The rise of diabetes is one of the world's most serious health challenges with statistics getting worse every year. By 2030, it is estimated that more than half a billion people will suffer from diabetes and already there are twice as many people worldwide dying of diabetes complications than there are of AIDS and cancer combined. The diabetes threat among South African truck drivers is just too big to ignore - yet it is being ignored. The consequences of this 'denial syndrome' at a corporate and personal level are dire and in this special feature article, FleetWatch correspondent Dave Scott delves into the details to raise awareness of the disease and expose the high risk of diabetes among South African truck drivers as a special community that needs urgent attention.
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IT'S NOT 'AWESOME' – it is simply awful. Anyone who has not suffered from the ravages of diabetes will possibly be able to understand the impact of this disease. And anyone who has not been a treated diabetic will be able to truly comprehend the complexity of this health condition. That is probably why corporate South Africa generally has ill-defined attitudes and policies towards diabetic employees who are engaged with productive machinery in terms of the Occupational Health & Safety Act of 1993.

The OHSA Act implications
What many in the trucking industry do not realize is that a driver’s seat in a commercial vehicle is a work station in terms of the OHSA Act and a driver has the same privileges as a factory employee. The managing director of a transport concern is thus also liable to prosecution under the OHSA Act.

Under the OHSA Act, workers must take care of their own and other people’s health and safety at work; co-operate with their employer and obey all lawful instructions, rules and procedures; give information requested by the Department of Labour (DoL) inspector; and immediately report unsafe or unhealthy conditions or incidents to their employer, supervisor or health and safety representative.

Attorney/Solicitor Advocate
George Jopling offers the following opinion: "Therefore considering that diabetes mellitus is not regarded as a dread disease under either Schedule 2 or 3 of the WCP Act, there should not be any need for a medical practitioner or health representative to report that particular worker’s condition to the chief inspector from the DoL."

He adds: "Therefore, if a truck driver who is suffering from diabetes mellitus is upfront and honest about his affliction and informs his employer's health representative and/or the chief inspector from the DoL, the employer would not be able to invoke the provisions of the OHSA Act to disqualify or preclude him/her from driving on a public road or performing duties."

Adv. Jopling concludes: "If any employer tried to rely on the regulations under the OHSA Act to fire or prohibit a truck driver with diabetes from performing his duties, this would amount to unfair discrimination in terms of Section 14 of the Constitution and victimization in terms of Section 26 of the OHSA Act."

The complexity of labour law and dismissing a diabetic employee is reflected in the following case: The Labour Court of South Africa, p 10

Regular eye-tests are essential in the treatment of diabetes - one of the side effects is blurred vision.

Comment
DIABETES is a massive subject. Anyone who drives a vehicle will find something useful in this article. However, the contents are aimed at truck operators, particularly fleets where top and HR management will never read a medical journal. And because 90% of people with diabetes in South Africa have Type-2 diabetes, this article concentrates on Type-2 diabetes. South African law (RTA Section 15(f) (v)) also disqualifies a driver suffering from 'uncontrolled diabetes mellitus'.

The main purpose of this article is to expose the high risk of diabetes among South African truck drivers as a special community that needs urgent attention. South African truck drivers are subject to the ravages of Type-2 diabetes resulting from lifestyle, ignorance, self-denial, lack of policy and absence of testing for diabetes among truck fleets. Type-1 diabetes demands immediate attention while untreated Type-2 diabetes is insidious with equally disastrous health outcomes. Effective screening demands the use of the HbA1c test, measuring average blood sugar levels over three months. Driver risks must be prioritised – starting with public passenger transport, through to hazardous goods and on to extra-heavy Code EC long-haul drivers. In fact, right across all driver ranks and categories.

Dave Scott
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<table>
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<th>TRUCK DRIVING HEALTH CHALLENGES</th>
<th>PHYSICAL REALITY - LINE-HAUL OPERATIONS</th>
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<td>1</td>
<td>Lack of exercise</td>
<td>15 000 to 20 000kms per month, no control over hours of operational service and kilometre-driven incentive programs leave no space for exercise</td>
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<tr>
<td>2</td>
<td>Poor diet – pop and vlees</td>
<td>Low-quality roadside meals: starch, sugar, fat and salt dominate</td>
</tr>
<tr>
<td>3</td>
<td>Succumbing to snack &amp; sweet-tooth temptations</td>
<td>Vehicle stops are well stocked with every type of sweets, salty-snacks and soft-drinks</td>
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<tr>
<td>4</td>
<td>Bad eating habits – one or two large meals/day</td>
<td>Glucose levels spike under bad eating habits</td>
</tr>
<tr>
<td>5</td>
<td>Obesity</td>
<td>Not overweight – just obese</td>
</tr>
<tr>
<td>6</td>
<td>Stress</td>
<td>Increasing traffic, poor-quality sleep, meeting scheduled delivery demands, all heighten stress</td>
</tr>
<tr>
<td>7</td>
<td>Hypertension</td>
<td>This is commonplace and generally not tracked for control</td>
</tr>
<tr>
<td>8</td>
<td>AIDS</td>
<td>AIDS – has not gone away. Anti-retrovirals are becoming attributive with the destruction of insulin cells</td>
</tr>
<tr>
<td>9</td>
<td>Smoking and...........</td>
<td>Smoking is diabetes partner in shutting down circulation to limb extremities</td>
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<td>10</td>
<td>Massive variety of sweet soft drinks ......</td>
<td>10 teaspoons of sugar per soft drink can multiplied by 4 cans/day is 40 teaspoons of un-needed sugar – 164gms</td>
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<td>Truck PrDP medical certificate is a paper chase</td>
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SA road law and diabetes

The only reference to diabetes and driving is contained in the National Road Traffic Act No. 93 of 1996. Under Section 13 'Disqualification from obtaining or holding a learner’s or driving licence', subsection (f) (v) specifically lists 'uncontrolled diabetes mellitus' as a disqualifying factor.

There is no definition for the word 'uncontrolled'. Another interesting fact is that very few truck operators submit a driver to an independent full medical check following a road accident to establish whether anything has changed in the driver’s health status. Too much reliance is given to the annual medical check that must be provided with a PrDP driver licence and which is often just a price-discounted paper-chase.

Among all driving abilities, good eyesight ranks as the most important but visual acuity and diabetes have a common destiny. The complications of 'uncontrolled diabetes mellitus' are often revealed in failing eyesight where the damage is irreversible. Road Traffic Act Regulation 102 'Defective vision disqualifying person from obtaining or holding licence.

Common Leading To

- Hypertension and high blood pressure - the silent killer
- Long hours on the road - no time for exercise
- Poor, low quality diet... pop and vlees, excess of oily food, salt etc.
- Obesity can lead to onset of diabetes
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The global diabetes epidemic is an 'emergency in slow motion'.

Lars Rebien Sorensen
Novo Nordisk
Chief Executive Officer

The global diabetes epidemic is an emergency in slow motion, says Lars Rebien Sorensen, chief executive officer of Novo Nordisk, a leading manufacturer of insulin. "While there are many factors fuelling the growth trajectory of diabetes, the most striking contributor is urbanisation and the growth of cities."

Every urbanisation factor that contributes to swathes of people falling prey to diabetes can be found in a long-haul truck driver's cab.

What is happening on the ground in the South African road transport industry - where the rubber meets the pothole - and where we should be on the subject of diabetes are far apart. Truck driving is a threatened occupation promoting every ingredient for Type-2 diabetes.

A few very obvious reasons are highlighted in Table 1 (on the previous page):

From an outside, non-sufferer of diabetes, an over-simplified perception of diabetes is that one can control the problem through just avoiding sugar, taking pills or self-injections (Light! It's actually not so bad). Nothing can be further from the truth. To be a responsible diabetic demands a complete change in entrenched habits and lifestyle - especially on long-haul - this is the harshest challenge.

Here are current statistics from the International Diabetes Federation, the World Health Organisation & the Centre for Disease Control:

- There are twice as many people worldwide dying of diabetes complications than there are of AIDS and cancer combined.
- Every eight seconds a person dies from diabetes-related causes.
- Every 10 seconds two people develop diabetes.
- Every 30 seconds a lower limb is amputated worldwide from diabetes-related causes.
- At least 50% of all people with diabetes are unaware of their diagnosis

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The sugared drink threat

A 12-oz can of Coca-Cola Classic contains 41g of sugars, according to the Harvard School of Public Health, or HSPH. A teaspoon is equivalent to 4.2g of sugar, according to the HSPH – a can of Coke contains about 10 tsp. of sugar per can. The HSPH labels Coke as a drink that you should only consume sparingly and infrequently because of the relatively high sugar content.

Prof Ayesha A Motala, reporting from the Diabetes Leadership Forum held in Johannesburg in September 2010 said: “According to the latest global IDF figures, the greatest growth in the number of people with diabetes is in Africa. There will be a 98% increase in people with diabetes - from 12.1 million in 2010 to 24 million in 2030. For impaired glucose tolerance, there is an expected 76% increase for Africa (vs. 37% for the world average).”

The countries hardest hit by the current diabetes epidemic are those that are least developed and most resource-depleted. Sub-Saharan Africa has the highest proportion (61%) of people with diabetes out of the UN-defined 49 least developed countries. The interaction between diabetes, tuberculosis and HIV/AIDS and treatments conspire to increase the negative impact of all three conditions in Africa more than on any other continent.”

It all starts with denial

The trend among South African truck drivers is to avoid medical or visual acuity testing that could limit or bar their time behind a steering wheel. This driver behavior is endorsed by the SA Optometrist Association who tried to promote testing for night vision acuity – not required under the RTA Regulations – only to find that drivers were not interested as failures may lead to additional costs and employment problems. The denial gap is also extended by employers who accept ‘paper-chase’ medical certificates that cost little to produce and are not checked for validity.

And when it comes to diabetes, the denial gap is even more so according to Prof Motala at the Department of Diabetes and Endocrinology, University of KwaZulu-Natal, who observes that “patients are often only diagnosed (with diabetes) when presenting with complications.” Limited local data suggest that more than two thirds of Type-2 diabetes patients in South Africa have a glycated haemoglobin (HbA1c) level above the generally recommended target of 7%.

Why the HbA1c test is so important

Glucose continually combines with new red blood cells in proportion to the amount of glucose present in the blood and remains there for the lifespan of the red blood cell, or for about 120 days.

The HbA1c test measures the total quantity of glucose attached to a sample of red blood cells and consequently reflects the individual's blood sugar level over the past three months. And that's why the HbA1c test is so important and real evidence that diabetes mellitus (Type-1 & Type-2) is not uncontrolled as demanded under the Renal -The truth is not palatable. For a person without diabetes, a typical HbA1c level is about 5%. If you have diabetes, it's recommended by the American Association of Clinical Endocrinologists (AAACE) that a level of 6.5% or below should be your target goal. The American Diabetes Association (ADA) suggests a goal of 7% or lower.

The finger-prick test or urine test strip test can sometimes be 'bent' - by prior conditioning in expectation of a test

that a level of 6.5% or below should be your target goal. The American Diabetes Association (ADA) suggests a goal of 7% or lower.

The problem with immediate testing – blood finger-prick or urine strip testing – is that the results can be 'bent' through prior conditioning in anticipation of the test. This attitude of 'painting-lipstick-on-a-pig' springs from the culture of self-denial. The truth is not palatable. But remember, the HbA1c test is an average result and does not disclose
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any threatening 'extreme excursions' above the 10mmol/l or below the 4mmol/l benchmarks.

Glycaemic-variability is hidden in averages.
A driver who tests sugar levels twice daily, with readings of 7 and 4mmol/l gives an average of 5.5mmol/l. Compare the latter result with a driver reading test levels ranging between 8.5 and 2.5mmol/l – the average is still 5.5mmol/l but the lower end excursion to a sugar level of 2.5mmol/l is very dangerous.

Driving with sugar too high?
Driving any vehicle is very attitude-dependent. Are you reckless, responsible, caring or negligent, disciplined or reckless?
And physical condition plays a major role. Consistently high sugar-levels lead to absolute exhaustion, dire thirst (more sugary soft-drink!) with frequent urination and reduced immunity to common colds and other ailments. Not to mention the permanent damage of Type-2 diabetes. Lengthy exposure to excessive - higher than 15mmol/l blood sugar levels - leads to a process called ketosis which presents with symptoms like shortness of breath, rapid breathing, vomiting, rapid, low blood pressure, unresponsiveness and finally coma.

Driving with sugar too low?
On the other hand, blood sugar levels that are too low - below 4.0mmol/l - are even more dangerous behind the wheel. A well-disciplined Type-1 diabetic confided in me that her greatest fear was being arrested for apparent 'drunken' driving when her blood sugar was too low (hypoglycaemia) as this has a similar perceived behavioural pattern of dizzy disorientation. Medical expertise states that 'hypoglycaemia, due to insulin or insulin secretagogues, may result in transient cognitive dysfunction or loss of consciousness, which could impair driving ability'. Loss of consciousness behind the wheel is not 'imparing'. It is disastrous. Truckers and drivers need a decoder for medical journal jargon.

All medical expert opinion recommends that blood sugar levels are checked before embarking on a long road journey. It does not happen. The driver's own driving experience is that sugar level testing is glossed over in the hurry to get going and when the level gets to 4mmol/l, or below, judging on-road conditions is impaired by the 'strange' jittery-feeling that too-low sugar levels create.

The point is that low or high sugar levels are not the key issue, it's the loss of precious reaction time on the road that impaired physical condition causes. Defensive driving is all about creating maximum reaction time in any situation on the road. Many crashes could have been avoided had the threat been perceived a couple of seconds earlier. Here's a fact: At 80kph, every second lost means 22m loss on the road. At 100kph, this increases to 28m and at 120kph it's 33m into a collision situation. How many seconds can an uncontrolled diabetic afford to lose, at night, in rainy conditions and on the road?

Storing insulin on the road
Material safety data sheets (MSDS) state that long term storage requiring insulin for syringe use is to be kept refrigerated 2° to 8°C (36 to 46°F) but not in a freezer. MSDS are very specific for insulin – 'do not freeze'. Insulin must be kept in tight, original packing and stored according to

DIABETES - KEY DEFINITIONS
For truck operators, road traffic law regulation and corporate policy makers

Diabetes
Key definitions for truck operators, road traffic law regulators and corporate policy makers

Diabetes mellitus
This is the full medical term for all of the different forms of diabetes, including Type-1, Type-2, and gestational diabetes.

Type-1 diabetes
An auto-immune condition that is characterised by the body manufacturing little or no insulin. Blood glucose levels must be monitored and controlled by injected insulin.

Type-2 diabetes
A metabolic disorder usually diagnosed in adulthood where lifestyle, physical condition and family history all contribute. The body becomes resistant to insulin and blood glucose levels are controlled by a combination of lifestyle changes, oral medications and insulin injections.

Hypoglycaemia
This is the technical term for blood glucose (blood sugar) levels that are lower than normal levels (< 4.0mmol/l). This may occur for a variety of reasons including administration of excessive insulin/oral medication or mismatch between physical exertion and carbohydrate intake (insufficient).

Hyperglycaemia
This is the technical term for blood glucose (blood sugar) above normal levels (>10.0mmol/l). This may occur for a variety of reasons including undiagnosed diabetes, administration of insufficient insulin/oral medication or mismatch between physical exertion and carbohydrate intake (an excess).

Glycated Haemoglobin (HbA1c) level
A blood test that provides a measurement of a person's average blood glucose level over the previous three months.

mmol/l
Millimoles/litre is the designated SI (Systeme International) unit for measuring glucose in blood.

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A hot truck cab in long-haul environments is not ideal for storage of insulin which needs to be kept refrigerated

condition for a truck driver not on a medical aid - remembering that this is after-tax money:
A driver using injectable insulin will see an increase in the monthly

Glucophage tablets R106
Electronic test strips – twice daily R200
HbA1c twice annual testing R100/pm
Eye tests – twice annual R100/pm
Total /month R506

figure due to the cost of insulin – which can be in the region of R1 250 per month. This means if a driver is not on a medical aid with chronic-medicine cover, the cost of managing the condition could be around R1 650 per month. Insulin from a state clinic needs a full day off to queue.

Defining and prioritizing diabetic driving risks
The diabetes threat among South African truck drivers is just too big to ignore. The consequences of denial at a corporate and personal level are early health failure and in the absence of validated statistics, can be classed as a growing contributory factor to road accidents.

It’s all about changing education and attitude. This starts with a driver health policy document where diabetes is recognised as an issue to be tracked on the same level as eyesight. There is, after all, a direct link between visual acuity and diabetes.

A written driver health policy becomes the basis for procedure and organisational discipline. This, in turn, guides the culture of the business and how things happen regardless of changes in personnel and structures. Where policy and discipline exist, the need for ad hoc training falls away.

Sadly, in most transport operations, the only policy document for driver health is the annual P/D licence requirement for a doctor’s health certificate which, in too many cases, is a paper chase that glosses over serious health issues.

In the accompanying box headed ‘Guidelines for candidates with diabetes who apply for commercial vehicle licences’, we provide what medical professional experts offer as ‘guidelines’ for candidates with diabetes who apply for commercial vehicle licences. (See page 16)

Unfortunately the guidelines as given constitute a ‘wish list’ that is far removed from what is happening on the ground. Limited research into the road transport industry indicates a lack of awareness of this ‘emergency in slow motion’. Diabetes does not rank! If there’s no written health policy, diabetes will not get a mention. And who will pay for ‘an annual’
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Guidelines for candidates with diabetes who apply for commercial vehicle licences.

Candidates should have an initial full medical assessment and an annual re-assessment by a specialist physician endocrinologist or family physician trained in diabetes management including review of medical records and glucometer recordings of the previous 24 months. The following standards should apply:

- There has not been any severe hypoglycaemic event (requiring assistance from another person) in the previous six months.
- The driver has full hypoglycaemic awareness.
- The driver must show adequate control of the condition by regular blood glucose monitoring, at least twice daily and at times relevant to driving.
- The driver must demonstrate an understanding of the risks of hypoglycaemia.
- There are no other potentially dangerous complications or co-morbidities associated with diabetes such as:
  - Sight-threatening retinopathy or cataracts.
  - Unstable coronary artery disease or arrhythmias.
  - Transient ischemic attacks.
  - Significant neurological deficits (e.g. cerebrovascular disease, peripheral or autonomic neuropathy).

By contrast, truck drivers are subject to a compounding negative effect far beyond the bad aspects of urban lifestyle. It’s time to steer the problem and not let the problem steer us.

References:

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- Bracing%20Diabetes/Sub-Saharan%20Africa.pdf
- http://diabetes.about.com/td/glossary/term/g/watsonlc.htm
- The 2012 SADMDA Guideline for the Management of Type 2 Diabetes - JEMDSA 2013 Volume 17 No 1 page 61 NA.
- The 2012 SADMDA Guideline for the Management of Type 2 Diabetes: E Diabetes Care in Specific Populations - 26 Diabetes mellitus and driving.
- DIABETES FOCUS - Autumn 2014 - Issue 77

Encourage your driver to visit on the national Trucking Wellness roadside wellness centres and get tested for Diabetes!

![Trucking Wellness](image)

Complete list of Wellness Centre on opposite page