



GIVE

Tshwane Insulin Programme (TIP)

"Supporting people living with type 2 diabetes to manage their glucose levels with insulin"

Background

Approximately 4.2 million South Africans have type 2 diabetes – a condition characterised by high levels of sugar in the blood. It can be treated with drugs and managed through healthy eating and exercise. But if it's not managed well, it can be life-threatening. Diabetes is one of the leading causes of death in South Africa.

Blood sugar levels rise to dangerous levels when the pancreas does not produce enough insulin, a hormone that regulates the movement of sugar in the body.

As diabetes progresses, insulin injections become the only treatment option. But the transition from oral medication to injectable insulin is often a bumpy one. Managing a patient on insulin requires patients to inject at least once a day and to measure their blood sugar levels at least twice a day. In addition, healthcare workers must have the knowledge, skills and time required to monitor patients and adjust the insulin dose when necessary.

To address this problem, we developed an intervention called the Tshwane Insulin Project.

Our intervention combines various elements. One is a digital tool, the Vula app, which health professionals can use to communicate with each other



Another aspect of the intervention involves community health workers in the care of people with diabetes. We also train healthcare professionals at primary care level to manage people living with diabetes, including those who need insulin.

Our intervention is a more efficient way of managing people with diabetes because healthcare providers share the tasks of patient education, insulin initiation and follow-up. The intervention also reduces the number of referrals

from clinics to hospitals because of unavailability of doctors or lack of skills to manage patients on insulin.

The intervention

When a person's blood sugar is not controlled with two drugs, they get the correct information about insulin and why it is necessary. If the patient agrees to go on insulin, the doctor prescribes it and the primary care nurse informs the patient.

The mobile app is very useful in primary healthcare settings because the doctor can send a prescription remotely using the app. Patients don't have to wait for doctors to visit the facility. The nurse can check if the patient meets the criteria for insulin therapy and the doctor can confirm that, remotely, based on the information provided by the nurse.

Once the patient is initiated on insulin, the nurse contacts the community health worker team assigned to the clinic to inform them about the new patient.

Community healthcare workers are a very important part of this intervention.

Before the intervention, patients were sent home with a huge amount of information to digest by themselves. They would have to remember how, where and when to inject their insulin; how to draw the appropriate dose; how to measure their sugar levels; how to identify when their sugar levels are low (hypoglycaemia); and what to do at that moment.

Research shows that this can be overwhelming for patients. Some are illiterate, with limited medical knowledge. With the involvement of community health workers in the intervention, patients are no longer alone. Patients are visited at home every week. The community health workers remind patients of key education messages, injection sites and techniques.

The community health workers are also important in the adjustment of insulin doses. Before the intervention, most patients would have their insulin doses adjusted during clinic visits – which happened once a month at best – because they could not do it themselves. Insulin is always started at a low dose for safety reasons and to help the patient adjust. Then the dose is progressively increased until the optimal dose is reached. That optimal dose varies from one patient to another. When the dose is adjusted only once a month it takes too long to reach the ultimate dose. Many patients never reach that dose and remain with high glucose levels despite injecting.



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With our intervention, during the weekly home visit, the community health workers communicate the blood sugar levels to the doctor via the mobile app. The doctor assesses the sugar levels and indicates whether the insulin dose should be increased, decreased, or maintained. With weekly dose adjustments, the patient reaches the optimal insulin dose faster and the condition is controlled sooner. The ability to adjust a patient's insulin dose as often as weekly thanks to the team doing a home visit is a game changer.

The insulin project intervention was tested with a limited number of patients at ten clinics in the Tshwane district in South Africa. The results of this trial are promising. There was no report of low blood sugar, which meant that the intervention was safe. Patients who completed the 14-week follow-up with home and clinic visits recorded a reduction of their glycated haemoglobin or HbA1c by 2.2%, meaning that their blood sugar was better controlled after the intervention.

[Prof Paul Rheeder, Professor Elize Webb and Dr Patrick Piotie]

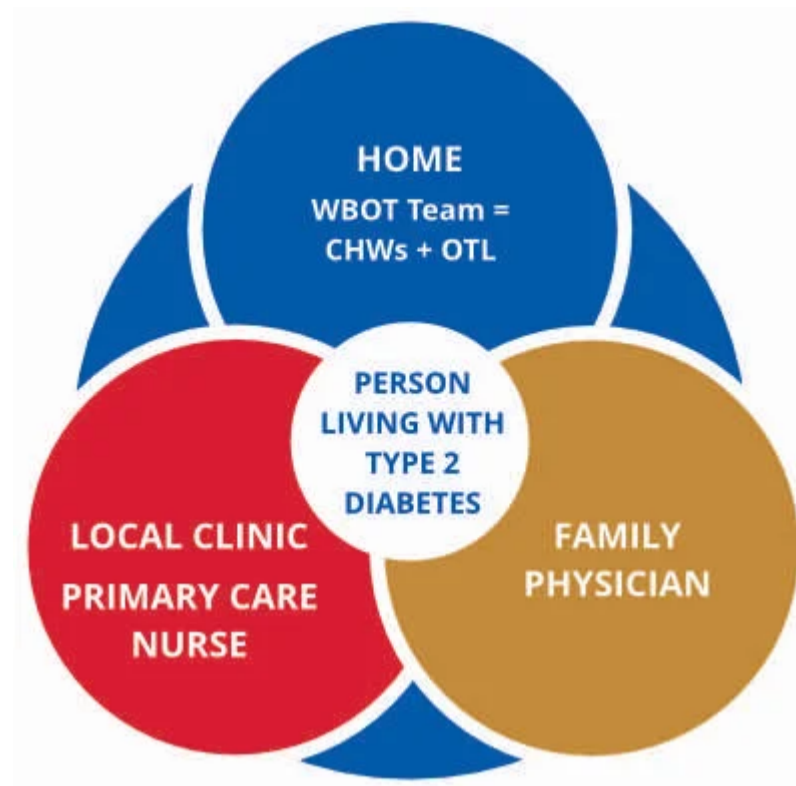
The aim of the TIP intervention is to facilitate initiating and titrating insulin in people with type 2 diabetes in South Africa.

The TIP intervention

The Tshwane Insulin Programme or TIP is funded by the Lilly Global Health Partnership and hosted by the University of Pretoria Faculty of Health Sciences. We collaborate with the National Department of Health and the City of Tshwane to assist primary care clinic with the initiation and titration of insulin over a 14-week period. Field workers from TIP identify people living with diabetes who have suboptimal glucose control and recruit them onto the programme.

Components of the TIP intervention





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At the clinic (facility-level intervention)

Nurses evaluate patients and initiate insulin with the doctor. Nurses educate patients about insulin therapy and use a mobile app to reach out to a doctor for a prescription of insulin



At home (individual-level intervention)

Community healthcare workers visit patients at their homes on a weekly basis to follow-up and educate patients about diabetes. They use an app to allow the doctor to change the insulin doses when necessary.



Remote support with the family physician (telemedicine)

The clinic nurse or the CHWs communicate glucose levels via an app to the doctor who can then advise on any changes to the insulin dose.

Implementation of the TIP intervention

The TIP intervention has been implemented and evaluated in the Tshwane district, South Africa. The findings have been published in a number of scientific articles. In addition, the feedback received from the parties involved, both healthcare providers (nurses and community health workers) and people living with diabetes, is very encouraging.

You can watch the video testimonials from patients and providers [here](#).

How to improve insulin management for PLWD - PHCFM Article Interview - Prof Robert Mash



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- Author Patrick Ngassa Piotie

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