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The Value of the Sentinel Effect (Revisited)

by Richard L. Bergstrom

The underwriting community has known about the Sentinel Effect (SE) concept—that self-selection process that directs unhealthy insurance applicants to apply for coverage at amounts where testing is not done, thereby minimizing the chances that their affliction(s) will be discovered—for many years. Yet accurately quantifying the value of the SE remains an illusive exercise at best, because we simply cannot directly measure what we cannot track, or so it would seem.

However, ways to indirectly derive surrogate measures for SE exist. This article proposes one such way that should help the insurance community more fully appreciate the contribution SE makes to the cost effectiveness of one specific underwriting protocol— laboratory testing.

In 1996 oral fluid testing (OFT) was introduced, its Western Blot HIV confirmatory test having finally been approved by the FDA. OFT currently screens for HIV antibodies, cocaine metabolites, and nicotine (cotinine). Because the oral fluid modality easily lends itself to agent collection, total test and lab analysis-related costs can be minimized (under $20 per applicant) thereby producing dramatically low protective value-testing thresholds. How does this help us quantify the value of the SE? Let's take a closer look.

Serum testing for HIV and urine testing for cocaine and nicotine have been available for many years. It is likely, therefore, that many insurance applicants are keenly aware that blood/urine profiles specifically target detection of these antibodies or metabolites. As such, it is not difficult to conclude that many such well-informed applicants might attempt to place their business in companies where testing is not performed at all amounts. Hence, the genesis of the SE.

In 1996, as companies began using OFT, statistics kept by the testing laboratories unveiled a dramatically different profile for the cohort of applicants tested at lower amounts than that of the blood/urine tested cohort. Table 1 compares the prevalence of HIV-positive applicants as tested by LabOne for serum versus OFT. At the $25,000 amount band, the HIV+ prevalence rate for OFT applicants is 70% greater than serum for all ages combined. But when one compares the under $25,000 OFT cohort to the low-band serum-tested cohort, OFT prevalence rates are 4½ times greater! Dramatic evidence of the SE in action. To be sure, these differences will narrow over time, as is always the case as testing methodologies "mature." I believe this phenomenon happens more because of customer awareness, however, than changing prevalence rates in the insurance-buying population—hence, the further proliferation of the Sentinel Effect. The effect is particularly enhanced by impairments dictated by lifestyle considerations, where the applicant more or less consciously chooses to live a risky lifestyle (smoking, drugs, etc.). Tables 2 and 3 show similar comparisons for urine versus OFT-tested cocaine and cotinine metabolites, respectively. "All ages" prevalence for cocaine detection is about two to three times higher than for urine testing, and cotinine detection by OFT exceeds urine tested detection by 30–45%. Significant differences!

TABLE 1
Positive HIV-Antibody Rates (Per 1,000 Tested)

	Serum	OFT	
Age	$25–50K	$<25K	$25–50K
20–29	0.79	11.75	2.25
30–39	3.62	14.39	4.07
40–49	2.23	8.60	3.27
50–59	1.64	2.11	2.35
All Ages	1.70	7.67	2.88

TABLE 2
Positive Cocaine Rates (Per 1,000 Tested)

	Urine	OFT	
Age	$25–50K	$<25K	$25–50K
20–29	8.36	15.77	7.36
30–39	16.20	36.84	18.37
40–49	10.07	27.37	12.11
50–59	2.86	7.43	3.31
All Ages	5.94	19.17	10.98

TABLE 3
Positive Cotinine Percentages

	Urine	OFT	
Age	$25–50K	$<25K	$25–50K
20–29	21.0%	30.8%	29.0%
30–39	27.5	41.3	36.6
40–49	29.5	39.7	33.7
50–59	26.6	34.6	25.8
All Ages	24.0%	34.8%	31.8%

One final, sobering thought: As more and more companies begin screening at lower testing thresholds, knowledgeably impaired applicants seeking to secure coverage at standard rates will migrate to those companies that have chosen not to reduce their testing limits. This, of course, increases the relative prevalence of impaired risks in the markets of these companies, a phenomenon whose antiselection can actually lend to higher prevalence rates in some cells than in the general population.

If you think the value of the Sentinel Effect is significant now, what will you think when your company is the only one not testing?

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