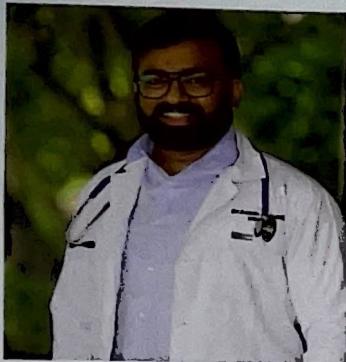


## Chapter 22

# Setting Up a Community Diabetes and Health Screening Clinic in Kerala

Dr Aswin Mukundan



### Introduction

Non-communicable diseases (NCDs) are increasing in exponential proportions in South Asia (Fullman, 2013; Siegel et al, 2014). As the largest country in the region India has the lion's share in the prevalence of NCDs (Tandon et al, 2018; Aswin et al, 2022). Type 2 diabetes mellitus is a lifestyle disorder of glucose metabolism leading to increased plasma glucose. High plasma glucose can be kept under control with good diet, adequate exercise, and medications if necessary. The management at grass root level requires basic awareness about the disease and adequate testing

opportunities at community level. Educating the general public and healthcare professionals on lifestyle disorders and its management plays most important role in keeping the disorder at bay and preventing it from exploding in pandemic proportions (Mensing, 2010; Tang et al, 2008). Even with the advancement of technology, robust screening techniques, and better treatment options, the prevalence of diabetes steadily rose and the efforts did not reciprocate as expected with the levels of diabetes control in people living with diabetes (Christie et al, 2019; Deeb, 2008).

By and large diabetes management practices have changed due to landmark trials like the UK Prospective Diabetes Study which showed us that better diabetes control can lead to reduced complications of diabetes (King et al, 1999). In people living with diabetes, education and training for diabetes self-management can play a vital role (Mensing, 2010). Multiple tools are tried and validated to assess and improve knowledge, attitudes, and practices related to diabetes. Most of the recent studies concluded and commented on the need for better tools for education and knowledge in diabetes (Bell et al, 2018; Hearth et al, 2017; Islam et al, 2014; Powers et al,

2015; Rani et al, 2008). Superior population education tools can beat the current screening levels to move one step ahead to find more people living with impaired glucose tolerance or diabetes.

### The Indian scenario - Knowledge and awareness of diabetes

The Indian Council of Medical Research - IndiaDIABetes - (ICMR-INDIAB) study (Anjana et al, 2023) conducted in 15 states in India concluded that the overall prevalence of prediabetes and diabetes in India were 10.3% and 7.3%, respectively. There were 113043 individuals participating in the ICMR-INDIAB study spanning from the year 2008 to 2020. This study was an eye-opener for people committed to public health in India showing the need of newer approaches in diabetes detection, awareness, and management at a community level.

Healthcare in rural and urban India showed contrasting features as the accessibility, affordability, and acceptance levels were not same. Deepa et al concluded in a 2014 study that in India only 43.2% of the study population who were representative of the whole country had heard about a condition called diabetes. The awareness rates of diabetes among rural residents was lower (36.8%) when compared to urban population (58.4%).

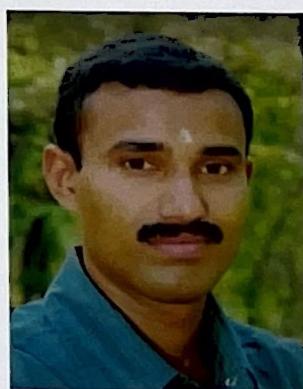


Figure 22.1: Mr Jyoshith K

### The mission

After finishing my MBBS and MD in Internal Medicine I set up a charity foundation in my village where I was born and brought up. I started a rural healthcare model in a remote village named Sree Narayana Puram of Kerala. The charity foundation was named after my cousin

*Top: Figure 22.2: Outpatient clinic to measure blood pressure and detect hypertension*

*Bottom left: Figure 22.3: Volunteers who run the clinic*

*Bottom right: Figure 22.4: Volunteers who administrate the smooth running of all the clinics – they are invaluable*

brother Mr Jyoshith K, who lost his battle to cancer while serving in the Indian Army (Figure 22:1) and it was my long-term dream to serve my people and help them in our villagers' heart while ever I can. In my village people had no knowledge about systems of medicine and had misconceptions about most of the diseases. Most of them were sceptical about the side effects of medicine.

### Laying the stepping stones

To begin with I conducted several classes on lifestyle diseases and created awareness along with underlining the importance of early detection and treatment (Maez et al, 2014; Massey et al, 2010; Hadden et al, 2020). The first Sunday of every month is chosen as a free Outpatient Consultation Day. Glucometer blood glucose readings and blood pressure are checked for whoever is coming for a check-up that day (Figure 22.2).

A team set up for the check-up included a retired nurse and many volunteers residing in the village (Figure 22.3). All other tests are made available at the cheapest rates possible in the lab in nearby town after a health promoting consultation (Figure 22.4).

### The strategy and finding funds

Slowly the beneficiaries made this a huge success as word-of-mouth started attracting a huge crowd leading to a situation where we had to start a token system for consultation. The whole set-up was based on a library in that area (Figure 22.3). One house in the village come forward every month to provide food, tea, and snacks to



all volunteers working for the charity foundation. Major media in Kerala covered this effort including Mathrubhoomi, a Malayalam newspaper, as this was one of its kind efforts to support our healthcare system.

Finding small funds for glucometer strips and all other expenses was another issue. Moving forward it so happened that at any function in that village, be it a child's birthday, a housewarming ceremony, a marriage or anything similar, people happily started contributing small amounts of money towards the cause.

### Easing through the pandemic era

Even during Covid-19 the programme continued as tele-consultations were arranged during peak times. Online classes were also regularly conducted where people could ask questions after the class. Separate classes were conducted for children from all nearby schools through Google Meet. In a village where topographically the road ends in a river and most of the population are daily wage workers a medical revolution has evolved ever since this charity-funded clinic was started (Figure 22.5).



Figure 22.5: The village where these clinics are held where the road ends in the river

### Creating the template

This model is something which can be replicated for the following reasons.

1. The doctor hails from the same village and has grown up with all the beneficiaries. So the emotional connection was evident and each person knows each other exceptionally well, and understanding of their economic social and educational backgrounds exists as well. People found the doctor as one of their own and so they trust the health messages being shared with them.
2. The charity foundation is run by volunteers from the same village and is named after an Indian soldier from the village. So the spirit was high for those who volunteered to work with us and most of them were his friends too.
3. Small financial inputs were given with pride by families from the village from time to time. Those who can contribute are happy to do so and this becomes part of this programme making it a sustainable model.
4. A single point of contact and single doctor made the follow-ups quite easy.
5. The classes and meetings laid the background as disseminating scientific knowledge on modern medicine was required before setting foot on such soil.
6. Use of technology and telemedicine during Covid-19 times kept it running without a break.
7. Involvement of all age groups was made sure; by interacting with children as well means succession planning for future better health and emphasising the importance of a healthy lifestyle.

## Conclusion

Diabetes as a metabolic disorder has attained pandemic proportions. Even though knowledge on diabetes improved significantly, it is not reflected as expected in diabetes care. Robust efforts and novel approaches are the need of the hour. As small drops of water make the mighty ocean, individual efforts can really change the dimensions of health care and create a fertile soil for the future generation to work on.

Rural India still needs a mammoth effort to uplift the health sector as modern medicine faces multiple challenges in the face of misinformation regarding side effects of medicines used. In this context the healthcare model I started in Kerala, a southern state in India, can be considered a success just by the impact it made in the whole village. Building trust and spreading scientific knowledge can improve acceptance far better than any other means. Finding sustainable models using simple leadership skills are going to be the game changer. As Mahatma Gandhi once said:

*'Be the change that you wish to see in the world'.*

## References

Anjana RM, Unnikrishnan R, Deepa M, et al. (2023) Metabolic non-communicable disease health report of India: the ICMR-INDIAB national cross-sectional study (ICMR-INDIAB-17). *Lancet Diabetes Endocrinol*; [https://doi.org/10.1016/S2213-8587\(23\)00119-5](https://doi.org/10.1016/S2213-8587(23)00119-5).

Aswin, M., Mohan, V. (2022). Diabetes and Hypertension: What Is the Connection?. In: Ram, C.V.S., Teo, B.W.J., Faridie, C.S. (eds) Hypertension and Cardiovascular Disease in Asia. Updates in Hypertension and Cardiovascular Protection. Springer, Cham. [https://doi.org/10.1007/978-3-030-95734-6\\_12](https://doi.org/10.1007/978-3-030-95734-6_12)

Christie D, Strange V, Allen E, Oliver S, Wong IC, Smith F, et al. (2009) Maximising engagement, motivation and long term change in a Structured Intensive Education Programme in Diabetes for children, young people and their families: Child and Adolescent Structured Competencies Approach to Diabetes Education(CASCADE) *BMC Paediatr*.9;9:57.

Deeb L, (2008) Diabetes technology during the past 30 years: a lot of changes and mostly for the better. *Diabetes Spectr*.21:78-83.

Deepa M, Bhansali A, Anjana R, Pradeepa R, Joshi S, Joshi P, Dhandhania V, Rao P, Subashini R, Unnikrishnan R, Shukla D, Madhu S, Das A, Mohan V, Kaur T. (2014) Knowledge and awareness of diabetes in urban and rural India: The Indian Council of Medical Research India Diabetes Study (Phase I): Indian Council of Medical Research India Diabetes 4. *Indian J Endocrinol Metab*.;18(3):379-85. doi: 10.4103/2230-8210.131191. PMID: 24944935; PMCID: PMC4056139.

Fottrell E, Ahmed N, Shah SK et al (2018) Diabetes knowledge and care practices among adults in rural Bangladesh: a cross-sectional survey *BMJ Global Health*;3:e000891.

Fullman N, (2013) Institute for Health Metrics and Evaluation Human Development Network The World Bank; The global burden of disease: generating evidence, guiding policy—south Asia regional edition.IHME, Seattle, WA2013, <https://www.healthdata.org/research-analysis/library/global-burden-disease-generating-evidence-guiding-policy-south-asia>

Hadden K, Arnold C, Curtis L, Davis T, Gan J, Hur S, McSweeney J, Mikesell L, Wolf M, (2020) Barriers and solutions to implementing a pragmatic diabetes education trial in rural primary care clinics, *Contemporary Clinical Trials Communications*, Volume 18,100550,ISSN 2451-8654

Herath H, Weerasinghe N, Dias, H. et al. (2017) Knowledge, attitude and practice related to diabetes mellitus among the general public in Galle district in Southern Sri Lanka: a pilot study. *BMC Public Health* 17, 535.

King P, Peacock I, Donnelly R. (1999) The UK prospective diabetes study (UK-PDS): clinical and therapeutic implications for type 2 diabetes. *Br J Clin Pharmacol*.;48(5):643-8. doi: 10.1046/j.1365-2125.1999.00092.x. PMID: 10594464; PMCID: PMC2014359.

Islam FMA, Chakrabarti R, Dirani M, et al. (2014) Knowledge, attitudes and practice of diabetes in rural Bangladesh: the Bangladesh population based diabetes and eye study (BPDES). *PLoS One*.;9(10):e110368.

Maez L, Erickson L, Naumuk L. (2014) Diabetic education in rural areas. *Rural Remote Health*.;14(2):2742. Epub 2014 Jun 16. PMID: 24930474.

Massey C, Appel S, Buchanan K, Cherrington A (2010) ; Improving Diabetes