

# Dentists in South Africa aren't being taught genetics. Why they should

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11 Feb 2020

Genetic and genomic research has improved our understanding of the genetic origin of growth, development and disease and affects all areas of healthcare. There is also mounting [evidence](#) that many complex conditions are the result of interactions between genes. These include diabetes and hypertension.



Many genetic abnormalities involve the oral and dental region of the face. Shutterstock

Genomics has become increasingly important to oral health too. Dentists regularly come across obvious expressions of genetic disorders or genetic-based diseases in the oral and head and neck region. There are [approximately 5,500](#) known inherited conditions. More than 700 of these have abnormalities which involve the oral and dental region of the face.

These insights have been gained through continued and concerted efforts to understand the genetic aspects of diseases. This understanding, in turn, has generated novel approaches to prevent, diagnose and manage them.

In the area of dentistry, teaching has unfortunately not kept up with the science, particularly in Africa. This places dentists at a disadvantage. They can't – or find it difficult to – contribute to the overall health of patients with genetic disorders because they don't have the necessary knowledge. This would include the ability to recognise the indicators of genetic disorders and the confidence to manage these patients.

This is why dentists need a sound understanding of genetics. And it's why genetics and genomics should be included in the undergraduate and postgraduate curriculum. Investing in structured dental genetics programmes in dental schools in Africa would ensure an increase in the dental genetics workforce. This would ultimately improve the management of patients with inherited conditions with oral and dental manifestations.

To evaluate the need for human genetics in the dentistry curriculum my colleagues and I conducted a [survey](#) at the dental school at a South African university. Academic staff, 4th and 5th-year undergraduate dental students as well as postgraduate dental students participated in the survey.

The results indicated that students and clinicians had limited training and experience pertaining to the diagnosis and management of individuals with genetic disorders.

## The gap, and how to fill it

Currently, there are no plans in place to train dentists with a sound understanding of genetics. There are also no programmes in place to allow trained African dentists to choose such a career pathway.

As a result, there is an over-dependence of African clinical practice on research findings from technologically advanced Western countries. Secondly, it means that clinical research capacity building isn't happening. And finally, it means that patients aren't being offered the best possible diagnosis and treatment.

There are several factors responsible for the lack of dental genetics in Africa. Among a few challenges are poor biomedical research infrastructure, minimal funding and an absence of a structured dentist genetics career pathways.

To address these challenges, African universities and dental schools need to develop and include dental genetics courses in undergraduate and postgraduate programmes. These should be designed to ensure they help members of the dental fraternity to treat patients with hereditary conditions.

The dental genetics workforce would, in turn, increase trained dentists some of whom could have the option of following a research career. This would enhance networking among African dental researchers and lead to better dental research output across the continent.

Several first world universities, such as the universities of Pittsburg, Manchester and Oslo have included dental genetics into their curricula. Their vast research capacity has resulted in evidence-based dentistry being offered to patients in those countries.

Another way to foster an interest and understanding of genetics in the dental community is by developing collaborative relationships. One already exists in South Africa between the division of human genetics at the University of Cape Town and the dental faculty at the University of the Western Cape. This [partnership](#) runs a dental genetics clinic which serves patients with genetic disorders from across the Western Cape province. Postgraduate students also rotate through the clinic and are mentored in the dental management of children with genetic disorders and congenital abnormalities.

Adding courses on human genetics in the curriculum at dental schools would be a first step to ensuring that more dentists have an understanding of the field.

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