Better Training, Fewer Errors, Lower Cost: A Clinical and Economic Analysis of training modalities, error rates and costs.

Comparing Nurse-Led Training, a Self-Guided Onboarding Kit, and Instructions for Use Alone on Self-Injection Errors and Cost in Specialty Pharmacy Initiation

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Background

Patients initiating self-injectable specialty biologics are frequently needle-naïve, and self-administration use errors may waste high-cost doses and undermine therapy. The SureStartRx (SSRx) program is a self-guided training program that includes a training injection device with error detection/correction technology and physical and digital support assets. We compared three onboarding approaches on simulated use-error rates and their modeled cost.

Methods & Participants

Design. Comparative simulated use study, three independent groups (N = 83): Nurse-Led n = 30, SSRx Kit n = 30, IFU-Only n = 23. Healthy, adult volunteers with no prior injection experience.

Outcome. Binary use error per attempt (1 = critical error resulting in no dose or partial dose, 0 = no error), scored at first use (all groups) and a 2-week follow-up (Nurse-Led and SSRx only).

Statistics. Group proportions compared at α = 0.05 using Welch's t-test, with Fisher's exact test as the appropriate confirmatory test for binary, low-count data.

Economics. Each error wastes one dose; avoidable cost = set-up cost + (error rate × $2,500 (assumed biologic dose cost). Only the two observed doses are modeled.

Cost Inputs

Dose (wasted per error)	$2,500
Nurse-led training in home — one-time	$550
SSRx kit — deployable, reusable	$250
IFU only — no added cost	$0

Clinical Effectiveness — Use Errors

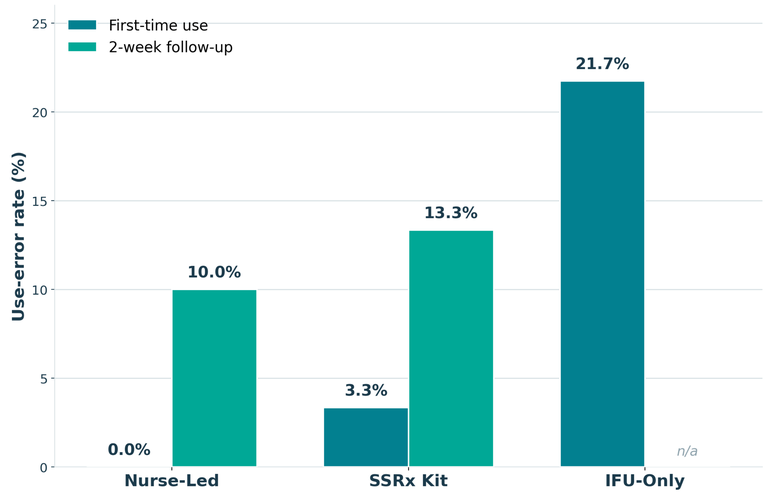

Figure 1. Use-error rate by training method, at first use and at the 2-week follow-up. IFU-Only had no follow-up.

Statistical comparisons (two-sided, α = 0.05)

Comparison	t-test	Fisher	Result
Nurse vs IFU — 1st use	0.022	0.012	Significant *
SSRx vs IFU — 1st use	0.060	0.074	NS (trend)
Nurse vs SSRx — 1st use	0.326	1.000	Not sig.
Nurse vs SSRx — follow-up	0.694	1.000	Not sig.
Nurse — 1st vs follow-up	0.083	0.237	Not sig.
SSRx — 1st vs follow-up	0.168	0.358	Not sig.

** p < 0.05. Welch's t-test and Fisher's exact test, recomputed on corrected data. Fisher is the appropriate test for binary outcomes.*

Only Nurse-Led vs IFU-Only reached significance **(p = 0.02).** The SSRx Kit performed statistically like nurse-led training, not like instructions alone.

Economic Impact — Cost of Errors

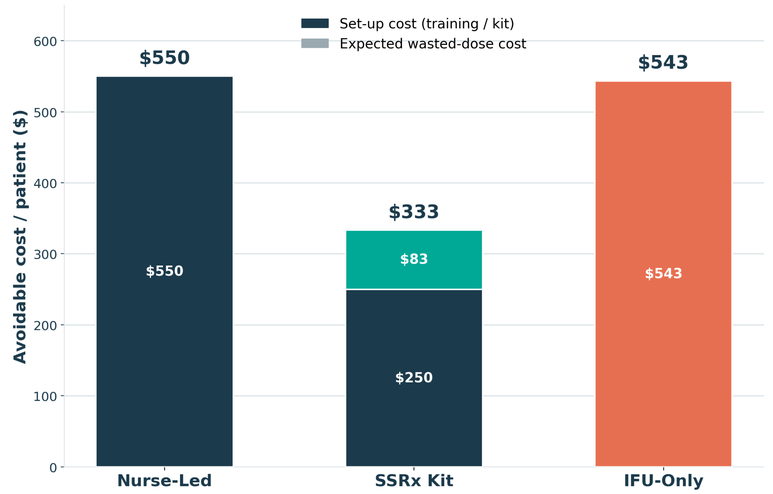

Figure 2. Avoidable cost per patient at first use: set-up cost plus expected wasted-dose cost.

Cost per patient by administration ($)

Group	Set-up	Dose 1	Dose 2	2-dose
Nurse-Led	$550	$0 (0%)	$250 (10%)	**$800**
SSRx Kit	$250	$83 (3.3%)	$333 (13.3%)	**$667**
IFU-Only	$0	$543 (21.7%)	no data	–

Avoidable cost = set-up + (error rate × $2,500). IFU-Only had no follow-up measurement.

At first use the SSRx Kit is cheapest ($333); IFU-Only costs **63% more ($543).** Across both doses the kit stays lowest ($667 vs $800).

Conclusion

Training method drives both errors and cost. Leaving patients with instructions alone produced the most use errors (21.7%) — the only statistically significant gap versus nurse-led training (p = 0.02) — and, because each error wastes a $2,500 dose, also the highest cost ($543/patient at first use). The self-guided SSRx Kit was statistically indistinguishable from nurse-led training on errors at both first use and follow-up (10% vs 13.3%, p = 0.69) while costing the least at every measured point ($333 at first use; $667 across both doses). **As effective as nurse-led training, and the most economical option: the reusable SSRx Kit.**

Limitations

Small samples with few errors (follow-up rates rest on 2 dosing events per group) limit statistical power. Each use error is assumed to waste exactly one full dose. IFU-Only had no follow-up assessment, so it is excluded beyond first dose and no costs are projected past the two observed doses. Unit costs are illustrative inputs and should be replaced with drug-specific figures.

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