

Saliva Testing, One Canadian Company's Experience

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Saliva testing has evolved from a necessity of the life and health insurance industry to find more simple and cost-effective ways to diminish the risk of insuring people who are HIV positive. No matter what other tests are done, let's not lose track of the fact that as an industry we would probably not be doing all the testing that we do today if it hadn't been necessary to protect ourselves from adverse AIDS experience.

No matter what other tests are bundled with whatever testing medium is used, the HIV antibody test is still the cornerstone of the protocol. A lot of good information is obtained from the other tests that are done and in many cases insurance companies get a better return for their testing dollar from them rather than the HIV test, but the fact remains that exposure to catastrophic early death claims from AIDS is what makes the testing mandatory.

The industry has used serum for this testing for about ten years now. Four or five years ago other body fluids started to be used for screening and today the choices remain as serum, saliva and, in Canada, also urine.

A few years ago, when the FDA stopped laboratories in the United States from doing HIV testing on saliva and urine, no such restrictions affected Canadian based labs. Although the Canadian Federal government does approve laboratory testing kits and medical devices through the Medical Devices Bureau of the Health Protection Branch of the Ministry of Health, all they do is issue a notice of compliance that all their concerns have been met and all necessary appliance testing has been done. Laboratories fall under provincial licensing and the usual practice is for provinces to require Laboratories in their jurisdiction to adhere to the conditions of sale of devices.

The province of Quebec licensed a couple of insurance laboratories to do HIV testing on saliva and urine. They even approved the protocol of Elisa screening and using western blot confirmatory testing on Elisa posi-

tive specimens. Because of this the sensitivity and specificity of the HIV saliva testing protocol is very good.

Canadian insurers using saliva or urine for HIV testing still ask for serum confirmation on positive tests.

London Life's Experience

London Life is a large Canadian multiline insurance company that has been in business for over 120 years. Its products are sold only in Canada and Bermuda. Sales are made through a dedicated, captive agency force of about 2500 representatives, housed in 155 branch offices in every province.

Like most insurance companies in North America, London Life began to screen for HIV on serum in 1986. Over the years, the testing threshold continued to drop. Experience showed that each time testing levels were lowered, the number of HIV positive tests jumped and then gradually fell over the next several months and years until such time as the testing threshold was again lowered. There certainly appeared to be active antiselection.

It was recognized that when saliva testing was used, there would be loss of some protection from the other blood tests that were not going to be obtained. However, the difference in cost of the two types of testing can be used to offset the mortality variation.

Canadian companies are fortunate in that saliva testing has been offered with three tests; i.e. HIV antibody test, cocaine screening and cotinine. All these are used to eliminate potential causes of increased mortality, and in the case of cotinine, to confirm the admitted smoking status of the applicant.

London Life began using saliva testing with agent supervised collection in April, 1993. Prior to that the testing threshold had been \$200,000 using serum. Very few positive HIV tests were being seen (3 the previous year)

and the government of Ontario had just set up anonymous AIDS testing clinics in that province. The company was feeling vulnerable to antiselection.

Those of us involved in the planning phase of this project figured there were advantages to using saliva as a testing medium over both serum and urine. These advantages fall to all three constituents - the customer, the salesperson and the insurance company.

From the customer's perspective there are four main advantages:

- This is a non-invasive test as compared to venepuncture for blood.
- It is not as embarrassing for some as supplying a urine sample.
- If agent collection is used, everything is done at one visit instead of having to have a nurse come for a blood test at a later date.
- Because all requirements are done at the time of the application (with agent collection) the policy is issued faster.

If the insurance agent is doing the collection, the advantages to him or her are:

- More control over the sales process. They do not have to order a third party to take a blood test.
- As a result of faster issue of the policy, the agent gets paid faster.

The insurance company also benefits in the following ways:

- This is a cheaper form of testing than blood, especially if agent collection is used. The laboratory costs as well as the cost of the collection kit is cheaper than when blood testing is done.
- There is a better chain of custody using saliva than urine as the agent (or whoever does the testing) is a witness to the entire testing protocol.
- As a result of cost savings, testing thresholds may be adjusted to lower levels with more protection against adverse mortality experience. These cost savings can also be reflected in a lower net unit cost.

There are some negatives that anyone contemplating using this protocol should recognize:

- Agent collection probably works much better with a captive field force rather than a brokerage operation. Brokers may well opt for placing business with companies not requiring them to do sample collection. It would also be more difficult to control the training needed to utilize this tool as well as to control kit inventory.
- Some insurance representatives are reluctant to get involved in specimen collection. (on the other side of the coin, some don't mind at all and use it as a sales tool)..

- A positive HIV test on saliva should be confirmed with a blood test. This may change in the future as this medium becomes more widely known and accepted in clinical medicine. The question arises as to what do you do when there is a positive HIV test on saliva and the applicant won't or can't have a blood test?
- It is not easily used for screening on group business.
- My personal feeling is that the name "saliva test" is bad and does not really reflect the type of specimen collection that occurs. The general public and uninformed agents feel we are asking our customers to do something that in fact we are not. Oral fluid testing or some other equally more specific name would give a better level of acceptance.

When London Life introduced this testing protocol, testing thresholds were also lowered to \$100,000. The direct cost of testing at this level was \$689,000 per year as opposed to \$2.3 million if blood had been used. It was calculated that by lowering the testing level and using saliva there would be the avoidance of \$16 million in future claims with a present value of \$2.5 million.

The additional test results were able to be handled at head office without increasing underwriting staff because of the computer to computer link with the laboratory.

Field Introduction

Seven regional offices in different parts of the country (including two french speaking offices) were used in a pilot project. This pilot lasted 4 months and gave information that was needed to roll it out to the rest of the offices. Hands-on training was given to all staff (sales and administrative) in each of the regional offices used in the pilot. Those involved in the training were the company's Chief Underwriter, a research analyst, a representative from the laboratory and the Chief Medical Director. Written instructions were also given to everyone.

At the end of the pilot questionnaires were secured from the customers, the representatives and the regional office Administrative staff and the results analyzed by the company's market research department. This showed overwhelming acceptance from all parties

- customers 91%
- agents 88%

Prior to introducing it nationally the following materials were developed:

- a video outlining and showing the procedure
- written instructions
- question and answer material
- contact names at head office for representative's questions

The procedure was made compulsory in that the agents were given no option as to whether or not they would be involved in the collection process.

A routine was also developed in the regional offices for the training of new representatives.

London Life has used both the Orasure collection device and the Omnisal device. Both devices have proven to be satisfactory.

In August, 1994, the testing threshold was lowered again for saliva to \$75,000. This test is used exclusively up to \$499,999 above which a blood profile is substituted for saliva.

London Life also developed, with the laboratory's co-operation, our own authorization form which is a tear-off page in the application and contains the bar codes and tamper-evident tape.

One of the problems that was encountered early on, was with control of the kit inventory. In the early stages of the program it was discovered that the representatives were going through up to four collection kits for every test submitted. This was explained partly by kit loss and also by them opening kits to use as spare parts when something happened to the kit they were in the process of using.

Tight control has had to be kept over the inventory by supplying the regional offices with kits from head office instead of letting them order the supplies themselves from the laboratory or manufacturer. Agents are given only 3 to 4 kits and must sign-out new supplies. A system is also in place to monitor usage by office and question excess use when it occurs. Each regional office has an office manager directly involved in inventory control.

As a result the present number of kits used per test submitted is down to 1.3.

RESULTS

Results are going to be reported over two different time periods and then in total. The first time period reflects testing between March, 1993 and August, 1994. This was when routinely saliva was used in cases for face amounts (or accumulation within one year) of \$100,000 to \$ 499,999.

The second period is from September, 1994, to July, 1995. This reflects testing between \$75,000 and

\$499,999.

Results are shown by number of positive tests on HIV and cocaine as well as positive cotinine tests on non-admitted smokers.

Results of all types of evidence are measured using a protective value calculation which reflects mortality savings and also compared to dollars spent. This calculation uses protective value factors per \$1000 of insurance for each age and class change. Values are based on interest rates used in pricing, London Life 1985 to 1989 experience mortality tables and a composite lapse table.

For HIV calculations, it was assumed that HIV positive individuals on average die sooner than individuals in the normal decline group; therefore, a factor based on such an individual living 13 years from infection to death is used based on over 1000% mortality.

The cost of testing that is illustrated is composed of the price of laboratory testing plus cost of the collection devices and cost of courier service.

From March, 1993 to August, 1994, testing at \$100,000, there were 39,167 tests performed at a cost of \$851,225.57 (Figure 1)

There were 16 positive HIV tests for an incidence rate of 0.41/1000 tests. There were 77 positive cocaine tests for an incidence rate of 1.97/1000. 589 positive cotinine tests were found on applicants claiming to be non-smokers for a rate of 15/1000.

The protective value mortality savings (which reflects the present value of future claims) totaled over \$2.5 million giving a return of \$2.99 for each dollar spent:

Testing limits were lowered to \$75,000 in September 1994. Up until July, 1995 30,616 tests were performed in that time period. The protection obtained per dollar spent averaged \$2.38. (figure 2)

The company's overall results up to July, 1995 show that 69,783 tests have been performed. There have been 28 positive HIV, 114 positive cocaine tests and 1019 smokers that would have been granted non-smoker rates. Mortality savings are just under \$4.0 million and there has been \$2.74 savings per dollar spent. (figure 3)

The success rate in being able to persuade the customer to have a blood test (when the saliva HIV test is positive) is somewhat better than 50%. To date, all positive saliva HIV tests, where we have been able to get a blood test have been confirmed by positive blood testing.

Those where the customer, for whatever reason, won't have the blood test are advised to have the finding confirmed by a blood test. This is usually done through advising the attending doctor of the finding

and suggesting that this needs confirmation.

In order to maintain confidentiality from the agents guessing that a blood test following a saliva test equals positive HIV, we have informed the field force that many other things might generate a request for blood. This could be to confirm other medical history, information from an APS, information on an old file or an MIB code. Some companies ask for random blood tests just to maintain confidentiality but London Life has not done that.

To date, there has been no questions raised by attending physicians.

London Life is very happy with this testing protocol as it seems to work well with our customer base and our type of distribution system.

March, 1993 - August, 1994 \$100,000-\$499,999 (Figure 1)					Sept., 1994 - July, 1995 \$75,000-\$499,999 (Figure 2)				
Test	Pos.	/1000	PV	PV/\$	Test	Pos.	/1000	PV	PV/\$
HIV	16	0.41	\$968,002.38	\$1.13	HIV	12	0.39	\$596,111.96	\$1.00
COCAINE	77	1.97	77,625.10	.94	COCAINE	37	1.21	416,935.27	.70
COTININE	589	15.0	780,957.04	.92	COTININE	430	14.0	406,840.26	.68
TOTAL			\$2,527,584.52	\$2.99	TOTAL			\$1,419,887.49	\$2.38
# OF TESTS		39,167			# OF TESTS		30,616		
COST OF TESTS		\$851,255.57			COST OF TESTS		\$595,983.53		

**Overall
Sept., 1994 - July, 1995
(Figure 3)**

Test	Pos.	/1000	PV	PV/\$
HIV	28	0.40	\$1,564,114.34	\$1.08
COCAINE	114	1.63	1,215,560.37	.84
COTININE	1019	14.6	1,187,797.30	.82
TOTAL			\$3,967,472.01	\$2.74
# OF TESTS		69,783		
COST OF TESTS		\$1,447,240.10		