

A HealthTech Report

Scan of vaginal applicator manufacturers in South Africa and India

Summary of findings

September 2005

1455 NW Leary Way
Seattle, WA 98107-5136 USA
Tel: 206.285.3500 Fax: 206.285.6619
www.path.org



USAID
FROM THE AMERICAN PEOPLE



Acknowledgements

This study was funded by the Office of Health, US Agency for International Development under the HealthTech program managed by PATH under Cooperative Agreement # GPH-A-00-01-00005-00. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the US Agency for International Development.

Introduction

HIV/AIDS is the leading infectious cause of adult mortality worldwide.¹ Women, especially those in developing countries, bear the disproportionate burden of the epidemic. In Africa today, women are 1.3 times more likely than men to be infected with HIV, and young women aged 15 to 24 are 2.5 times more likely to be infected than young men.² South Africa and India are the two countries with the greatest number of people currently living with HIV. At the end of 2003, it is estimated that there were 5.3 million adults and children living with HIV in South Africa and 5.1 million adults and children living with HIV in India.³

Microbicides, substances that could substantially reduce the transmission of HIV when applied vaginally, are currently under development. For many women who cannot negotiate condom use with their partners, microbicides represent an urgently needed woman-initiated option for HIV prevention.

In the majority of clinical trials of microbicides, prefilled, plastic, single-use applicators are being used to deliver microbicide gels. However, prior research has indicated that acceptable, low-cost, user-filled applicators are an important alternative for microbicide introduction in developing countries. In order to identify applicator manufacturers in two settings where microbicides are likely to be introduced—South Africa and India—PATH conducted a scan of manufacturers in each country. These countries were also chosen because of the capacity in their manufacturing sectors to allow for local production of vaginal applicators. As microbicide sponsors and developers focus more on future introduction strategies, we hope that this information can be used to explore opportunities to link microbicide products with locally manufactured applicator devices for national or regional product introduction where applicable or desirable.

Objective

The objective of this study was to identify five to ten qualified applicator manufacturers from South Africa and India. Qualifications were based on technical, quality control, and business requirements. The scope of this activity represents an initial scan for applicator manufacturers; it is not a thorough assessment of each manufacturer's capabilities or an exhaustive search for manufacturers.

Methodology

This work was carried out in two stages during 2005, in collaboration with the Reproductive Health and HIV Research Unit (RHRU) in Durban, South Africa, and PATH's office in India. In the first stage, each group identified applicator manufacturers in their country through a combination of desk research, inquiries made through contacts in the medical device or pharmaceutical industry, and leads identified through market scans of vaginal products.

In the second stage, the list of identified manufacturers was reviewed and narrowed down to a maximum of ten manufacturers for follow-up interviews. PATH staff in India and RHRU staff in South Africa conducted interviews by phone or in person with manufacturer

personnel. In India, visits to facilities were also conducted. An interview guide developed by PATH and research partners was used to collect information on basic design, manufacturing, and business from selected applicator manufacturers. The interview process was also used to gauge interest in the potential for manufacturing applicators for microbicide use.

Summary of Findings

In South Africa, 12 applicator manufacturers were identified in the initial scan. Upon further research, it was determined that only 4 of the 12 manufacturers were based in South Africa. Of these 4 companies, only 2 agreed to be interviewed. The 2 interviews were conducted by phone, and no facility visits were conducted. In India, 21 applicator manufacturers were identified in the initial scan. Eight of these manufacturers were interviewed in person, and facility visits were conducted for each. Five were considered potential candidates for more serious inquiry based on manufacturing and business qualifications.

South Africa Results

Adex Plastics (AP) and Custom Moulders (CM) were the two manufacturers who agreed to be interviewed. While both manufacturers have experience supplying applicators to pharmaceutical companies inside and outside of South Africa, neither appears to have experience with national and international regulatory bodies. However, both companies were interested in the potential of collaborating with the microbicide community for future production of applicators for use with microbicides.

AP and CM both have the capacity and expertise to manufacture applicators and have manufactured cream applicators in the past for pharmaceutical companies. CM makes molds inhouse based on the product specifications of clients, while AP outsources mold making but creates the specifications in conjunction with their clients. Both have manufactured single-use, plastic applicators made of high-density polyethylene. CM has also made reusable applicators.

Regarding these manufacturers' capacity for applicator output, AP has capacity to produce one million per year if required (60% to 80% of process is manual; 20% automated). CM noted that they have 50% additional capacity but did not provide an estimated applicator output.

Neither manufacturer fills the applicators (if prefilled); applicators are sent to pharmaceutical companies who undertake this part of the process. Neither manufacturer has clean room facilities. However, they do have quality control procedures in place to ensure that their final products (applicators) are free of sharp edges, burrs, or flashes.

Both manufacturers have experience developing new products (including molds and equipment). Neither manufacturer has any experience working with the regulatory bodies in United States, European Union, or South Africa. CM does have good manufacturing practices (GMP) in place, whereas AP does not. Neither manufacturer had any GMP certification by local or international regulatory authorities.

Both manufacturers have produced applicators for medium- and large-scale pharmaceutical companies. AP has supplied applicators to Bristol Myers Squibb (BMS) and Wyeth SA (on an ad hoc basis). CM has supplied to companies such as Premier Pharmaceutical and Pharmicare. Neither manufacturer has sold products to public-sector customers. CM was interested in receiving government tenders, whereas AP was not. Both manufacturers have international customers and therefore export their products. AP has exported to BMS, Australia, and CM has international customers, but not for applicator products.

Both AP and CM were interested in additional projects. CM was especially interested in the manufacturing of any plastic products where they could use their injection molding expertise.

India Results

Based on interview findings and facility tours, five companies were considered potential candidates for more serious inquiry in the future. These candidates appear to have considerable high-quality manufacturing capabilities; experience with national and international regulatory bodies; experience in selling to the public and private sectors both in India and overseas; expansion capacity; and some interest in new, public-sector health-focused initiatives (Appendix 1). The five companies include:

1. D4 Surgicals (India) Private Limited
2. Santapet Polymers Ltd.
3. Apolo Surgicals
4. Agofa Labs
5. Shanti Surgicals Limited

D4 Surgicals, located in Bombay, makes plastic vaginal applicators, as well as hospital equipment and disposable medical devices. Sales are about US\$1 million per year to both private- and public-sector customers in both domestic and international markets. Public-sector customers include USAID and United Nations Education, Scientific & Cultural Organization (UNESCO). Capacity of vaginal applicators is currently 50,000 units a day, with scope to double capacity if needed. The company sells applicators to the public-sector for US\$0.03 each. The company is ISO 9001-certified and is expecting a CE Mark* by the end of 2005. The manufacturing facility was the best among those visited. Products are approved by the Indian national drug controller authorities and are distributed within India and exported to South Africa and Europe.† The owner was very interested in learning more about new opportunities and seemed very collaborative.

Santapet, also located in Bombay, produces plastic vaginal applicators, as well as disposable medical devices. Sales are about US\$1 million per year to both private- and public-sector customers in domestic and international markets. International customers include Cipla and Glaxo SmithKline. Capacity of vaginal applicators is currently 25,000 units a day, with scope to expand up to three times the current capacity if needed. The company sells applicators to the public sector for US\$0.028 each. The company's products are approved by the Indian and

* CE Mark identifies a product as complying with the health and safety requirements spelled out in European legislation and is mandatory for equipment operating in the European Union.

† For medical devices, ISO and CE certificates are sufficient for export to Europe and South Africa.

South African national drug controller authorities, and its products are distributed within India and exported to South Africa and Europe. The company is owned by one small family and seemed very transparent. The owner seemed interested in exploring opportunities with microbicide sponsors or developers for product introduction.

Apolo Surgicals, located in Ahmedabad, produces single-use, disposable medical devices including plastic vaginal applicators. However, they are not currently producing vaginal applicators. Other products include safe delivery kits and HIV kits. Sales are about US\$1.5 million per year to customers in the private and public sector in India, and to private-sector customers overseas. Current capacity for applicators is 1 million units per year with the potential to double their capacity. The company sells applicators to the private sector for US\$0.05 each. (Applicators are not sold to the public sector.) The company is ISO 9001-certified. The products are approved by the Indian and South African national drug controller authorities and are distributed within India and exported to Africa, the Middle East, and South Asia. Apolo appeared quite interested in the potential for partnering with microbicide sponsors or developers for product introduction.

Agofa Labs, also located in Ahmedabad, is one of the better-known companies in the field of plastic medical disposable devices. They manufacture a broad range of single-use disposable medical devices, including plastic vaginal applicators. Sales are about US\$1 million per year to private sector customers only, both in India as well as overseas. Current capacity for applicators is 100,000 applicators per day. The company sells applicators to the private sector at US\$0.05–US\$0.06 each. The company does not sell to the public sector. The company is ISO 9001-certified. Products are approved by the Indian and South African national drug controller authorities. Products are distributed within India and exported to Africa, Europe, Commonwealth of Independent States (CIS), South Asia, and Latin America. Although Agofa does not have any experience with the public sector and did not seem as interested as other manufacturers in partnering with microbicides sponsors or developers, the company would still be worth exploring further given their capabilities.

Shanti Surgicals Limited, located in Kanpur, is a well-known company producing disposable medical devices such as catheters and syringes. This company does not currently manufacture vaginal applicators, although they have the ability to do so. They are a contract manufacturer of Hindustan Medical Devices and have a good reputation in the market as a disposable medical devices manufacturer. Sales are US\$2.5 million per year to the private and public sectors in India and to the private sector overseas. Current capacity is 150,000 units per month, but could be doubled. Estimated price per applicator would be US\$0.50 per unit. Products are approved by the Indian national drug controller authorities. Products are distributed in India and exported to South Africa, Latin America, Europe, and South Asia. Although Shanti Surgicals did not seem as interested as other manufacturers in partnering with microbicides sponsors or developers, the company would still be worth exploring further given their capabilities.

For a complete list of companies interviewed as well as detailed findings, see Appendix 1.

Conclusion

South Africa and India are two countries where microbicides will likely be introduced. This preliminary scan of manufacturers of applicators was conducted to highlight the possible opportunities for using locally manufactured, user-filled applicators to deliver microbicides in these settings.

In South Africa, the two manufacturers interviewed have experience supplying applicators to pharmaceutical companies inside and outside of South Africa, although neither appears to have experience with national and international regulatory bodies. However, both companies were interested in the potential of collaborating with the microbicide community for future production of applicators for use with microbicides and would also benefit from additional inquiries from microbicide sponsors or developers. Although the South Africa scan only revealed two applicator companies, these results may not represent the actual applicator manufacturing capacity in this country. These results may have been limited by the networks we used for identifying manufacturers or by our methods for soliciting interview participation. Several manufacturers declined interviews on the premise that they could not divulge information on manufacturing, business, and regulatory experience. This sentiment was not experienced in India and could reflect a greater sensitivity to sharing business information in South Africa. A more thorough scan of applicator manufacturers in South Africa may reveal several other viable potential partners in this setting.

In India, five applicator manufacturers were identified as having considerable, high-quality manufacturing capabilities; experience with national and international regulatory bodies; experience in selling to the private and public sectors, both in India and overseas; expansion capacity; and some interest in new, public health-focused initiatives. These manufacturers represent good candidates for more serious inquiries from interested microbicide sponsors and/or developers. Given that this was a preliminary manufacturer scan with a small scope, there are likely to be many additional manufacturers in India that could meet the desired manufacturing, business, and regulatory requirements necessary for a good partner.

Further research is still needed to address whether locally manufactured applicators could make microbicide products (gel + applicator) less expensive, more acceptable, or more accessible than microbicides supplied with US-manufactured applicators. However, these results indicate that qualified applicator manufacturers do exist in settings with great microbicide needs and could be considered for future microbicide introduction strategies.

References

1. World Health Organization (WHO). *Facts and Figures: The World Health Report 2003—Shaping the Future*. Geneva: WHO; 2003.
2. United Nations Population Fund (UNFPA). *State of World Population 2004: The Cairo Consensus at Ten: Population, Reproductive Health and the Global Effort to End Poverty*. UNFPA; 2004.
3. Joint United Nations Programme on HIV/AIDS (UNAIDS). *2004 Report on the Global AIDS Epidemic*. Geneva: UNAIDS; 2004.

DESIGN AND MANUFACTURING CRITERIA FOR APPLICATOR SEARCH

Country: INDIA

COMPANY	TECHNICAL CRITERIA									
Name	Type of product: user filled, prefilled, reusable, single use	Material(s) used: plastic or cardboard	Applicator cost/unit, price/unit	Data on applicator safety, acceptability (market research)	Current production capacity: units/month or year	Automation sophistication	Microbicide filling capacity: filling rate, equipment availability, types of products filled	Packaging capabilities: type of package(s), labeling, boxing/cartoning	Product development experience: formulation, equipment development, active ingredients	Experience with FDA and/or other regulatory bodies for drugs or devices
<i>D4 Surgicals (India) Private Limited</i>	Hospital equipment and disposable medical devices, vaginal applicators, dropper assembly and others	Certified food grade LDPE	Approx. US\$30/1,000 applicators for an order size of at least 500,000 applicators	Has conducted acceptability studies on applicators in the past	50,000/day	Fully computer controlled assembly line. For sterilization, the materials are sent outside	Does not have. But has the capability to acquire it	Vaccum-sealed plastic bags, rexene pouches, and corrugated boxes	Has developed new devices for bypass surgery	Approved by the drug controller general of India. Also recognized by the World Trade Center-New York
<i>Santapet Polymers Ltd.</i>	Single-use disposable medical devices, vaginal applicators for all dosage forms, dropper assembly and others	Approved recyclable plastic	US\$28/1,000 applicators	Does not generate such data	25,000/day	Fully automated assembly line	Does not have	Vaccum-sealed plastic bags and corrugated boxes	Device development experience is present but no expertise for formulations or active ingredients	Devices are approved by either South African or Indian national and state drug controllers
<i>Apolo Surgicals</i>	100% single-use disposable medical devices, dropper assembly and others	Food-grade plastic	Approx. US\$52/1,000 applicators	Does not generate such data, since currently not manufacturing any applicators	1,000,000/annum. However, said that if the production capacity was not full, he could manufacture the same number of applicators/month	Fully automated assembly line	Does not have	Plastic bags and corrugated boxes	Could copy any design. However, equipment or formulation development experience is absent	Approved by African and Indian DCGI
<i>Agofa Labs</i>	Broad range of single-use disposable medical devices, vaginal and rectal applicators for all dosage forms, drug delivery systems and others	Approved food-grade plastic-LDPE (recommends burning)	Approx. US\$60/1,000 applicators	Does not generate such data for any device	100,000/day	Fully automated assembly line	Does not have.	Vaccum-sealed plastic bags and corrugated boxes	None. However, said that he could copy any medical disposable device	Approved by South African and Indian DCG
<i>Shanti Surgicals Limited</i>	Disposable medical devices like applicators and syringes	Approved medical plastic	Does not manufacture currently. Eariler US\$50/100 applicators approx. However, said that the pricing depended upon the order size and duration	Does not generate such data	150,000/month	State-of-the-art machinery and sophisticated technology	Not known	Exports indicate that it meets international standards	None. However, said that he could copy any disposable medical device	Approved by DCGI

Good Manufacturing Practices	ISO 9000/other certificates	Clean room facilities: class, available space, equipment	Location	Address	Contact person	Ranking
Complies with WHO GMP	ISO 9001. Has also applied for CE to export to European countries	No clean room facility. However, has facility at par with Pfizer's meeting international quality standards	Bombay	307, Samruddhi Commercial Complex, Chincholi Bunder Road, Off Link Road, Malad(W), Mumbai - 400 064, INDIA. Phone: 91 2256235614, email: exports@d4surgicals.com	Mr. Sachet Mahajan	1
Complies with WHO GMP	No	No clean room facility. However, has epoxy coated, fully a/c facility meeting international standards	Bombay	8, Sheriff Devji Street, 1st Floor, Masjid, Mumbai - 400 003. Tel: 91 23420381/82	Kabir V Mangtani	2
Complies with WHO GMP	ISO 9001/ BAR 655, IS 9832, applied for CE certificate	No clean room facility. However, has fully a/c facility fitted with 0.3 micron air filter (HIPA) meeting international standards	Ahmedabad	Apolo House Opposite Mahalaxmi Diomand, Anil Starch Road, Ahmedabad - 380024 (Gujarat) - India , Phone: 91792744984	Mr. Rajesh Patel	3
Complies with WHO GMP	ISO 9001, applied for CE mark for Latin America	No clean room facility. However, has fully a/c AHU facility fitted with 0.3 micron air filter meeting international standards	Ahmedabad	23, Sitaram Estate, Near Mony Hotel, Isanpur Highway, Ahmedabad -382243 (Gujarat) - India. Phone: 91 7926638213	Mr. K. K. Kapadia	4
Complies with WHO GMP	Not Known	Yes. Details not known	Kanpur	26/109 B, Birhana Road Kanpur - 208 001, Uttar Pradesh, (India) Phone: 91 5122352846 or 2317959	Subash Kheria	5