

## Patient Preferences and Willingness to Pay for Enhancements to Subcutaneous Injection Devices Used to Treat Rheumatoid Arthritis

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**Background/Purpose:** Subcutaneous (SC) injection is used to deliver certain biologic therapies for moderate to severe rheumatoid arthritis (RA). Characteristics of injection devices may affect patient preferences for therapy administration. This study assessed patient preferences for enhancements to SC injectable devices.

**Methods:** An online patient survey employing a discrete choice experimental design was conducted in patients with RA recruited from a representative research panel. Patients were  $\geq 18$  years of age and, based on self-report, had a medical diagnosis of RA and were currently using prescription oral or injected medication for RA. Patients were asked to choose between hypothetical treatments with varying SC injection device characteristics: needle size (27-gauge (G) or thinner 29-G), manufactured without natural rubber (yes/no), and storage temperature requirements (requires constant refrigeration or can be left at room temperature for up to 2 weeks). To assess the value of the improved SC injectable device, we estimated the willingness of patients to pay (WTP) for those improvements in terms of their out-of-pocket copayment. Multivariate logistic regression was used to estimate associations between treatment choices and device-characteristics, and WTP for preferred treatment choices was calculated. Data were analyzed for all patients and for the subgroups of injection-experienced and injection-naïve patients.

**Results:** The majority of the 797 study participants were women in their mid- to late-50s with mean duration of RA  $\sim 14$  years; 32% had previously used injected drugs as therapy for RA. A device manufactured without natural rubber that had a 29-G needle and could be stored without refrigeration for up to 2 weeks was preferred by 74% of all participants compared to a device manufactured with natural rubber that had a 27-G needle and required refrigeration. WTP for these enhancements was \$29.03 for a without natural rubber device, \$26.88 to reduce needle size from 27G to 29G, and \$16.90 for the convenience of storing the device at room temperature for up to 2 weeks. Preference for enhancements was similar among injection-experienced and injection-naïve patients (**Figure**). No statistically significant differences in WTP were seen for injection-experienced vs injection-naïve patients (manufactured without natural rubber, \$34.01 vs. \$26.75; thinner needle, \$31.92 vs \$24.69; ability to store the device at room temperature for 2 weeks, \$16.05 vs \$16.82). Overall, patients were willing to add \$72.81 (184%) to their \$39.62 average, monthly, RA-specific drug copay for the new device.

**Conclusion:** Regardless of previous experience with injectable therapy, patients with RA highly valued a SC injection device that had a thinner needle, did not require continuous refrigeration, and was manufactured without natural rubber.

### Patient Preferences for SC Injection Device

