

# Next-generation counseling: increased efficiency and high patient satisfaction utilizing web technology and telephone for post-test counseling and education in carrier and inherited cancer screening

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Automated results delivery and web education help optimize genetic counselor utilization.

## Objective

Post-test patient follow-up is integral to genetic screening programs. Clinical genomic testing utilization, particularly in primary care settings, increases the need for patient counseling and education. The efficient allocation of genetic counselors’ (GCs) time is a necessary step to large-scale implementation of genetic testing outside of traditional genetics clinics. Our objective is to institute a scalable results delivery, education and counseling process.

## Method

To address this need, our laboratory has offered three models of an online results delivery system with access to post-test telephone genetic counseling. Here we compare the models’ effects on GC time spent: V1 (every patient speaks to a GC), V2 (results are systematically triaged, and most patients are given results online, with web education and immediate GC consultation option; see Figure 1), and a “traditional” model (the clinic delivers results and GC consultation is available when initiated by the patient). We analyzed consultation uptake for all results (411,900) issued by our laboratory, as well as duration and satisfaction for 23,803 expanded carrier screening (ECS) consults and 614 inherited cancer screening (ICS) consults.

## Results

In all result delivery versions, more serious results were associated with longer consultation times. In V2 and the traditional model, more serious results were also associated with higher consultation uptake rates. Consults were longer on average for V1 results than for V2. e.g., an individual carrier consult was 12 min (9–17 min, interquartile range) for V1 and 10 min (7–15 min) for V2; a positive ICS consult was 19 min (14–24 min) for V1 and 16 min (11–20 min) for V2. The shorter consult times may derive from pre-consult web education issued through V2. Illustrating optimal GC allocation, the V2 model increased consultation rates up to 5.7x versus the traditional model for positive inherited cancer screen results and the V2 website education provided for negative results enabled lower consultation rates compared with V1. Patient satisfaction, evaluated by post-consult survey, was high (4.9 / 5.0 rating) in all models.

## Conclusion

We demonstrate time utilization benefits by a results-delivery model that combines web education and counseling. Time saved by efficient delivery of simpler results offsets time used due to increased positives. In V2, where results are triaged, two minutes per consult were saved for ECS and three minutes for ICS. As a laboratory issuing multiple thousand results per week, with concomitant GC availability, this translates to hours saved enabling feasibility of post-test follow-up for widespread gene-panel screening in both the reproductive and oncology contexts.

Table 1: Summary of results

Delivery model	ECS carrier consult duration	ECS high reproductive risk consult duration	Positive ICS consult duration	Trends	Average patient satisfaction
<b>V1:</b> all patients are counseled	9–17 mins	14–25 mins	14–24 mins	Longer consultations, on average, compared to V2	4.9 / 5.0
<b>V2:</b> results are triaged, most patients view results online	7–15 mins	10–22 mins	11–20 mins	Lower consultation rate for negative results compared to V1 More serious results led to higher consultation uptake	4.9 / 5.0
<b>Traditional model:</b> Clinic delivers results, consult available upon patient request	9–18 mins	16–30 mins	20–30 mins	Lower consultation rates for positive ICS compared to V2	4.9 / 5.0

Figure 1: V2 workflow for delivery of most low-severity results

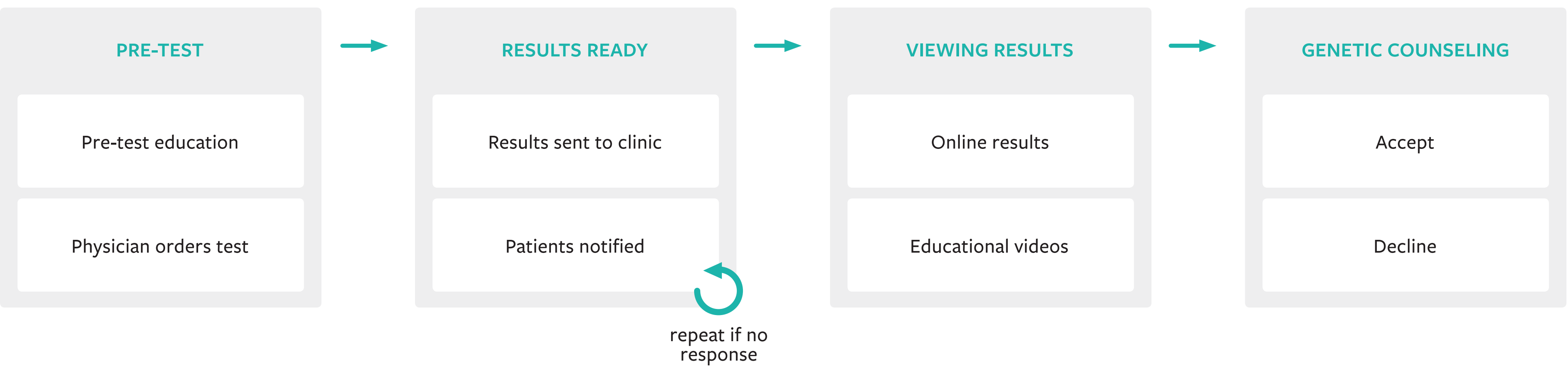
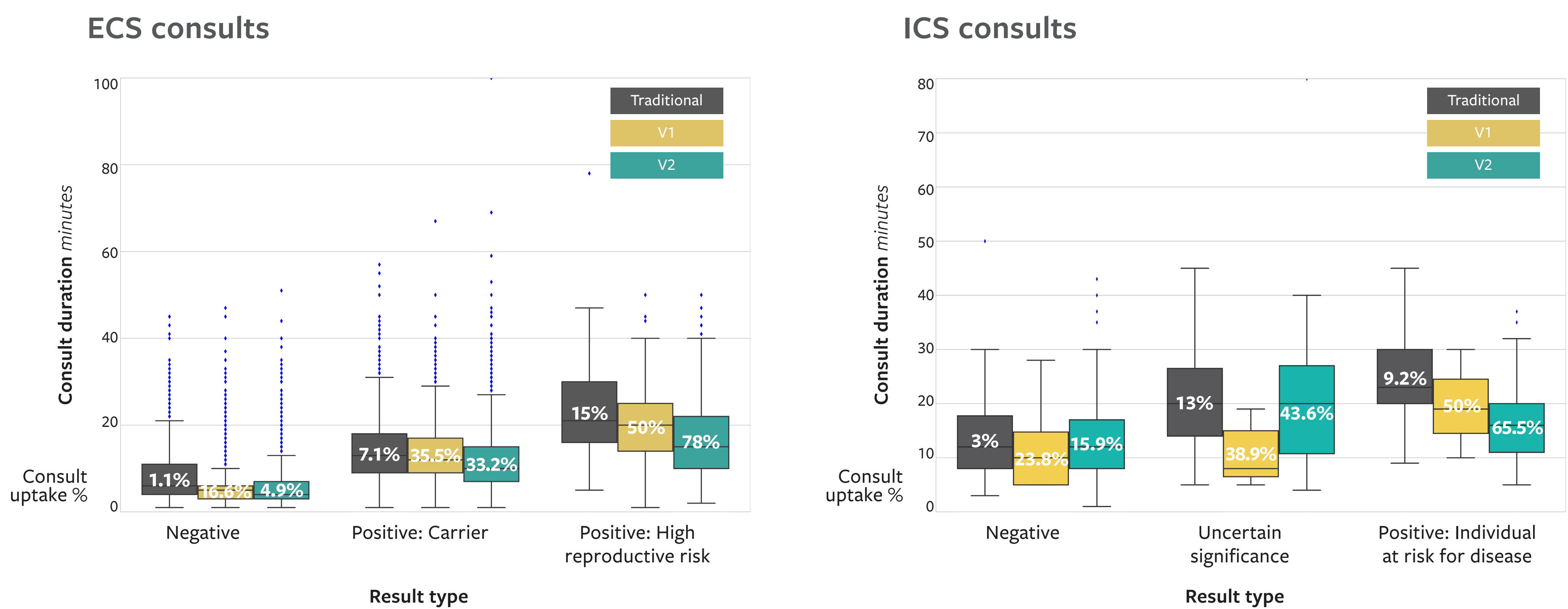


Figure 2: Consult uptake and interquartile range of time duration for consultations, by test



ECS=Expanded carrier screening; ICS=Inherited cancer screening

 See Poster #2 for more data from this service:

“A unique service delivery model for genetic counseling services”