TITLE: Melanoma Measurements

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Cancer in humans is a complex of diseases characterized by the uncontrolled multiplication and resulting disorganised growth (malignant) of the affected cells; it may arise in any of the body's tissue. If this multiplication of cells occurs within a vital organ or tissue, normal function will be impaired or halted, with possible fatal results. Therefore, the first strategy to prevent mortality is prevention and where not possible, early detection. Early detection allows the prevention of the spreading of cancerous cells from the affected site by surgical removal, thus leading to a cure of the disease.

Skin cancer is a disease in which skin cells undergo malignant change, the most aggressive type being malignant melanomas. Melanoma is a disease of the relatively young and of those who develop melanoma, 15-20% die of the disease within 5 years. During the last 50 years or so, the incidence of melanoma has increased at 4-5% per year throughout the world. The death rate for malignant melanoma has also risen during this time period, despite improved survival. Cancer of the skin is now the most prevalent malignancy in light skinned populations worldwide, and melanoma has been increasing at a faster rate than most other cancers.

Malignant melanomas can arise out of malignant change in pre-existing moles (melanomas or naevii). Patients with multiple moles are not easily able to monitor and detect changes in moles situated on the back of the body. The goal of the project is to develop a method to detect early changes in the colour and/or dimensions of moles on the skin of the back in order to reduce mortality from

melanoma. The method developed involves use of a digital camera to take serial photos of the mole and a computer programme used to analyse the photos for changes in colour and dimensions of the mole. The computer programme developed compares two pictures of a mole, taken serially and signals any changes in colour and size of more than five percent (5%) as a positive result. It is also able to compare colour indices at the level of pixels and to measure distances within the mole thus allowing for further analysis in order to detect changes of five percent (5%) or less.