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**DR MK RAJAKUMAR:
ON PRIMARY CARE (AND POPULATION HEALTH)**

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ABSTRACT

DR MK RAJAKUMAR: ON PRIMARY CARE (AND POPULATION HEALTH)

Dr MK Rajakumar fought the good fight on many fronts. In the 1970s, with domestic left-wing politics on the ebb, Dr Rajakumar shifted his energies to another arena of human endeavor he was passionate about, health and medical care for the needful. Throughout the 1980s and 1990s, Dr Rajakumar worked tirelessly to advance primary care medicine and to raise the standard of its practice in Malaysia and in the region. This article explores his writings on primary care within the context of an emerging population health perspective.

KEYWORDS: MK Rajakumar, primary care, population health, biomedical sciences, politics

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1. MEDICINE AND POLITICS, MEDICINE AS POLITICS

Dr MK Rajakumar fought the good fight on many fronts. In the 1970s, with domestic left-wing politics on the ebb, Dr Rajakumar shifted his energies to another arena of human endeavor he was passionate about, health and medical care for the needful.

His clinic practice at the Jalan Loke Yew flats gave him much satisfaction and joy, especially when he was able to deploy his skills and his resources to deliver tangible benefits to the socially disadvantaged residents of Kuala Lumpur. Notwithstanding the generosity of his care and his compassionate support, he was also well aware of the limits to what an individual doctor, even one as dedicated as himself, could achieve.

Syed Hamid Ali for instance recalls an encounter in the 1960s when he was a young man weighing the options for his future path(s)¹:

...After finishing secondary school, I intended to continue my studies in medicine and was accepted into a university in India. But my aspiration came to naught as my family's financial situation did not allow for it even though the expenses required then were much lower than what they are now. I then decided to go to Kuala Lumpur to join my brother who was doing his Masters at the University of Malaya. Gradually, many friends of my brother, Syed Husin, became my friends as well. One of them was Dr MK Rajakumar. Rajakumar was then a young doctor at the Kuala Lumpur General Hospital. He showed great concern over my problem of not being able to pursue my studies in the sciences. One day, he engaged me in a conversation that was longer than usual and in the midst of it said to me, "Hamid, I am a doctor and I hope you can mull over this matter: the addition of one more doctor does not necessarily mean things are going to change for the better for the people." "But if you are a policy maker who is honest and truly understands the needs of the rakyat, the change will definitely be great. It does not matter whether you are a doctor or not," he added.

This calls to mind Rudolf Virchow's memorable declarations that "*medicine is a social science, and politics is nothing more than medicine on a grand scale*" and that "*the physician is the natural attorney of the poor*". Virchow (1821–1902) was a German physician, pathologist, anthropologist, public health activist, pre-historian, biologist and politician. This remarkably broad engagement was well-captured in

¹ Syed Hamid Ali. 2008. Remembering Dr MK Rajakumar (translated from Bahasa Malaysia by Tan Pek Leng). *Aliran* 28(10):26-27.

frequent references to him as a founding figure in *cellular pathology* as well as in *social medicine*², i.e. at opposite poles of an etiological spectrum in the medical sciences. Just as Amartya Sen has argued for democracy as a bulwark against widespread famines³, Virchow famously declared that *full and unlimited democracy* was the pre-condition for eliminating the scourge of typhus from poverty-blighted working class communities in Upper Silesia in the 19th century⁴.

This view of medicine had much resonance with Dr Rajakumar. Nonetheless, in the 1970s, Dr Rajakumar traced a reverse path between politics and medicine in his own engagements. Based on his assessment of the political moment in Malaysia, in particular the unfavorable circumstances facing the Malaysian left, he was inclined towards a tactical withdrawal from the political arena to reconsolidate to fight another day, even as he continued working towards a more favorable conjuncture.

Throughout the 1980s and 1990s, Dr Rajakumar worked tirelessly to advance primary care medicine and to raise the standard of its practice in Malaysia and in the region. His leading roles in the Academy of Family Physicians Malaysia (President, 2003-2005), College of General Practitioners of Malaysia (Chairman of Council, 1976-1995), and the World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians (WONCA President, 1986-1989) have been well described in other chapters of this volume.

As MMA president (1979-1980), he went beyond the parochial interests of the medical profession, steering the association towards a medical statesmanship role which took on responsibility for envisioning and producing a road map for the future of healthcare in Malaysia which could entrench the public sector's legacy of providing healthcare on the basis of need⁵. Besides being an inspirational figure for many medical doctors and primary care practitioners, he was also concerned with broader scientific capabilities in the country, which he pursued through his involvements with

² "...Virchow's career in social medicine was equally remarkable. His most famous contribution was his "Report on the Typhus Epidemic in Upper Silesia". The report originated when Virchow was asked by the Minister of Education to help investigate scandalous conditions in this poor rural area under Prussian control, with a large population of "ethnic Poles." Although he studied many dimensions of the epidemic, his 190-page report is best remembered for its final 30 pages. Here Virchow applied ideas on the social causation of disease, derived from French and English sources, to conditions in Silesia and showed a close and sympathetic familiarity with Friedrich Engels' stirring indictment, *Condition of the Working Class in England* (1844). Caught up in the heady atmosphere of his revolutionary times, Virchow enthusiastically endorsed what he proudly labeled "radical" political recommendations [for the health problems of Upper Silesia]: introduction of Polish as an official language, democratic self-government, separation of church and state, and the creation of grassroots agricultural cooperatives..." TM Brown & E Fee. 2006. *American Journal of Public Health* 96(12):2102-2105.

³ Sen, Amartya, *Poverty and Famines: An Essay on Entitlements and Deprivation*, Oxford, Clarendon Press, 1982; Sen, Amartya, *Development as Freedom*, Oxford, Oxford University Press, 1999.

⁴ Report on the Typhus Epidemic in Upper Silesia | Excerpted from Virchow RC. *Archiv für pathologische Anatomie und Physiologie und für klinische Medicin*. Vol 2. Berlin, Germany: George Reimer; 1848;143–332. For an English translation, see Virchow RC. *Collected Essays on Public Health and Epidemiology*. Vol 1. Rather LJ, ed. Boston, Mass: Science History Publications; 1985:204–319. See also, Taylor R, Rieger A. Medicine as social science: Rudolf Virchow on the typhus epidemic in Upper Silesia. *Int J Health Serv*. 1985;15:547–559.

⁵ MMA. 1980. The future of the health services in Malaysia : a report of a committee of Council of the Malaysian Medical Association / chairman: M.K. Rajakumar. Kuala Lumpur: MMA

the Academy of Sciences of Malaysia (Vice-President, 1995-1998), and the Malaysian Scientific Association (President, 1981-1983).

2. Medicine, Biomedical Sciences, and Population Health

In the 1960s and 1970s, the hitherto unchallenged presumption that improvements in human health by and large flowed from advances in (bio)medical knowledge, feeding through to professional practice and individual care, came under scrutiny.

The debate was launched by Thomas McKeown who began publishing his findings in the 1960s on the historical decline of tuberculosis mortality in England and Wales⁶. McKeown had noted that tuberculosis mortality in England and Wales over the period 1838-1960 had declined by more than 85% by 1945. Since this occurred well before the discovery and isolation of streptomycin in 1947 by Waksman and Schatz (one of the early antibiotics effective against the tubercle bacillus) and well before the widespread availability of BCG vaccination from the 1950s onwards, McKeown reasoned that factors other than medical intervention had been paramount in the historical decline of tuberculosis mortality in the two countries. His subsequent theses on the main drivers of population growth and mortality decline in the early industrializing countries spawned vigorous debates⁷.

In addition to economic growth and improvements in food intake and nutritional status which McKeown himself highlighted, others argued also for the population health impacts of birth spacing and family size, housing and sanitary reforms and clean water supplies (most importantly, the social movements and interventions that inspired and sustained these campaigns), and safe milk supplies (pasteurization and eradication of bovine TB from livestock herds)⁸.

Richard Lewontin, in generalizing the argument to the major causes of infectious mortality, gave lesser weight to potable water supplies and sanitation, at

⁶ McKeown, Thomas. 1971. A Historical Appraisal of the Medical Task, in *Medical History and Medical Care* (ed. G McLachlan & T McKeown). London: Oxford University Press; McKeown T, Brown RG, Record RG. 1972. An interpretation of the modern rise of population in Europe. *Popul Stud.* 26:345–382.

⁷ Colgrove J. 2002. The McKeown thesis: a historical controversy and its enduring influence. *Am J Public Health* 92:725–729.

⁸ Mortality from typhus fever, another major killer in the 19th century which was tabulated separately as a cause of death in UK mortality statistics from 1869, showed continuous decline over the ensuing decades in the UK, such that by 1906, three years before Charles Nicolle discovered that the body louse transmitted typhus, London County Council reported no more deaths from that disease. Typhus fever, closely associated with poverty, poor housing, overcrowding, and poor hygiene was much less common among the middle and upper classes in 19th century England. Its decline was arguably linked to the increased availability of public baths, wash-houses, and widening use of cotton clothing, particularly underwear, which allowed for improved personal cleanliness. Meanwhile, Sonja and John McKinlay in the United States similarly concluded from their historical analyses that medical intervention had only a minor impact (about 3%) on the overall decline in infectious mortality in the US between 1900-1973, which in turn accounted for 69% of the overall decline in US mortality during that period.

least among the early industrializing countries⁹. He may however have downplayed the synergistic interactions of diarrheal disease and malnutrition on childhood mortality, especially in poorer countries¹⁰:

The history of tuberculosis is the history of nearly all the major killers of the nineteenth century. Whooping cough, scarlet fever, and measles, all with death rates in excess of 1,000 per million children, and bronchitis, all declined steadily with no observable effect of the discovery of causative agents, of immunization or of chemotherapy. The sole exception was diphtheria which began its precipitous decline in 1900 with the introduction of anti-toxin and which was wiped out in five years after the [US] national immunization campaign. The most revealing case is that of measles which killed about 1,200 in every million children in the nineteenth century. By 1960, despite the complete absence of any known medical treatment, it had disappeared as a cause of death in Britain and the US while in much of Africa it remains the chief cause of death of children. The causes of the tremendous decline of mortality from infectious diseases in the last 100 years are not certain. All that is certain is that "scientific medicine" played no significant part. Water supply and sanitation are not involved, since water-borne diseases have not been the major killers. The suggestion that a reduction in crowding may have reduced the rate of transmission of respiratory diseases is not altogether convincing, since measles remains pandemic although it kills virtually no one in advanced countries. The most likely explanation, both for the historical trend and for the differences between regions of the world today, is in nutrition, although hard evidence is not easy to come by.

Simon Szreter, who had played a prominent role in the critical re-appraisal of McKeown's work, summed up the consensus thus: *"The medical profession's scientific leaders have, since McKeown's time, had to change their tack and concentrate on the future, rather than the past, as the field in which they can stake the claim that they can save humanity from all its ailments with science"*¹¹.

⁹ Lewontin, RC. 1979. Death of TB. *New York Review of Books*, vol 25, numbers 21 & 22 (January 25, 1979).

¹⁰ Scrimshaw, NS, Taylor, CE & Gordon, JE. 1968. *Interactions of Nutrition and Infection*. Geneva: World Health Organization; Scrimshaw, NS. 2003. Historical Concepts of Interactions, Synergism and Antagonism between Nutrition and Infection: *J Nutr* 133:316S-321S

¹¹ Szreter, S. 2002. Rethinking McKeown: The Relationship Between Public Health and Social Change. *Am J Public Health* 92: 722-725.

3. PRIMARY CARE MEDICINE AND POPULATION HEALTH

A population health approach differs from traditional medical and health care thinking in two main ways. Population health strategies address the entire range of factors that determine health. Traditional health care focuses on risks and clinical factors related to particular diseases. Population health strategies are designed to affect the entire population. [Traditional] health care deals with individuals one at a time, usually individuals who already have a health problem or are at significant risk of developing one.

Strategies for Population Health: Investing in the Health of Canadians Federal, Provincial & Territorial Advisory Committee on Population Health, 1994
www.phac-aspc.gc.ca/ph-sp/phdd/pdf/e_strateg.pdf

In reading the collection of essays and speeches by Dr MK Rajakumar which was painstakingly compiled by the Academy of Family Physicians of Malaysia¹², I was intrigued by a recurrent question, an enigma which currently resonates with an important debate in primary care circles¹³: what were Dr MK Rajakumar's further, evolving thoughts regarding the population health perspective, and how primary care medicine might relate to population health?

In a 1977 speech, Dr Rajakumar noted that "hospitals have made great advances into the institutional management of a relatively small number of cases of advanced disease, using high technology and specialized skills. The well-loved figure of the general physician and the general surgeon dissolved into the technologies of the super-specialties whilst medicine outside the hospitals became neglected and stagnant, [and] the familiar family doctor [faced] extinction. A hiatus in medical care developed. This hiatus in medical care is at the root of the contemporary crises in medicine. The community resents the impersonality of hospital medicine and denigrates the services provided by doctors. Social thinkers deride medical achievement because most of the decline in mortality and morbidity is attributable to improvement in housing and nutrition, and much of the rest to immunization. Great numbers of ordinary people doubt the advice of their own doctors and turn instead for hope and help to mysticism and fringe medicine."¹⁴

¹² CL Teng, EM Khoo and CJ Ng (eds.). 2008. Family Medicine, Healthcare & Society: Essays by Dr MK Rajakumar. Kuala Lumpur: Association of Family Physicians of Malaysia.

¹³ see for example B Starfield, J Hyde, J Ge'rvas, I Heath. 2008. The concept of prevention: a good idea gone astray? *J Epidemiol Community Health* 62:580–583; Ruth Martin-Misener & Ruta Valaitis. 2009. A Scoping Literature Review of Collaboration between Primary Care and Public Health. A Report to the Canadian Health Services Research Foundation.

¹⁴ MK Rajakumar. The importance of primary care. *Journal of the Royal College of General Practitioners*, 1978, 28, 91-95.

On other occasions, Dr Rajakumar remarked on the uncertain fortunes of stand-alone primary care faced with the encroachments of investor-owned hospital-based care. He sensed the public's disquiet towards the commercial-mindedness of an increasingly profit-driven private healthcare sector, further exacerbated by the impersonality and fragmentation of technology-intensive specialist medicine. Under such circumstances, he worried that the erosion of trust between patient and care provider may in time narrow the credibility gap between a commercially-compromised biomedicine, and the unsystematic empiricism of traditional and complementary medicine (TCM). Clearly, he found worrisome an uncritical receptivity to TCM, encouraged by the notion that if nothing was certain (or trustworthy), everything was plausible:

It has become politically popular to push the use of traditional medicines or even urge their incorporation into modern medical practice. I am not saying that there are not therapeutically active agents in traditional medicine. On the contrary, it is likely that research will continue to discover therapeutic activity in various herbal preparations. Traditional medicine is part of the historic heritage of modern medicine. A great deal of the modern pharmacopoeia is still of herbal origins, reflecting the traditional medicines of western and other societies. We owe to herbal medicine a good number of our most important drugs, including morphine, digitalis, ephedrine and atropine. No doubt, more active agents are waiting to be discovered. However, this is quite a different matter from advocating the introduction of unknown, unidentified and untested medications and methods into medical practice. Such a development would open wide the doors to charlatanry and the community would be the worse.

Dr Rajakumar was keenly alert to the malleability of Primary Health Care (PHC) rhetoric, how easily it could be mobilized for diametrically opposite intentions. In particular, he was vigilant about sloganeering which could be “used loosely as a synonym for a form of minimal health care activity designed for poor countries as a substitute for good health care; a basic system planned by public health officials and delivered by lay health worker and using traditional healers where necessary. This seems to me to be a retrograde development. It must be admitted that there are a few nations in the world so poor and so disorganized that very little health care is better than none at all. Nevertheless if not today, then tomorrow, all developing countries can and must aim at delivering modern medical care through trained teams”¹⁵.

Such vigilance is much needed, to ensure that substandard care is not foisted upon those who are socially vulnerable and politically marginalized. By the same token, a similarly vigilant stance is necessary **vis-à-vis** the sloganeering and

¹⁵ Rajakumar MK. 1980. Primary health for all the people. *Singapore Family Physician* 6(1):12-4.

corrupting influences of the promoters and boosters of corporate medicine who are not above appropriating the aura of “scientific and evidence-based” medical care.

Professor David Henry (University of Newcastle) and his colleagues have written extensively about “disease mongering” (‘constructed maladies’) and have provided revealing examples of how pharmaceutical companies and their marketing consultants attempt to shape medical and public opinion about disease categories and those people deemed to be at risk of these conditions. They argue that “irritable bowel syndrome”, “erectile dysfunction”, “social phobia”, “premature” hair loss (baldness), and reduced bone mass (osteoporosis) are current examples of *medicalisation* linked to deliberate, calculated efforts to exploit human vulnerabilities and anxieties¹⁶.

Barbara Starfield, a leading figure in primary care medicine, laments “*the progressive lowering of thresholds for “pre-disease”, particularly hypertension, serum cholesterol and blood sugar...[where] risk factors are increasingly considered as equivalent to disease... Encouraged by interests vested in selling more medications for “prevention” and more medical devices for testing, the pressure for increasing “prevention” in clinical care directed at individuals is inexorable - even though it is not well supported by evidence in populations of patients*”¹⁷.

The completion of the sequencing of the human genome in 2000 also provided the occasion for extravagant claims for genomics as an all-round panacea for the major health (and social) problems of humanity in the 21st century. Notwithstanding this *genohype*¹⁸, there has been limited success thus far with gene-based therapies, and few promising candidates on the horizon¹⁹⁻²⁰⁻²¹⁻²². Commercial interest is thus likely to shift towards genetic testing for “disease susceptibility” alleles in line with a “paradigm shift” towards “predictive medicine” (genetic profiling of individuals for assessing risk of future illnesses). This has the added attraction that mass markets are involved, since the genetic testing for “disease susceptibility” may be applied in a routine manner as part of well-person (or well-child) care and screening. Accompanying this almost certainly will be corporate

¹⁶ Moynihan R, Heath I, Henry D (2002) Selling sickness: The pharmaceutical industry and disease-mongering. *BMJ* 324:886–891.

¹⁷ Starfield, et al., *ibid*.

¹⁸ *genohype*, expressive phrase introduced by NA Holtzman to denote the overblown expectations of the benefits that genomics can confer on patient care and population health. NA Holtzman. 1999. Are genetic tests adequately regulated? [editorial]. *Science* 286(5439):409.

¹⁹ Holtzman NA & Marteau TM. 2000. Will Genetics Revolutionize Medicine? *New Engl J Med* 343(2):141-144

²⁰ R Hubbard & RC Lewontin. 1996. Pitfalls of Genetic Testing *New Engl J Med* 334 (18):1192-1194 (Correspondence *New Engl J Med* 335 (16):1235-1237 - Stern HJ, Maddalena A, Schulman JD, Foulkes WD, Bunn HF, Stossel TP, Forget BG, Stamatoyannopoulos G, Weatherall DJ, Hubbard R, Lewontin RC).

²¹ Patients have yet to benefit from genome research (*Miami Herald*, 12 October 2004) <http://www.miami.com/mld/miamiherald/news/nation/9895562.htm> Gilbert Omenn, a cancer specialist and president-elect of the American Association for the Advancement of Science was quoted as saying that despite an “avalanche of genomic information... cancers remain a largely unsolved set of medical problems [for which] we continue to rely on highly toxic drugs”.

²² Nicholas Wade. A Decade Later, Genetic Map Yields Few New Cures. (*New York Times*, June 12, 2010).

R&D aimed at producing “pills for the healthy ill” (the worried well)²³ to carve out sizeable new markets not just for screening tests but also for “prophylactics” for those deemed to be “at risk” and consequently anxious for the availability of some (commodifiable) risk reduction options. Conversely, corporate R&D will continue to ignore and bypass the “neglected diseases” of the poor, a scandalous situation which has been well documented by *Médecins Sans Frontières* (MSF)²⁴.

4. THE SOCIAL ECOLOGY OF HEALTH & DISEASE

McKeown and Szreter’s medical skepticism emerged in relation to the public health histories of the early industrializing countries. McKeown’s thesis however is not so easily generalizable to the late industrialisers and poorer countries in post-WW2 circumstances, at a time when modern biomedical technologies such as vaccines, antimicrobials, vector control technologies, diagnostics, etc progressively came on the scene. Is there perhaps a case for revisiting McKeown’s thesis in the context of these countries?

Let’s take Malaysia as an example: if we juxtapose our (relatively) favorable population health statistics with the very modest public sector expenditures on health care (for many years, in the vicinity of 2% GDP), we might perhaps entertain the possibility that “medical and health care” (in the narrow sense) had relatively little to do with the steady improvements in population health since Merdeka. More soberly, my own gut feeling (a researchable question) is that the Rural Health Service (one of the more positive sequela of NEP ethno-populism) had a significant impact on population health, recalling that the World Health Organisation rated Malaysia second (after Cuba) for geographical access to primary health care. Indeed, Malaysia was remarkable in achieving much of Alma Ata’s PHC goals via an institutionalized formal health delivery system, with minimal resort to health auxiliaries and community health workers (‘barefoot doctors’). But we should also note that the RHS included elements of potable water supply, sanitary latrines (*tandas curah*), environmental hygiene, the Applied Food and Nutrition Program, etc so it remains a challenge to disentangle these factors in their interactive effects with vaccination, pre-natal care, post-natal care, maternal and child health programs, primary medical care with referral backup, health and nutrition education, vector control of communicable diseases etc, not to mention the more distal ‘non-health’ social determinants such as parental (especially maternal) literacy, redistributive

²³ Wallace, H. 2002. *Genetics and ‘Predictive Medicine’: Selling Pills, Ignoring Causes*. GeneWatch UK, Briefing Paper Number18, dated May 2002; World Health Organization. 2002. *Genetic Technologies: Implications for Preventive Health Care* (A Report for WHO prepared by GeneWatch, UK). Geneva: World Health Organisation, Human Genetics Program.

²⁴ Trouiller, P., Olliaro, P., Torreele, E., et al. (2002). Drug Development for Neglected Diseases: A Deficient Market and a Public Health Policy Failure. *Lancet* 359,2188-2194.

effects of the NEP, agricultural development projects, rural electrification, rural access roads, etc.

Let's recall also that our recent outbreaks of Nipah and SARS erupted and subsided in the absence of diagnostics, vaccines or effective medicines. In the case of SARS, quarantine and meticulous contact tracing, i.e. a centuries-old technique, was a decisive intervention, along with risk avoidance and other coping behaviors.

The lesson perhaps is that in appraising the contribution of modern biomedical science to disease control and to population health, it is important to distinguish between *knowledge-based practices and coping responses*, as opposed to an undue focus on *commodifiable consumables*.

To my lasting regret, I did not take the opportunities to engage more with Dr Rajakumar on matters of primary care, population health, and more general concerns, but if I might presume to divine what his thinking was on these issues, my guess is that he would have leaned favorably towards Robert Evans' synthesis and resolution of the "Cuban Paradox"²⁵:

Szreter [in his critical reappraisal of McKeown's thesis] appears to take a relatively benign view of McKeown's "rhetorically powerful critique, from the inside, of the medical profession's mid-20th century love affair with curative and scientific medicine". It is the dismissal of public health, broadly or narrowly interpreted, that [Szreter] challenges, not [McKeown's] medical skepticism. But there is no medical skepticism in Cuba. Along with efforts to address a broad range of non-medical determinants of health, Cuba has trained by far the world's largest supply of physicians per capita. Rather than seeing medical and non-medical determinants as competitive, Cuba has chosen, despite very limited resources, to go for both. The difference appears to be that in Cuba, primary care physician (and nurse) teams have responsibility for the health of geographically defined populations, not merely of those patients who come in the door. These teams are then linked to community- and higher-level political organizations that both hold them accountable for the health of their populations and provide them with channels through which to influence the relevant non-medical determinants. To take on these roles, the medico familiar integrale (MFI) is trained in both the medical and the non-medical aspects of health. Cuba has made operational the ideas sometimes described as "Community-Oriented Primary Care" (COPC). The medical care system, rather than working in isolation from the non-medical determinants of health,

²⁵ Robert G. Evans. 2008. Thomas McKeown, Meet Fidel Castro: Physicians, Population Health and the Cuban Paradox. *Healthcare Policy* 3(4):21-32.

becomes a key part of the process, the mechanisms of social intervention, through which those non-medical determinants are addressed. And the success or otherwise of those interventions is then reflected in the epidemiological data collected as part of the regular functioning of the medical care system. More doctors, but with broader training and scope, more responsibility, and institutionalized access to political authority.

This last sentence could well have been Dr Rajakumar's exhortation and legacy to the global primary care movement, which celebrated his accomplishments by naming its Asia Pacific contingent *The Rajakumar Movement* (<http://rajakumarmovement.org/>) to honor his memory.

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July 19, 2010 (revised)*