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Editorial

Research in.....

*“ To be, or not to be : that is the question :
Whether 'tis nobler in the mind to suffer
The slings and arrows of outrageous fortune
Or to take arms against a sea of troubles,
And by opposing end them ? ”*

This famous soliloquy spoken by Hamlet penned by the immortal author Shakespeare zeroes in on man's constant struggle for survival. Fighting against the volatile and hostile environment in which he lives the super ape is in incessant quest to find ways to ward off the predictable and mostly the unpredictable threats that conspires to annihilate him. The colossal dinosaur permanently retreated into the permanent extinction but not man, why? This is because they have learnt to adapt to the evolving time for which constant research and development is necessary. Dear all, needless to say the recent pandemic (COVID19) has shaken our confidence of survival from the very root and jerked us to the awareness that yet enough has not been done and lots remain to be achieved explored and implemented if man wishes to trod on this earth for many centuries to come.

Speaking from our Indian perspective we prefer to be blissfully ignorant about the onslaught of time and the hecatomb that has followed. The satanic cloud is still looming large yet the steps to combat it, adopted by us, is as trivial as David trying to defeat Goliath with his crude weapons. “BUT WHAT EXACTLY DO WE REQUIRE TO DO ?” your voice might blare out at me. I would shout back to you with equal gumption, ‘RESEARCH AND DEVELOPMENT’. Living in a fool's paradise is a luxury we cannot afford in the present time .

But what is Research and Development? The version used by Organisation for Economic Co-operation and Development (OECD)/Eurostat/UNESCO is as follows: Research and experimental development comprise creative work undertaken on a systematic base in order to increase the stock of knowledge, including knowledge about man, culture and society, and the use of this knowledge to devise new applications. The Frascati Manual is a document stating the

methodology for collecting statistics about research and development. Frascati Manual classifies research into three categories:

- Primary research is experimental or theoretical work undertaken primarily to gain new knowledge about observable phenomena and facts, not directed toward any specific application.

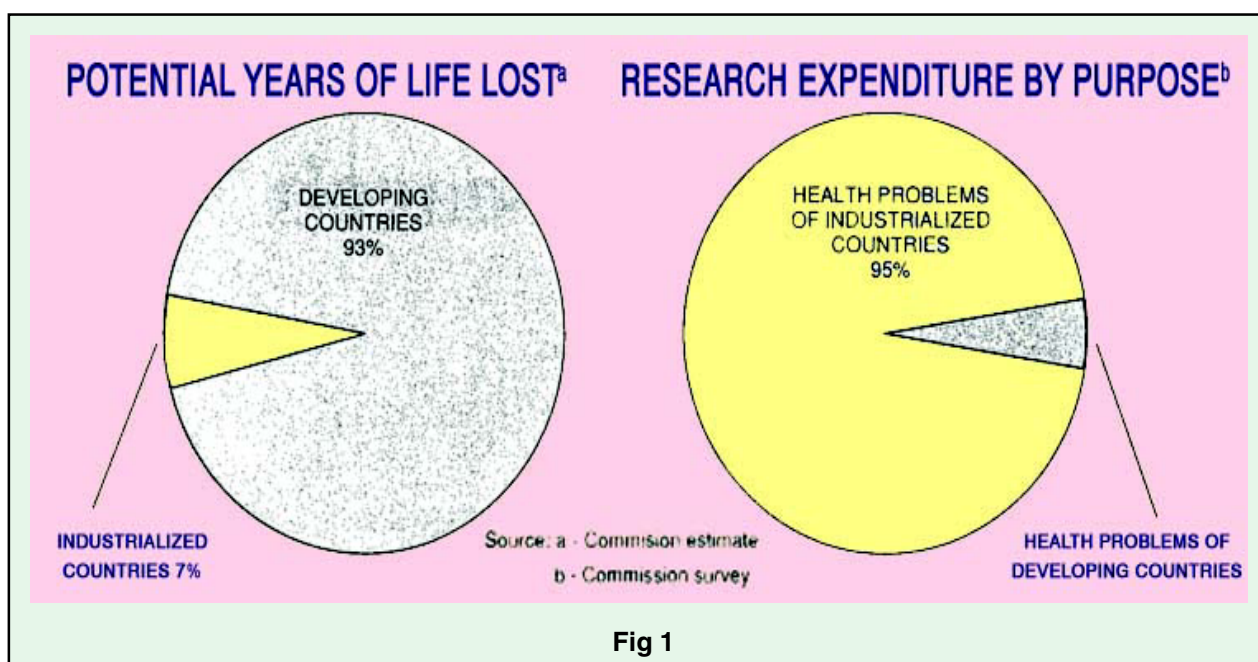
- Applied research is original investigation to acquire new knowledge directed primarily towards a specific practical aim or goal.

- Experimental development is systematic effort, based on existing knowledge from research or practical experience, directed toward creating novel or improved materials, products, devices, processes, system or services.

One of the greatest global health problems is that there is incoherence between the health research and development (R&D) that is required and that which is attempted. The dependence of health R&D on private sector and the lack of coordination between public and philanthropic funders on global R&D priorities have resulted in a global health R&D that is not 'needs-driven'. First demonstrated in 1990 it was shown that less than 10% of global health research expenditure was spent on the health problems of developing countries, which then represented more than 90% of the world's burden of preventable mortality (Fig 1)¹.

This neglect can be seen in the lack of R&D for diseases that predominantly affect developing countries (the 'neglected diseases'), in the lack of R&D that addresses the specific needs of developing countries in relation to diseases with a global incidence, and in the lack of development of affordable medicines for all¹. But the problem of neglect extends beyond the developing world, as becomes clear from the global lack of R&D for new antibiotics, appropriate children's medicines (and other products), and orphan diseases. In addition to neglected populations, there are neglected products. R&D is generally more focused on the development of drugs and vaccines than on the development of diagnostics or platform technologies (technologies that can potentially be applied to different diseases and products). Moreover, for specific diseases, some products are neglected in terms of R&D, whereas others are not.

The trusted stop over for persons looking for data on health R&D is often the Government Budget Appropriations and Outlays for R&D (GBAORD) tables published by OECD and Eurostat. The Finance Minister, Government of India allocated Rs 2,663 crore to the Department of Health Research for the upcoming fiscal year 2021-22 in the Union Budget 2021. This is shockingly 34.4 per cent lower than Rs 4,062 crore, the revised estimate of health research expenditure



for 2020-2021². Right at this moment when the coronavirus pandemic has forced world economies to spend considerably more on the research of emerging diseases and control, the government of India has significantly curtailed its budget allocation to health research. India expended 0.7 per cent of its Gross Domestic Product (GDP) on research and development in FY 18, while the same among other developing BRICS countries was - 1.3 per cent in Brazil, 1.1 per cent in Russian Federation, 2.1 per cent in China, and 0.8 per cent in South Africa³.

These figures reflect that India is still behind other nations in terms of R&D. The total number of research and development projects in India in FY 19 was 11,640, which reduced to 11,170 in FY 20 and further nosedived to a meagre 3,491 in FY 21 so far, according to the Department of Science and Technology of India.

Although I have stated oodles of data to establish that a lot needs to be done to ensure proper research and development in health sector yet the role of INDIAN COUNCIL OF MEDICAL RESEARCH (ICMR) cannot be denied. The Indian Council of Medical Research (ICMR), New Delhi, the apex body in India for the formulation, coordination and promotion of biomedical research, is one of the oldest medical research bodies in the world. ICMR has made outstanding contribution as a knowledge generating agency and contributed in understanding various diseases of national importance such as malaria, Japanese encephalitis, tuberculosis, AIDS, Kala-azar, Filariasis, Leprosy and Poliomyelitis. Additionally, ICMR has made extensive contributions in the areas of nutrition, reproduction and maternal and child health, occupational and environmental health

and research complimenting health systems. ICMR regional medical research institutes/ centres have been contributing in tackling regional health problems. ICMR is supposed to play a decisive role in tackling and annihilating the pandemic in India. Our indigenously developed vaccine "Covaxin" has been developed indigenously by Bharat Biotech International Ltd in collaboration with Indian Council of Medical Research (ICMR). ICMR is also helping Serum Institute of India [SII] in clinical trials as second sponsor agency.

With the repeated wave of nemesis we are left with no other option but to revamp and accelerate our research and developments so that we can nip the devil from its buds and establish a serene and tranquil environment for all the denizens of this earth. This is however only possibly if the governments of various countries respond to the urgency and mobilize enough funds for such research and developments to go on. There is no time for complacency. As dedicated warriors we have promises to keep

**“And miles to go before I sleep,
And miles to go before I sleep.”**

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