

**Title:** Identifying the entry level predictors of student performance in a medical curriculum

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**Context and setting:** Selection of medical students into South African medical schools is based on a combination of the academic and non-academic merit of prospective students. Traditionally, the academic component relies on marks achieved in the final examination of the penultimate year (Grade 11) of secondary school. At our medical school the aggregate mark for that year, as well as the marks achieved in Mathematics and Science, is used.

Our medical school is currently actively involved in a process aimed at aligning the demographic profile of our student body with that of our country. Selection of black students is a priority for our university, but selection using the traditional criteria poses a problem.

**Why is the idea/change necessary:** As a legacy of the previous system of Apartheid, many black students are still exposed to a disadvantaged schooling system, and their academic performance at school do not necessarily reflect their potential to succeed at tertiary level. In addition, changes in the assessment methodology at secondary school level will commence in 2008, and these criteria will no longer be available to use in the selection process in the future.

Alternative predictors for successful study in our undergraduate medical curriculum therefore need to be identified. It is also necessary to identify and address possible factors in the curriculum that might currently be obstacles to success for students with the potential.

Using predictors that are more appropriate, and addressing possible obstacles to success, should assist our school in its mission to select and retain more students from previously disadvantaged communities.

**What was done:** Neural network analysis (NNA) was used to identify the predictors of success using input and output data of all students admitted into our undergraduate medical programme since 1999.

A large number of input variables was used that related to student demographics (gender, age, ethnic origin, home language); academic performance in secondary school; the results of the national Health Sciences Placement Tests (HSPT) which assess potential to succeed at tertiary education level; and their generic skills and attitudes, as determined by a questionnaire completed by the students at admission to the programme.

As output measures, academic performance during the first and second year of study was used.

**Evaluation of the results:** The neural network analysis showed that the national HSPT results together with certain generic skills and attitudes at entry level of the programme, most accurately predicted the potential of students to succeed during the early years of our medical programme. The results of the HSPT and the generic skills questionnaire would therefore be helpful in our school's future selection process.

The results also indicated that the home language and ethnicity of students are related to academic performance during the first two years of the programme.

The study will be expanded to include all years of study in the medical programme, other Health Sciences programmes at our university, and eventually also to other Health Sciences programmes in the country.