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India honors Dr. Sudam Kate with highest civilian award 'Padma Shri' for work on Sickle Cell

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Dr. Sudam Kate has been conferred with the Padma Shri (2019) – one of the highest civilian award of India given for 'distinguished service' for his pioneering work in the area of medicine – particularly on sickle cell awareness and research. Padma awards – India's highest civilian awards are usually announced on the occasion of Republic day (26th January) every year and will be presented by the President of India to the awardees. Dr. Kate has developed simple, low cost, indigenous diagnosis technique and laboratory technology suitable for field work to identify carrier (who carries the disease but do not show any symptoms) and sufferer (who suffer from disease related complications and show symptoms) of this disease. He has screened more than 2 lakh people for sickle cell and identified over 3000 patients in tribal community from Maharashtra, Gujarat, and Madhya Pradesh states of India. However, many of these tribal people are completely unaware of such condition leading towards painful life. Under sickle cell anemia project (implemented since 1990), treatment of polyhedral drug SC3 is given free of cost to underprivileged people.

Dr. Sudam Kate and image of Padma Shri award.

Sickle cell disease is a common and life-threatening haematological disorder that affects millions of people worldwide – but common in Africa, Europe, Saudi Arabia, and India. Anaemia, mild jaundice, and severe joint pain are the major symptoms of the disease. It is a hereditary defect confined to the structure of hemoglobin molecule present in red blood cells (RBCs) contended in blood. The main function of the hemoglobin is to transport oxygen taken through lungs to various vital organs of the body – which occurs via reversible chemical binding of the oxygen to hemoglobin. Red blood cells (RBCs) which are usually of disc shape gets into the abnormal sickle shape in the oxygen deficient environment. Due to this defect, there is an early destruction of the cells leading towards the medical

condition known as 'Sickle Cell Anaemia'. Sometimes clogging of the sickled red cells in microcapillaries produces tremendous and unbearable pain which does not respond to any pain killer. Repeated sickling and ongoing haemolytic anaemia, even when subclinical, lead to parenchymal injury and chronic organ damage, causing substantial morbidity and early mortality. No other abnormal hemoglobin has such ability which ultimately leads to miserable life to patients suffering from sickle cell disease. This disease is genetically inherited from the parents and ancestors and affects all organs of the body.

Currently available treatments are limited to transfusions and hydroxycarbamide, although stem cell transplantation might be a potentially curative therapy. Several new therapeutic options are in development, including gene therapy and gene editing. Recent advances include improved management of iron overload using oral chelators, non-invasive MRI measurements, and point-of-care diagnostic devices. Controversies include the role of haemolysis in sickle cell disease pathophysiology, optimal management of pregnancy, and strategies to prevent cerebrovascular disease.

Dr. Kate works as head of the department and Emeritus scientist with the Maharashtra Arogya Mandal, a non-governmental organization (NGO) established in 1960 working in health education and tribal development areas (http://www.mam.org.in/Living_With_Sickle_Cell.html). He is the recipient of many other awards including '2017 Sickle Cell Advocate of the Year' award by California based NGO; Lifetime Achievement Award 2015 by Maharashtra University of Health Sciences, Maharashtra, India.

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