# One-size-fits-all approach to breast cancer no longer acceptable

The first cost-impact analysis of genomic testing in breast cancer in South Africa has showed that the MammaPrint can be used in a cost-saving manner if testing is limited to only those patients where chemotherapy would be considered based on clinical grounds.

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This identifies about 50% of patients with a genetic low-risk result where the cost and toxicity of chemotherapy can be avoided.

By adopting this de-escalating strategy, fewer MammaPrint tests would be performed, with a total saving of 19.5% in direct costs to medical aids.

“Although not currently cost-effective with the historic referral pattern, the MammaPrint testing can be cost-effective in South African circumstances if a different approach is followed,” Jaco de Jager says.

De Jager conducted the research as part of his MBA along with a team of researchers from University of Stellenbosch Business School (USB), Stellenbosch University (SU) and private practise, analysing referrals of early-stage breast cancer patients for the genomic test MammaPrint.

## More selective approach

The test provides a genetic fingerprint of a cancerous breast tumour and accurately predicts the risk of the cancer recurring after successful surgery to remove the tumour.

Used worldwide, MammaPrint testing has identified a low-risk group for whom chemotherapy is not likely to add any further protection against future recurrence.

In more developed countries they are considered cost-effective and are recommended by 93% of international breast cancer experts.

Genomic tests such as MammaPrint offer the promise of more individualised treatment and reducing uncertainty in making clinical decisions.

“A one-size-fits-all approach to breast cancer treatment is no longer acceptable in the genomic era,” says de Jager.

A more selective approach to referring women with early-stage breast cancer for costly international laboratory tests can create significant cost savings of up to 20%, and spare many women from the toxicity of chemotherapy, the publication reported.

## Seemingly unaffordable

Several international studies from developed countries have shown its use to be cost-effective.

The test is performed centrally in The Netherlands, with a price tag in Euro, making it seemingly unaffordable in the ever-declining South African currency.

In previously published work from South African and international researchers, it was reported that about half of patients with early-stage breast cancer may avoid the cost and toxicity of several months of cytotoxic chemotherapy by using MammaPrint.

Could the approximately R40,000 price tag for MammaPrint in South Africa be off-set by the approximately R107,000 cost-saving in chemotherapy if fewer patients needed to be treated?

The research team accessed anonymous clinical and pathology data of 583 patients referred for MammaPrint testing since 2007, when MammaPrint was first introduced in South Africa, and then used algorithmic models including “Predict” to classify the cases into clinically high- and low-risk.

## Unselective referrals

Based on the historic use of MammaPrint in South Africa, they found that unselective referral has prioritised patients where chemotherapy might not have been indicated based on clinical grounds and that the addition of MammaPrint testing increased the total costs of care by 57%.

“Based on clinical data, we found that performing MammaPrint testing for patients who were already at low clinical risk of needing chemotherapy adversely impacted cost effectiveness, limiting the widespread availability of the genomic test,” de Jager says.

“Overall, fewer patients would have needed chemotherapy, but the reduced cost of treating fewer patients was outweighed by the increased cost of having used MammaPrint testing in clinically low-risk patients who didn’t need the test.”

*The researchers recommended that MammaPrint be used selectively in cases where a patient is:*

1. At high clinical risk.
2. The cancer sub-type is hormone receptor positive and human epidermal growth factor receptor-2 negative.
3. Chemotherapy is being considered.
4. Ehere genomic testing could allow treatment de-escalation.

They hope that managed care administrators in cancer care and medical aid schemes would use the data to adjust their approval criteria for MammaPrint testing, ensuring its sustainable use.

Their data was published in June in The Breast, a leading international, peer-reviewed breast cancer research journal.