

M Mujibur Rahaman

Transformed health in rural Bangladesh by developing an oral rehydration solution and introducing hygiene measures

M Mujibur Rahaman (b 1936; q Dhaka Medical College 1959; MSc, PhD), d 14 November 2014.

Bangladesh was recently recognised by the World Health Organization (WHO) as having exceeded the Millennium Development Goals set for resource limited countries. Mujibur Rahaman pioneered the development of both the intravenous and, more importantly, the oral rehydration therapy approaches to cholera and other diarrhoeal diseases. He joined the country's Cholera Research Laboratory (CRL) in 1966 and was critical in securing continuing support for it through the Bangladesh liberation war, and its transition into the International Centre for Diarrhoeal Diseases, Bangladesh (icddr,b). It was at icddr,b that many of the innovative practical health interventions were developed, and then deployed nationally by government programmes as well as non-governmental initiatives.

“Citation classic”

After graduating, Rahaman studied nutrition in the USA and then completed a PhD in Glasgow. He was one of two authors of a study showing that skinfold thickness could be used to measure body fat content. The paper is considered a “citation classic,” and by the end of 2014 it had been cited 1618 times.¹

On returning to Bangladesh, Rahaman joined the CRL and contributed to the development of the Dacca solution—which is now known as cholera saline IV and is used globally to rehydrate patients with cholera. Subsequently he worked on an oral rehydration solution, adapting its scientific formulation to a homemade simplification using molasses or a rice base. A study he led showed that mortality from diarrhoea was higher the further people lived from health facilities. So in a rural area he made packets of oral rehydration solution available in selected households where villagers could collect it, and provided training on how to use the solution. After a year, the use of oral rehydration solution had doubled in the test village compared with the control village, and mortality from diarrhoea was 20% lower. The study led to services being spread through Bangladesh villages, and there was recognition that other basic services, such as family planning, and maternal and child health, needed to be delivered directly to villages.²

Mujibur Rahaman transformed hygiene practices in rural Bangladesh in a way that has still not been achieved in many other resource poor countries



Preventive services

Rahaman also led the way with preventive services, installing latrines and tube wells; educating women on how to maintain them and keep them clean; and educating villagers to drink well water, use the latrines, and wash their hands. His studies showed that these measures affected not only diarrhoea but also infant mortality and family size. In short, he transformed hygiene practices in rural Bangladesh in a way that has still not been achieved in many other resource poor countries. When he began his work, life expectancy was 50, infant mortality was 200 per 1000 births, and a third of infant deaths were from diarrhoea. Now in Bangladesh, life expectancy is 70, infant mortality is 50 per 1000 births, and diarrhoea accounts for only 5% of infant deaths.

In 1971, towards the end of the Bangladesh liberation war, Rahaman contacted William B Greenough III—who led the Bangladesh Information Centre from Washington, DC, during the war—to explore how to continue funding the CRL. The US government had provided military aid to Pakistan and was not welcome in the newly independent Bangladesh. Rahaman took the initiative to ensure that the laboratory was funded and functioned smoothly between 1972 and 1978, when it was transformed into the icddr,b. He made certain that those in the US who supported the Bangladesh cause could continue

to fund the work of the CRL, and that the care of patients with cholera was to continue uninterrupted by the war. This was done through an arrangement with the International Rescue Committee, which received funding from the National Institutes of Health for continuing support of the laboratory.

International impact

Rahaman had a pivotal role in the transformation of the CRL to its current international status, when there was opposition to such a step. He served as both an interim and a deputy director of the centre, and his dream was that an international research and service organisation should encourage more Bangladeshis to achieve the status of world class public health scientists. He led the diversification of the centre's research agenda, prompting it to investigate diseases related to cholera, nutrition, and demography. His work and that of others showed how malnutrition and diarrhoea form a vicious cycle.

In 1974 the news of an epidemic of bloody dysentery on St Martin Island in the Bay of Bengal drew the attention of the government. Rahaman flew to the island with his team and discovered that the bloody dysentery was caused by a strain of *Shigella dysenteriae* type 1 that is highly resistant to common antibiotics. In collaboration with other scientists, he was able to show how shigella can cause haemolytic uraemic syndrome, leading to renal failure and other pathophysiology.

Rahaman was always approachable, and he would welcome anyone, no matter what his or her position or nationality. His advice was widely sought, not only on scientific issues, but also on managerial and personal issues, and he was highly respected internationally—later holding positions at WHO and the UN Food and Agriculture Organisation (FAO). His vision of an international research organisation was broad, and he encouraged the development of young scientists.

Rahaman leaves his wife, Morzina Begum; three daughters; and one son.

William B Greenough III, Jean Sack

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Carlos E Baena-Cagnani



Professor and paediatric allergist Cordoba, Argentina (b 1951; q Catholic University of Cordoba), d 31 December 2014.

Carlos E Baena-Cagnani had a passion for basing medical practice on evidence and was instrumental in changing the public perception of allergy in Argentina, his home country, and throughout Latin America. He provided information on the practice of allergy in developing countries, particularly Latin America, and worked with deprived populations. A founder member of the Global Alliance against Chronic Respiratory Diseases (GARD), Baena-Cagnani organised the first meeting, in Buenos Aires. After training in allergy at the University of Navarra in Pamplona, Spain, under the mentorship of the late Alberto Oehling, Baena-Cagnani returned to Argentina and settled as a paediatric allergist in Cordoba, where he was promoted to professor. He was also an associate professor of pulmonology in Genoa, Italy. He died suddenly while celebrating with his family. He leaves four children and six grandchildren.

G Walter Canonica, Jean Bousquet
Cite this as: [BMJ 2015;350:h544](#)

Derek Cracknell



General practitioner Huntingdon (b 1927; q Barts 1951; MBE), died from pneumonia on 1 August 2014.

Derek Cracknell joined the Huntingdon surgery that is now known as Priory Fields Surgery in 1959. He started the Huntingdonshire emergency charity Magpas with a colleague as a voluntary out of hours service in 1971. It evolved into a scheme where more than 200

GPs would attend emergencies across the region; it now consists of specially trained volunteer medics who use a helicopter to fly to incidents. Cracknell also had a key role in securing the opening of Hinchingsbrooke Hospital 30 years ago. He retired as a GP in 1997 but continued to be a doctor for Silent Channel and Stewart and Lloyds Plastics until 18 months ago and was registered until he died. Cracknell leaves his wife, Mavis; three sons; two daughters; 17 grandchildren; and six great grandchildren.

Janet Evans, Alison McCreery
Cite this as: [BMJ 2015;350:h943](#)

William Francis Griffith



Former general practitioner (b 1921; q 1953; DRCOG), died from a myocardial infarct secondary to ischaemic heart disease on 30 September 2014.

William Francis Griffith ("Bill") attended Wycliffe College, where he was a keen sportsman. From there he studied economics and, after being called up in 1942, he trained as a pilot and saw enemy action flying Spitfires in the British Pacific Fleet in 1945. On returning home he decided on a change of career and was accepted at University College Hospital Medical School in London. After passing DRCOG at St Paul's Hospital in Cheltenham, he became a partner in general practice at the Abbot's House in Shrewsbury and stayed for 30 years. This was followed by a long and fulfilling retirement. He leaves his wife, Vyvien; a daughter; and three grandchildren.

Claire Jardine
Cite this as: [BMJ 2015;350:h738](#)

Doreen Jewkes

Consultant anaesthetist King's College Hospital, London (b 1930; Charing Cross Hospital Medical School 1955, FRARCS), died from pulmonary embolism on 19 January 2015.



For 30 years Doreen Jewkes led the anaesthetic department of the National Hospital for Nervous Diseases, Queen Square, London. After retiring she continued working at King's College Hospital until she was 70. She encouraged Upendra Devkota in establishing the first regional neurosurgical centre in Nepal, supporting it with medical equipment and staff. For her services she was bestowed with the Order of Gorka Dakshina Bahu in 2002 by the King of Nepal. A major force in the charity Crossroads (caring for carers) in Lewisham for nearly two decades, she served for much of that time as chair of the board and for 18 months as chief executive, and retired when she turned 80. She leaves her husband, Reginald; two daughters; five grandchildren; and a lineage of Italian greyhounds.

Rachel Jewkes
Cite this as: [BMJ 2015;350:h1011](#)

Zenon George Panos



Former chief medical officer Cyprus (b 1909; q Athens 1935), d 11 September 2014.

Zenon George Panos had a major role in Cyprus's Anopheles eradication scheme in 1944-49; Cyprus was declared free from malaria in 1950. In 1960, having served as district medical officer in all six of the island's administrative districts, Zenon was appointed chief medical officer. He formulated and implemented a policy for the successful elimination of hydatid disease, restructured training at the school of nursing and midwifery, upgraded psychiatric services, extended the rural health scheme, and enhanced the maternal and child

health programme, achieving a sharp drop in infant mortality. Between 1969 and 1974 he was senior adviser to the World Health Organization in South Yemen and Iraq. He leaves a wife, two sons, and two granddaughters.

Marios Z Panos, George Z Panos
Cite this as: [BMJ 2015;350:h145](#)

Robert Gladstone Smith



Former general practitioner Wallington (b 1919; q King's College Hospital 1951; MRCS Eng, DObst RCOG, DA Eng, MRCGP), died from amyloid heart disease on 27 February 2014.

Robert Gladstone Smith qualified when already married and a father. After house jobs in casualty and ear, nose, and throat medicine, he joined a practice in Wallington. He remained interested in medical developments throughout his career and was quick to adopt new technology. He was secretary of the Sutton and Cheam Medical Society and involved in the polio vaccination campaign with the Rotarians. When, in the 1980s, his surgery premises had to be vacated he led a project to build new premises for his practice. He retired at age 68 but carried on with medical insurance examinations. He leaves Jane, his wife of 67 years; four children; eight grandchildren; and five great grandchildren.

Julia Smith
Cite this as: [BMJ 2015;350:h737](#)

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