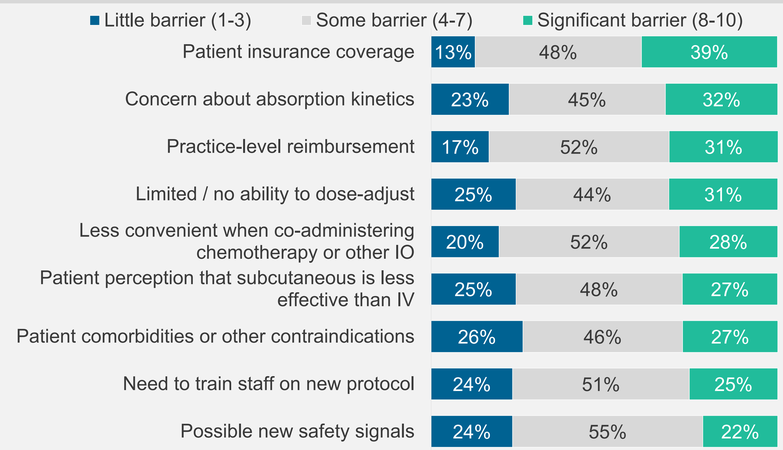

Figure 3 **Advance of Subcutaneous Formulations for PD-1/PD-L1 Inhibitors vs. IV Counterparts**
% of respondents

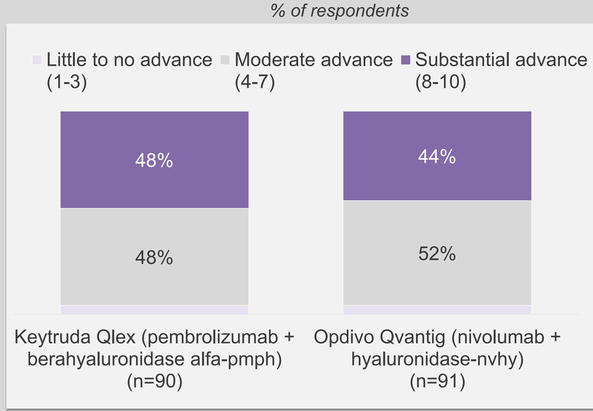

Figure 4-5 **Current and Projected Treatment Share Across Tumor Types**
% of respondents

Figure 4

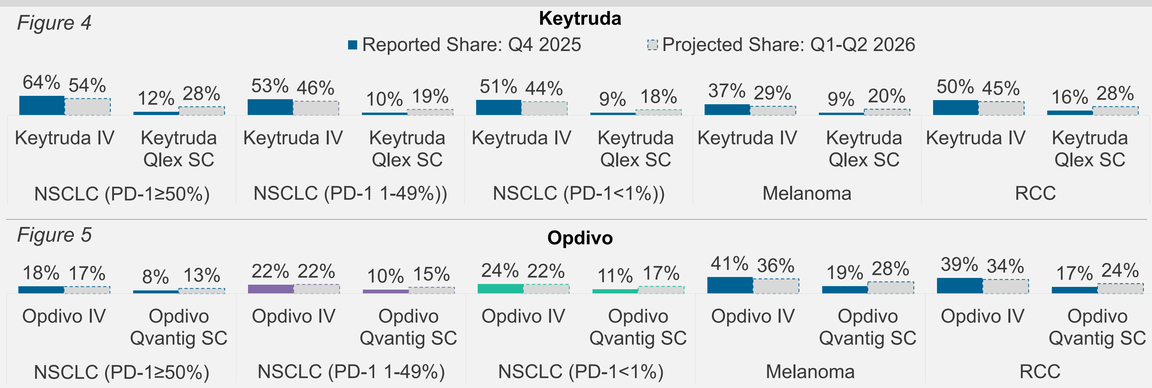

Figure 5

Results:

Across tumor types, oncologists reported modest current use of SC PD-1/PD-L1 inhibitors, with incremental uptake expected over the next six months (Fig. 4-5). SC formulations were viewed as convenience-enhancing rather than clinically transformative (Fig. 3), with reduced chair time (75% reporting significant benefit), improved infusion center efficiency (68%), and better patient experience (70%) cited as key benefits (Fig. 1). Approximately half of PD-1/PD-L1–eligible patients across NSCLC, melanoma, and RCC were considered suitable for SC administration. Perceived benefit was largely limited to monotherapy and maintenance settings, with limited added value in curative-intent or combination regimens where infusion time is driven by other agents. In NSCLC, projected near-term uptake of SC PD-1/PD-L1 therapy was highest among PD-L1–high patients receiving monotherapy, while in melanoma and RCC, SC was more often positioned later in the treatment sequence, particularly after treatment stability. Insurance coverage (39% reporting a significant barrier) and cost (58%) were the primary barriers to broader adoption, outweighing concerns about safety (22%) or efficacy (27%) (Fig. 2). Overall uptake was expected to primarily substitute for IV monotherapy rather than expand total PD-1/PD-L1 use.

Conclusion:

U.S. oncologists view SC PD-1/PD-L1 inhibitors as operational alternatives to IV therapy, with adoption driven by efficiency and patient convenience and constrained by payer dynamics. SC administration is best positioned to enhance care delivery in monotherapy and maintenance settings, with limited incremental value in curative-intent or combination regimens. Addressing real-world access barriers will be key to broader integration across solid tumors.

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