

National-level coordination strategies needed to mitigate the outburst of diabetes

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The burden of various diseases has been draining India's economy in recent decades since the country harbours over 1.3 billion people. Diabetes is a lifestyle-related non-communicable disease, and it has become an epidemic in India affecting over 150 million people. The Government of India spends USD 10 billion per year to confront diabetes, but is unable to contain the outburst. This note analyses the existing facts on diabetes control measures adopted by the Government. It also provides future implementation strategies to be coordinated by various State and Central Government agencies in cooperation with private healthcare firms and non-government organizations to control the upsurge of diabetes in the near future.

India harbours the largest diabetics in the world. The total number of diabetics in 2000 in the country was 31.7 million, which is predicted to increase up to 79.4 million by 2030 (ref. 1). A recent report also reinforces the alarming statistics on diabetes in India². It is therefore time for all healthcare stakeholders to forge formidable alliance to tackle the crisis. India needs to set up a vibrant execution mechanism addressing this healthcare calamity. Unequivocal evidences have emphatically projected diabetes as among the top-five mortality-causing epidemics by 2030, with a current global prevalence of 8.3%. The future impact will be directed at low- and average-income developing countries, including India (<http://apps.who.int/gho/data/node.home>).

Mortality due to cardiovascular disease, cancer and diabetes among adults between the age of 30 and 70 years persists at 23% in India alone (<https://data.worldbank.org/products/wdi>). The country has enormous assets in terms of human capital, national planning, implementation schemes, infrastructure, delivery mechanisms, etc. However, the efforts adopted by the Government of India (GoI) are shadowed by scientifically weak monitoring system and lack of faster intervention mechanisms. Politicians and policy-makers therefore need to be aware of the latest accurate data on prevalence status of diseases. Only then can they think about cost- and time-effective solutions to reduce future incidences of epidemics-related mortality.

Here we highlight the need for national-level implementation strategies coordinated by healthcare stakeholders, including the government, private firms and NGOs for timely management of diabetes, which has been identified as an epidemic by WHO. Diseases such as

diabetes and high blood pressure are common in India, and they are labelled as 'silent killers' since they lead to heart disease as well.

India's complicated diabetes control issue

Understanding the need to combat non-communicable diseases (NCDs), GoI started the Ministry of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) in 2014 to integrate traditional medicine systems into the mainstream. This new ministry is affiliated to the Ministry of Health and Family Welfare, GoI (ayush.gov.in). Ayurveda is an ancient healing system that promotes the balance of mind, body and soul³. Yoga involves breath control, meditation and bodily postures to maintain health⁴. When yoga and naturopathy are combined, patients can be treated without prescription drugs⁵. The Unani system of medicine started during India's rule under the Moghuls in 1556 (ref. 6). The Siddha system of medicine has been in use over millennia in South India and the earliest Tamil literature from the 4th century CE mentions about its practice⁷. Sadly, no systematic attempt has been made to evaluate its efficacy, including translation of existing evidence into English⁸. Homoeopathy is the longest established alternative medicine from Europe. These diverse systems are in use for centuries.

A recent paper reports India's diabetes prevalence at 7.3% (ref. 9). The Government survey conducted in 2016–17 likewise revealed 8.3% prevalence (http://rchiips.org/NFHS/factsheet_NFHS-4.shtml). The number of victims increased from 26 million in 1990 to 65 million in 2016

across urban and rural India. These estimates are unfortunately imprecise since surveys were done for long periods in the absence of continuous monitoring. So, there is no way of knowing the latest rate of prevalence and increase. Therefore, we call for the enforcement of an information lag that will portray the magnitude of uncertainty in data projection due to additional time needed from concept to surveys, and from data analysis to publication of results. Most surveys take more than 1–2 years to complete; so they would have high information lag. Consequently, the surveys conducted with high informational lag would ultimately lead to reduced well-timed obtainability of dependable data that policy-makers can utilize to initiate rapid actions addressing healthcare issues on the ground.

GoI started a diabetes control programme called 'Niyantrita Madhumeha Bharat' (NMB) that carried out rapid surveys in 2018 with minimal information lag. It showed the prevalence at 16.3% (www.yogaiya.in/nmb/methodology/). Besides, it showed the southern zone being affected by diabetes more than the other zones, which is similar to a recent survey done by a state-level disease burden initiative². The NMB survey incorporated yoga intervention to control diabetes through lifestyle changes, which apparently brought down the prevalence rate by 9.1%. The survey incorporated 7 out of the top 10 diabetes priorities enumerated by the Diabetes UK–James Lind Alliance (www.diabetes.org.uk/research/type-2-diabetes-priority-setting-partnership); these include curability and reversibility of type-2 diabetes, identification of high-risk population and intervening with non-pharmacological holistic modalities, role of lifestyle, diet and stress in diabetes progression and empowerment of

patients to handle diabetes without external resource dependency¹⁰. The latest projected prevalence of diabetes in 2030 would be incurring a global financial burden of USD 2.1 trillion, which is over 2% of the global GDP¹¹. So, we ask: is it too late for India to reverse the diabetes outburst trend in future? Is India determined to adopt rapid evidence-informed implementation strategies to control diabetes in future?

Need for nationwide diabetes control strategies

Even in developed nations such as the United States, the increase in diabetes prevalence accounts for high financial burden¹². India needs to curtail the spread of diabetes in a safe and steady manner with better roll-back index involving the time required to set a new and reduced rate of prevalence of an event. This means a solution is needed to address the root-cause of NCDs with minimal side effect and economic loss.

WHO recommends integrating traditional systems of medicine to address diseases. Most of the traditional systems utilize drugs of some sort, with the exception of yoga and naturopathy as they are non-pharmacological relying on mind and natural elements. Each of the systems can handle NCDs in a particular pattern. Apart from inherent uniqueness, there are other factors that govern the successful implementation of AYUSH's mandate. In the current scenario, the traditional systems of medicine are not recommended as the first line of treatment for any type of NCDs. A policy to enforce implementation of AYUSH's mandate for integrated healthcare is a pressing need. This process of enforcement must proceed in parallel with the existing standards of treatment. Otherwise, the traditional systems will face resistance for successful implementation.

Need for nationwide NCDs prevalence database

A robust surveillance no doubt goes a long way in adopting preventive measures to control future disease outbreaks. Currently India lacks national-level registries for NCDs, where one can access data on the prevalence of diseases. WHO acknowledges that the indicators for

NCDs are not robustly defined (<https://data.worldbank.org/products/wdi>). India's National Centre for Disease Informatics and Research, Bengaluru initiated NCDs monitoring survey in October 2017 to assess various risk factors covering 300 rural and 300 urban primary sampling units for a period of six months (<http://www.ncdirindia.org>). For a large nation like India, brief surveys would only give point prevalence that may not be of much use.

Diabetes belongs to the groups of faster proliferating NCDs and data based on brief surveys with small sample size would become obsolete by the time they are implemented after policy scrutiny. Hence it is high time to conceptualize technology-aided continuous monitoring system by strongly linking all healthcare centres, including public hospitals, private clinics and village-based primary health centres. Besides, we strongly recommend developing robust tri-sector partnership involving government, private firms and NGOs supported by community self-help groups, since India's healthcare industry is dominated by private companies (isid.org.in/pdf/WP185.pdf). Though the initial establishment cost may escalate, once partnership commitments are in place, it can generate latest data at any given point of time. With the Digital India (<https://mygov.in/group/digital-india>) initiative by GoI, should it appear too ambitious for a country like India? Therefore, we strongly advocate an effective partnership goal that calls for the union of all major healthcare stakeholders with a catchphrase 'come together and make together'. Such an attempt has the potential to create a national health database repository of all indicators covering future disease control.

Need for a lead coordinating agency

GoI is keen to bring integrated healthcare for every citizen. Currently, the first line of treatment for diabetes is metformin, followed by insulin and sulfonylureas accompanied by diet/lifestyle modifications. The treatment decisions are done by physicians or allopathy doctors. According to 2016 data, there are 988,922 doctors registered in India, which is considered as acute shortage by WHO standards. In contrast, there are only 744,563 AYUSH practitioners as of 2015, with an average marginal increase of 0.66% per

year. According to WHO, there are 771,468 community and traditional health workers in India as of 2016 (www.who.int/hrh/statistics/hwfstats/en/). The number of hospitals under AYUSH in 2015 according to the information provided by the government was 3632 with 58020 beds, which is inadequate. With this scanty workforce and weak infrastructure, it does appear to be a major shortcoming for the entire country.

Furthermore, the budget allocation for AYUSH is low. In 2018, 13% increase in budget was indeed a welcome step (<https://timesofindia.indiatimes.com/business/india-business/ayush-ministry-allocation-in-budget-increased-by-13-per-cent/articleshow/62743094>), but not enough. In order for the AYUSH's mandate to become an indomitable force in healthcare delivery, it should permeate into the national health grid covering all primary health centres. Another challenge AYUSH is facing now involves the lack of supportive paramedical personnel. Unlike nursing and midwifery workforce for allopathy, there are no trained paramedics for AYUSH, which is a concern now and in future. Therefore, implementation of AYUSH paramedical courses is urgently needed. Hence, India's healthcare policy-makers need to focus not only on increasing the financial strength of AYUSH, but also improving the quality of education, research, awareness, support staff and training.

Need for national healthcare insurance policy

Providing free or low-cost healthcare will help those who live below poverty-line. But to make it sustainable, medical expenses need to be covered under mega-insurance schemes following the model of the developed nations. Currently, only selected AYUSH treatments are covered under insurance claims, so people end up paying from their pockets. Policy change to promote insurance companies to include all aspects of treatment would be a landmark step towards mainstreaming AYUSH in society. Over two-thirds of Indians do not have medical insurance and 65% of medical expenses go from people's pockets (<https://data.worldbank.org/products/wdi>).

India's Prime Minister has recently announced an ambitious project called 'AYUSHMAN-India' to give health

insurance of USD 6875 per family (www.ndtv.com/india-news/prime-minister-narendra-modis-mega-healthcare-scheme-ayushman). It is a good sum of money for impoverished families. If this policy is implemented by all state governments and private insurance companies, it would help the poor. This will be a major step towards India's healthcare empowerment, as it can significantly increase the number of beneficiaries under the government healthcare scheme, which was reported to be only 2,952,251 in 2016 (<https://cghs.gov.in>).

Need for ultimate societal self-sustainability

Being the largest democracy in the world, India has a complex socio-political system. To enforce long-term sustainability, implementation of strategies must penetrate the diverse ethnic ranks, social hierarchy and governance system. Empowering self-help groups through awareness in villages is fundamental and the mobile phone can play an effective role in achieving this agenda, as >85 per 100 people have mobile subscriptions as of 2017 (<https://data.worldbank.org/products/wdi>). If one looks at how India's multifaceted traditional healthcare systems survived for centuries, it is because of societal awareness and cultural acceptance through long lineage of families, relatives and village-level traditions and institutions.

Village-level self-help groups need to be trained like grassroot social workers equipped to deliver disease control interventions. This in turn will create employment, thereby enabling self-sustenance at the village-level. Promoting the mandate in rural areas will lead to deeper implications on ecological protection as a large number of medicinal plants need to be cultivated to meet the demand^{13,14}. Looking from a broader perspective, all these efforts will take us closer to an eco-friendly way of living with minimal negative impact on nature in the future. But,

the government alone cannot accomplish this monumental mission since majority stakeholders of healthcare industry are private firms. So, the government must work in synergy with private companies and NGOs to achieve self-sustenance at governance level. Such a tri-sector partnership has already showed great success in reducing poverty, enhancing water resource management and increasing agriculture productivity in rural India¹⁵.

Conclusion

Any disease prevention strategy would work best when it is initiated early. With an extensive network of educational institutions, it should be feasible by including awareness and basic prevention strategy in the curriculum. This also is in alignment with the government policy of the University Grants Commission (<https://www.ugc.ac.in>) to compulsorily involve community service activities as a part of undergraduate and postgraduate degree courses. The educational system is the backbone to nation-building; so successful penetration of the diabetes control mandate in schools and colleges will surely ensure long-term sustenance in terms of awareness.

India is progressing fast in the globalized economy. Human health is fundamental since the country cannot afford to spend more to fight disease outbreaks. Sadly, India still lags behind many countries in terms of healthcare spending (www.bloomberg.com/view/articles/2017-08-21/poor-healthcare-is-india). With the rich heritage of traditional medicinal systems, India can become a world leader in utilizing the long-established systems to address the challenges thrown by NCDs. Evidences of efficacy are available, and the country has the implementation potential. But, can it take the call to address the chronic issues with perseverance? If India does not act fast, the pandemic of diabetes may go beyond the point of redemption.

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