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## **Diabetes:** The world's weightiest problem

**Dr. Stella George**, Senior Medical Director, Aetna International

**Dr. Mitesh Patel**, Medical Director, Aetna International

**Dr. Lori Stetz**, Senior Medical Director, Aetna International

[aetnainternational.com](http://aetnainternational.com)

# Across the globe, diabetes has the potential to overwhelm healthcare systems and wreck economies. Yet the disease is largely preventable and controllable.

In 2014, U.S. nurse Christy Parkin travelled to China to manage one diabetes centre and open another. Despite having done plenty of research, she was not prepared for what she encountered.

In a 2015 Diabetes Forecast essay, Parkin described what passes for normal in Chinese diabetes centres: “A typical endocrinology visit in the outpatient clinic lasts less than five minutes. The waiting room is jam-packed with patients waiting to get their prescriptions refilled (often required every month). An endocrinologist may see up to 95 patients in a single morning. It’s not uncommon for the next patient in line to barge into the exam room and hover over the patient being seen by the doctor. There is no patient privacy in China, just controlled chaos.”<sup>1</sup>

Much of that chaos is due to the explosive growth of diabetes in China. According to the Journal of the American Medical Association, up to 113.9 million Chinese adults have diabetes. Four times that number are pre-diabetic<sup>2</sup>, more than the populations of the U.S., Canada and Mexico combined.

Given the prevalence of diabetes in China, the demand for care far outstrips the supply of endocrinologists, leading to the sort of chaos Christy Parkin encountered. And that chaos is spilling out into the

broader society. Diabetes now consumes 13 percent of the sprawling nation’s medical expenditures, a share that’s only expected to grow. “If we don’t act now,” says Bernhard Schwartländer, a World Health Organization representative in China, “diabetes will overwhelm the health system.”<sup>3</sup>

## A worldwide problem

Of course, the diabetes epidemic is not limited to China. The WHO estimates that 422 million adults were living with diabetes in 2014 – nearly a fourfold increase since 1980. Moreover the global incidence of the disease has nearly doubled in that time, growing from 4.7 percent to 8.5 percent of the world population. (Not surprisingly, rates of obesity — a key precursor of the disease — have also more than doubled during the same period, according to the WHO.) And diabetes is no longer just a problem in wealthy countries; today, it is actually increasing faster in low- and moderate-income countries, which now account for two-thirds of diabetes cases worldwide.<sup>4,5</sup>

In 2011, the UN High-Level Meeting on Non-Communicable Diseases recommended reducing diabetes rates to 2010 levels by 2025. Five years later, researchers put the odds of reaching that goal at 1

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1. <http://www.diabetesforecast.org/2015/jan-feb/caring-diabetes-china.html>  
2. <http://jamanetwork.com/data/Journals/JAMA/927548/joi130040.pdf>  
3. <https://qz.com/756585/diabetes-is-chinas-next-public-health-crises/>

4. [http://apps.who.int/iris/bitstream/10665/204871/1/9789241565257\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/204871/1/9789241565257_eng.pdf)  
5. <http://link.springer.com/article/10.1007/s40273-015-0268-9>

percent or less. In fact, they said just 29 countries have a 50/50 chance of meeting the 2025 target among their female populations, while only nine countries have a 50/50 chance of meeting the target among males.<sup>6</sup>

Should the world fail to curb the growth of diabetes, the impact will be felt by far more than those who have the disease. Across the globe, diabetes has the potential to overwhelm healthcare systems and wreck economies. Yet the disease is largely preventable and controllable.

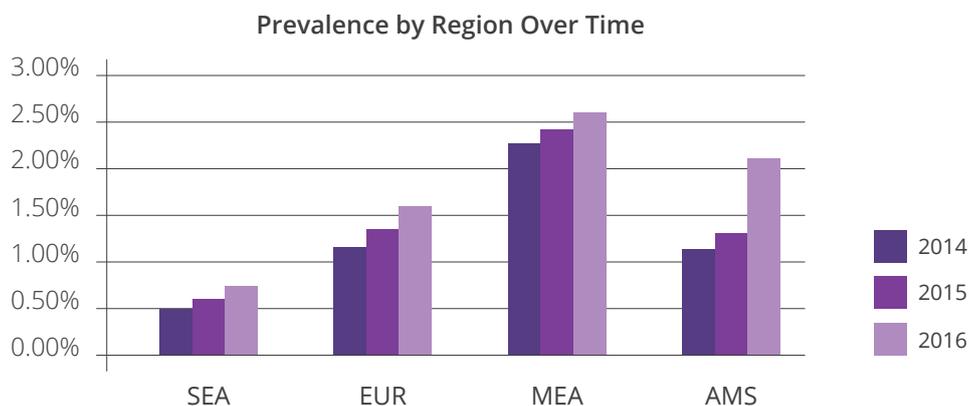
Aetna International's own experience offers an instructive example. Between 2014 and 2016 our member claims data shows that the total number of members with diabetes (shown by region in Figure 1) increased by an average of 40 percent, and claims costs related to diabetes treatment increased by an average of 47 percent – trends that are clearly unsustainable (Figures 2 and 3, respectively).

But we have also seen the promise of combatting the disease through a comprehensive care-management

program that engages members in healthy eating, exercising, monitoring blood glucose levels and the proper use of, and adherence to, medication. For example, among one population of our members who participated in such a program in 2014, we saw a significant improvement in clinical measures for members with diabetes, including a 15.4-percent increase in retinal eye exams and a 9.2-percent increase in screenings for kidney disease.<sup>7</sup> We have found that such programs demonstrate that the costs associated with early detection and disease management strategies are far lower than the costs associated with acute, often emergency, inpatient hospital treatment, which can be required if the disease isn't managed effectively.

### What is diabetes?

Diabetes is a disorder of the body's metabolic system, which converts food into energy. Typically, the food we digest is broken down into glucose, a form of sugar that is carried by the blood to cells throughout the



**Fig. 1.** Diabetes prevalence among Aetna International membership regions (Southeast Asia, Europe, Middle East and Africa, and Americas) between 2014 and 2016

6. [http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(16\)00618-8.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(16)00618-8.pdf)

7. Aetna International study of Americas population 2014

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## Forms of diabetes

Five to 10 percent of diabetics have type 1 diabetes, formerly known as juvenile diabetes since it typically appears in childhood. In this form of the disease, the pancreas fails to produce any insulin, so the patient must receive the hormone through a pump or daily injections. Diet and exercise are also important factors in controlling the disease.

**Type 2 diabetes**, formerly known as adult-onset diabetes, is the form that affects the vast majority of people. Here, the pancreas either doesn't produce enough insulin or the body doesn't use it properly. Some patients can control their blood glucose levels with proper diet and exercise; others must take oral medications or insulin. Type 2 diabetes is progressive, meaning that it tends to get worse over time.

body. However, for glucose to enter the cells, the hormone insulin, which is produced by the pancreas, must be present.

Individuals without diabetes produce the right amount of insulin, ensuring their cells receive the glucose they need. In individuals with diabetes, either the pancreas doesn't produce enough insulin or the body doesn't use insulin properly or both. As a result, there's a surplus of glucose in the blood and a deficit in the body's organs.

Elevated blood glucose levels can, over time, cause blood vessels to become clogged and hardened (a condition known as atherosclerosis), which can lead to heart disease and stroke, the primary causes of death for people with diabetes. In fact, diabetes doubles the risk of heart attack and stroke, and heart attacks experienced by people with diabetes tend to be more serious and more likely to lead to death.<sup>9</sup>

But there are other risks as well, including kidney failure, vision loss and amputations. According to the

**Pre-diabetes**, sometimes called impaired glucose tolerance (IGT) or impaired fasting glucose (IFG), is a condition that will likely lead to full-blown type 2 diabetes if left untreated. Seventy percent of those with pre-diabetes can be expected to develop the disease within 10 years.<sup>8</sup> With pre-diabetes, blood glucose levels are higher than normal but not high enough to warrant a diabetes diagnosis. While it's possible to prevent or delay the onset of type 2 diabetes, people with pre-diabetes tend to be asymptomatic and usually don't realise they are at risk.

**Gestational diabetes**, as the name implies, develops during pregnancy. As many as nine percent of expectant mothers develop the condition, typically later in their pregnancies. Gestational diabetes can lead to serious health risks for both the mother and the child, and it puts both at increased risk for developing type 2 diabetes later in life.

WHO, people with diabetes are up to 10 times as likely as non-diabetics to develop end-stage renal disease and are 10 to 20 times as likely to require amputation.<sup>4</sup> Add in the economic impact of diabetes, and the reduced quality of life for patients, and it's clear why diabetes is an urgent health issue. One could even call it an epidemic.

### A devastating Western export

In industrialised countries like the UK and the United States, epidemics seem to follow a similar path. A virus flares up in some remote country most Westerners can't place on the map. Then it inexorably spreads, thanks to human-to-human transmission, porous borders and international travel. Finally, it causes health scares from London to Los Angeles and rouses governments to take action. Ebola, Zika and HIV/AIDS all followed this well-worn path.

Diabetes, on the other hand, has moved in the other direction. It could be considered the West's unwanted gift to the developing world. Urbanisation, a shift

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8. [https://www.researchgate.net/publication/236151341\\_Detection\\_of\\_Prediabetes\\_and\\_Undiagnosed\\_Type\\_2\\_Diabetes\\_A\\_Large\\_Population-Based\\_Study](https://www.researchgate.net/publication/236151341_Detection_of_Prediabetes_and_Undiagnosed_Type_2_Diabetes_A_Large_Population-Based_Study)

9. <https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems/heart-disease-stroke>

toward less physically demanding jobs and increased access to cars, computers, television and fast food all play a role in the rise of obesity, which fuels diabetes. (See our whitepaper “**Globesity: tackling the world’s obesity pandemic**” for more on the causes of obesity.)<sup>10</sup>

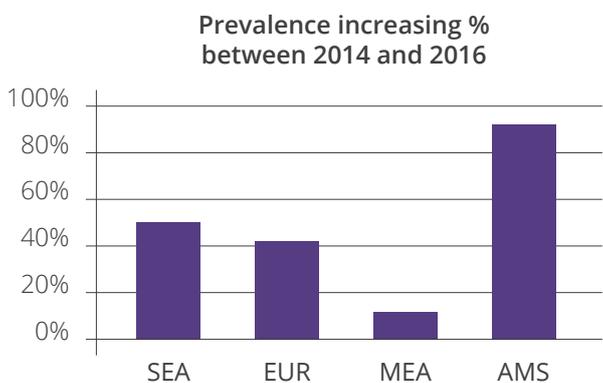
In China, for example, diabetes was all but unknown two generations ago; in 1980, in fact, less than 1 percent of the population suffered from the disease.<sup>11</sup> But as the country opened its doors to the West, it inadvertently opened a Pandora’s Box of temptations.

One of those temptations was fast food. Kentucky Fried Chicken arrived in 1987, followed by Pizza Hut in 1990. Today, Yum China, parent company of those chains, operates more than 7,300 restaurants in every province and autonomous region across mainland China.<sup>12</sup>

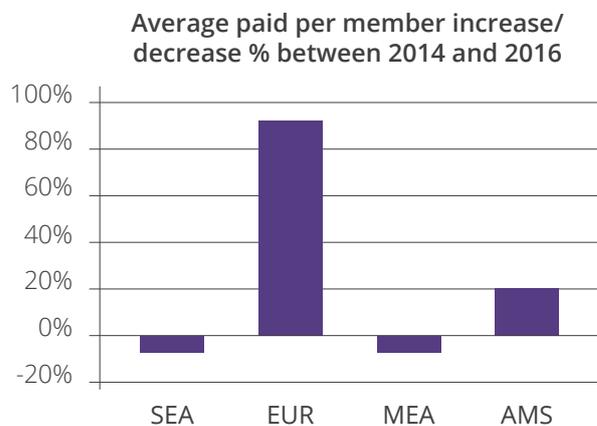
How ubiquitous is Western-style fast food? Some kindergarteners in Shenyang learn this catchy nursery rhyme: “Xiaobai Xiaobai goes downstairs to KFC/ Hamburger, ah, hamburger/French fries, ah, French

fries/Coke, ah, Coke.”<sup>13</sup> Imagine steering your kindergartener past the neighbourhood KFC outlet as she sings of the joys of “Coke, ah, Coke.”

Of course, one can’t blame 113.9 million diabetes cases on a single restaurant chain or even on the restaurant industry in general. Still, there is no doubt that lifestyle changes like the introduction of fast food have helped fuel the rise of diabetes in China and a host of other countries. And those lifestyle changes don’t just lead to more cases of diabetes. They also lead to obesity, which boosts the risk of hypertension, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnoea and even cancer and clinical depression.<sup>14</sup> To balance the fallout, it will take a concerted global effort to motivate individuals and their families to modify their lifestyles before one or more diseases develop, and to encourage those who have developed diabetes or who are at high risk of doing so to seek out the right one-to-one consultation and on-going care management support.



**Fig. 2.** Diabetes prevalence percentage increase among Aetna International membership regions between 2014 and 2016



**Fig. 3.** Average paid per member increase/decrease percentage across all Aetna International membership regions between 2014 and 2016

10. <https://www.aetnainternational.com/en/about-us/explore/future-health/globesity-tackling-world-obesity-pandemic.html>  
 11. <http://jamanetwork.com/journals/jama/article-abstract/2598245>  
 12. <http://www.yum.com/company/our-brands/china/>  
 13. [http://www.chinadailyasia.com/business/2016-09/28/content\\_15502388.html](http://www.chinadailyasia.com/business/2016-09/28/content_15502388.html)  
 14. <http://www.cdc.gov/healthyweight/effects/>

This is when predictive analysis and proactive outreach to those who are at risk or newly diagnosed can be used to address diabetes. At Aetna International, we identify and reach out to vulnerable members and follow up with tailored support. We use technology so individuals can track and increase their understanding of their condition, and we encourage individuals to engage their friends and family for additional support in making day-to-day adjustments. Such programs are available to our members across the world, not just in those regions where our membership shows a high prevalence of the disease, or significant prevalence increases. (Figures 1 and 2, respectively)

### **Egypt and Saudi Arabia: A study in contrasts**

The Middle East and North Africa region (MENA) is a good place to see the impact of lifestyle on diabetes rates. According to research published in the World Journal of Diabetes, the region has the world's highest incidence of diabetes, with four countries listed in the top 10 in terms of prevalence.<sup>10</sup>

Yet two countries in the region, Egypt and Saudi Arabia, present a study in contrasts. Saudi Arabia has the region's highest diabetes rate (21.8 percent), while Egypt has the lowest rate (7.2 percent).<sup>15</sup> Clearly, something more than 1600 kilometres separates these two countries.

The World Journal of Diabetes research suggests several possible reasons for the disparity in diabetes rates: Residents of the desert kingdom of Saudi Arabia eat a diet based on meat and heavy carbohydrates like dates, while Egyptians tend to follow the so-called Mediterranean diet, which emphasises the fruits and

vegetables that are more readily available there.<sup>16</sup> Saudis are the least physically active nationality in the region, while Egyptians fall somewhere in the middle of the pack. Egypt's economy is built on manufacturing, fishing and farming – all industries that rely on manual labour – while Saudis are more likely to work in sedentary indoor jobs. Finally, genetic factors that are more common among Saudis than Egyptians may play a role, although more research is needed in this area.

The study's conclusion: "Increased economic development and the subsequent adaptation of a Western lifestyle and the emergence of low physically demanding job sectors [at] the expense of manual labour may have causal effects on the increased diabetes prevalence in the population independent of other lifestyle habits."

### **The economic impact of diabetes**

Diabetes affects individuals to be sure, but it also affects whole societies. According to the WHO's 2016 Global Report on Diabetes, the direct annual cost of diabetes is \$827 billion.<sup>4</sup> By way of providing context, the UK's total annual budget – pensions, health care, defence, social services, etc. – is \$982 billion.<sup>17</sup>

The cost of diabetes care looks even more frightening when considered in context. As noted earlier, diabetes accounts for 13 percent of China's budget. And the percentages are even higher in Egypt (16 percent) and in Saudi Arabia (21 percent).<sup>18</sup> What's more, the International Diabetes Federation has reported that total direct spending on diabetes tripled from 2003 to 2013, both because the number of diabetics rose and because per-capita costs increased.<sup>19</sup>

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15. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4360423/>

16. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4360423/>

17. [http://www.ukpublicspending.co.uk/government\\_expenditure.html](http://www.ukpublicspending.co.uk/government_expenditure.html)

18. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4360423/>

19. IDF Diabetes Atlas, 6th ed. Brussels, International Diabetes Federation, 2013.

## New innovations and technology will fundamentally change the way healthcare is managed and delivered.

And those are only direct medical costs. Follow-on effects include absenteeism (including time taken to care for relatives with diabetes), reduced productivity and increased insurance costs. The World Economic Forum has reported that between 2012 and 2030, China is expected to lose \$590 billion due to the total cost of diabetes, Indonesia \$200 billion and India \$140 billion. It's no surprise that one in four Indian business leaders said they expect diabetes to seriously impact their businesses.<sup>20</sup> (This statistic is especially poignant when you consider that 38.9 percent of Indian children are either moderately or severely underweight.<sup>21</sup>)

Conversely, investing in prevention can have a significant positive economic impact. Between 2006 and 2011, the average A1C level among diabetics in Russia dropped from 8.56 percent to 8.12 percent as a result of the Federal Targeted Programme on Diabetes. That relatively modest improvement resulted in cost savings of nearly \$212 million, and researchers estimate that a further reduction of a full percentage point – down to 7.12 percent – would yield cost savings of \$1.5 billion.<sup>22, 23</sup>

### Improving rates of diagnosis

Given that we know so much about how to prevent, diagnose and treat diabetes – and what happens when the disease goes untreated – it can be tempting to assume there's little left to learn. One might even adopt a blame-the-victim attitude and shift focus to

diseases where personal choice and lifestyle play less critical roles. But there is plenty of work to be done to fight this disease.

First, countries across the globe must do a better job of screening for diabetes. According to the International Diabetes Federation, in the average country just one-third of people with diabetes are diagnosed. While high-income countries do better, even they successfully identify less than two-thirds of diabetics.<sup>24</sup>

Moreover, diagnosis often comes late in the disease's development – when a patient arrives at the hospital complaining of numbness or ulcers in the feet, for example. While late detection is better than no detection at all, it's important to diagnosis the disease before symptoms develop.

One problem is the lack of basic health services in many areas of the world. In Indonesia, for example, where less than half the people with diabetes are diagnosed, health resources are poorly distributed. The country has just two doctors per 10,000 people, and even that number is deceptive. The province of West Sulawesi has less than half that number, while the Jakarta district has more than 15 doctors per 10,000 people, about the world average. (By comparison, the UK and the US have 28 and 25 physicians per 10,000 residents respectively.)<sup>25, 26</sup>

New testing schemes that don't require the collection, storage and testing of blood samples offer hope that

20. <https://www.weforum.org/agenda/2016/04/5-reasons-why-tackling-diabetes-boosts-economic-growth>

21. <http://wcd.nic.in/sites/default/files/RSOC%20FACT%20SHEETS%20Final.pdf>

22. [https://www.novonordisk.com/content/dam/Denmark/HQ/sustainability/commons/documents/7113\\_russia-blueprint-english-version.pdf](https://www.novonordisk.com/content/dam/Denmark/HQ/sustainability/commons/documents/7113_russia-blueprint-english-version.pdf)

23. <https://endojournals.ru/index.php/dia/article/view/3879>

24. <http://www.diabetesatlas.org/across-the-globe.html>

25. <http://www.mckinsey.com/industries/health-care-systems-and-services/our-insights/tackling-indonesias-diabetes-challenge-eight-approaches-from-around-the-world>

26. <http://data.worldbank.org/indicator/SH.MED.PHYS.ZS?end=2011&start=1990&view=chart>

testing rates could increase significantly. For example, researchers have identified dozens of proteins in saliva that are more prevalent in those with diabetes. Now, researchers at the Tec de Monterrey in Mexico and the University of Houston in the U.S. are working together on a device that analyses saliva for such proteins and gives results in seconds. The device attaches to a mobile phone, allowing for testing far from a health centre or laboratory.<sup>27, 28</sup>

Diabetes risk scores can also be useful in detecting the disease, especially in countries with limited health resources; they identify likely diabetics based on simple data such as age, family history, body mass index and blood pressure. A study of 10 such tools in Taiwan found that all showed a strong correlation with markers for insulin resistance, a predictor for type 2 diabetes. However, the International Diabetes Federation notes that such schemes typically only work with the populations for which they were developed and that they have only been tested in 32 countries worldwide.<sup>15, 29</sup>

## Improving treatment

Of course, diagnosing a disease is not the same thing as treating it. Here, too, advances must be made, both in the training of health workers and in the development of health facilities.

Take the example of Indonesia, where diabetes treatment targets are achieved by only about a third of those who are diagnosed. (Keep in mind that only half of Indonesians with diabetes know they have the disease.) According to a McKinsey & Company report, just 20 to 35 percent of doctors implement blood-glucose targets and lifestyle modifications with their patients, even though up to 90 percent of them are aware of appropriate care guidelines.<sup>30</sup> One likely reason: the government's community health clinics, called Puskesmas, are woefully under-equipped. Only 54 percent of Puskesmas can perform blood-glucose tests, for example, and only 47 percent are equipped to perform urinalysis.<sup>31</sup>

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## The cost and cost-effectiveness of prevention

There's little doubt that diabetes prevention efforts like behavioural counselling reduce the incidence of diabetes and thus the cost of treating the disease. But those prevention efforts come at a price as well.

To determine the cost-effectiveness of prevention efforts, researchers at George Washington University's Diabetes Prevention Program Coordinating Center analysed data from 10 years of participation in the U.S. National Institutes of Health's Diabetes Prevention Program and subsequent Diabetes Prevention Program Outcomes Study. Together, these programs tracked high-risk individuals over a 10-year period. Some were enrolled in a lifestyle-intervention program that included both individual and group counselling sessions, some were prescribed the anti-hyperglycaemic medication metformin (Glucophage) and some were given a placebo.<sup>32</sup>

Over 10 years, diabetes incidence dropped by 34 percent in the lifestyle group and by 18 percent in the metformin group. (At the three-year point, these numbers were even better: 58 percent and 31 percent, respectively.) By projecting the medical costs participants would have borne had they not been involved in the program, researchers concluded that both the lifestyle and metformin interventions were cost effective. In fact, they said, "within three years, the cumulative undiscounted costs of non-intervention-related medical care exceeded the 10-year cumulative direct medical costs of the lifestyle and metformin interventions." In simpler terms, the programs paid for themselves in just three years and presumably are continuing to pay dividends in the form of reduced health care costs.

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27. <http://thefutureofthings.com/3920-saliva-test-to-catch-early-diabetes/>

28. <https://www.sciencedaily.com/releases/2015/10/151031083535.htm>

29. <http://care.diabetesjournals.org/content/32/12/2294.full-text.pdf>

30. <http://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/tackling-indonesias-diabetes-challenge-eight-approaches-from-around-the-world>

31. <http://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/tackling-indonesias-diabetes-challenge-eight-approaches-from-around-the-world>

32. <https://clindiabetesendo.biomedcentral.com/articles/10.1186/s40842-015-0009-1>

## A holistic approach

As is so often the case, a holistic approach is required, one that addresses the problem both on the population level – through education, health promotion, tax policy and even city planning – and on the individual level – through screening, treatment, support and follow-up.

The Chunampet Rural Diabetes Prevention Project (CRDPP) hints at the success such a holistic approach could have. Beginning in 2006 CRDPP deployed a telemedicine van to a cluster of 42 villages in and around the village of Chunampet in southern India. Fitted out with equipment for retinal photography, Doppler imaging, biothesiometry and electrocardiography, the van allowed on-site health workers to perform blood-glucose tests and screen for retinopathy, neuropathy, coronary artery disease and other complications of diabetes.<sup>33</sup>

But the van – while impressive – was just part of the project. The project recruited and trained village health workers (VHWs) to operate the equipment and engage in community outreach efforts, which benefited the local economy and ensured community buy-in. It also used an array of methods to increase diabetes awareness, including support groups, awareness programmes for teachers, special activities on World Diabetes Day and even skits and puppet shows; all told, 165 activities were conducted.

The program also kept costs to a minimum. All screening services (both for diabetes and its complications) were free, as were teleconsultations with specialists at a hospital in Chennai, about 120 kilometres away. Patients only paid for low-cost generic drugs and for follow-up care, which was subsidised.

How effective was the program? Nearly 87 percent of adults in the villages were screened for diabetes; 4.9 percent had the disease and 14.6 percent had prediabetes. Within a year, the mean haemoglobin A1c level among the diabetic subjects had fallen from 9.3 percent to 8.5 percent – still above the diabetes threshold of 6.5 percent – and less than five percent of patients needed referral to the hospital in Chennai.

## Making diabetes pay

On the other side of the globe, Mexico's Clínicas del Azúcar ("Sugar Clinics") offer a different, but equally intriguing, approach to diabetes care. This Monterey-based chain of retail clinics offers one-stop diabetes services to some of the 90 percent of Mexicans with diabetes who don't have access to specialised care. For an annual membership fee of \$200, patients receive year-round blood-glucose monitoring, medical and nutrition consultations, educational workshops and screening for diabetes complications like retinopathy and coronary artery disease. Each clinic also includes a small retail store that sells medications, dietetic foods, shoes and related products.<sup>34</sup>

Although focused on health care, Clínicas del Azúcar was founded by Javier Lozano, who holds an MBA from the Massachusetts Institute of Technology. The company is backed by venture capitalists and has received additional support from groups like the Pfizer Foundation, which is helping it develop a licensing model.<sup>35</sup>

At the opening of the first Clínica del Azúcar, Dr Julio Frenk, Mexico's former minister of health (and former dean of Harvard T.H. Chan School of Public Health), said, "We will only be able to fight diabetes with innovative and low-cost models like Clínicas del Azúcar."

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33. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3570875/>

34. <http://www.clinicasdelazucar.com/>

35. [http://www.pfizer.com/news/featured\\_stories/featured\\_stories\\_detail/global\\_health\\_innovation\\_grantee\\_miguel](http://www.pfizer.com/news/featured_stories/featured_stories_detail/global_health_innovation_grantee_miguel)

At Aetna International, we also believe that new innovations and technology will fundamentally change the way healthcare is managed and delivered. Through the development of innovative tools, such as our new virtual care service— a comprehensive ecosystem that allows access to end-to-end medical services – individuals can have access to a uniquely integrated healthcare journey. Through the management of chronic diseases, advice on alternate treatment options and interpretation of diagnostic reports, for example, the virtual care service reduces the need for a physical consultation by an average of 47 percent.<sup>36</sup> We believe that the resulting clinical quality, together with the breadth and convenience of the service, will enable individuals to better manage their health and well-being while enabling payors to lower their costs. Our vHealth service is live in India, which is set to be the diabetes capital of the world by 2025, and will be rolled out to other regions over the coming months.<sup>37</sup>

## Conclusion

Christy Parkin, the U.S. nurse who encountered chaos in Chinese diabetes clinics, also encountered glimmers of hope. The internet has allowed people with diabetes to learn about their disease and connect with each other, for example, and the country is now teaching nurses to be diabetes educators, an effort Parkin is involved in.

But China – like much of the world – still has a long way to go. As Parkin wrote in *Diabetes Forecast*, “It will cost

a lot of yuan and take a village of dedicated people to meet the challenge.”<sup>1</sup>

At Aetna International, we believe it will take a world of dedicated people to meet the challenge, and not only a lot of yuan but also a lot of pounds, pesos, dollars and euros.

The task we face is daunting, but the risks posed by inaction are simply too high for individuals and societies alike. Left uncontrolled, diabetes threatens to disrupt both lives and economies around the globe.

Fortunately, the answers are at hand. We don't need to do extensive basic research as with cancer; we don't need to worry about mutating viruses as with influenza and we don't need to focus on issues like quarantine as with Ebola. Instead, we need to create a world in which communities and schools teach good nutrition and encourage active lifestyles, where food producers and restaurants offer healthy foods as default choices and where medical professionals are trained and equipped to diagnose and treat all forms of diabetes. And we need to transform the healthcare ecosystem for individuals around the world, bringing together healthcare providers, employers, benefits and services partners through virtual care for the benefit of individuals. We are calling for others to join us in revolutionising the global healthcare system. By fundamentally changing the way healthcare is managed and delivered, innovation and technology can help to turn the tide – not just on diabetes but also on a spectrum of other diseases and conditions.

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36. <http://www.prnewswire.co.in/news-releases/aetna-international-launched-vhealth-by-aetna-a-global-digital-primary-healthcare-service-in-india-623772724.html>

37. <http://dev.diabetesincontrol.com/india-diabetes-world-capital-by-2025/>

# Building a Healthier World<sup>®</sup>

Aetna International is part of Aetna, one of the leading diversified health care benefits companies in the U.S., serving an estimated 46.5 million customers with health benefits and resources to support them in making better informed decisions about their health care.

Aetna International is committed to helping create a stronger, healthier global community by delivering comprehensive health care benefits and population health solutions worldwide.

One of the largest providers of international private medical insurance services, Aetna International serves more than 700,000 members worldwide, including expatriates, local nationals and business travellers. Its global benefits include medical, dental, vision and emergency assistance and, in some regions, life and disability.

Aetna International also offers customised programs, technology and health management solutions to support health care systems, government entities and large employers in improving access to quality care and health care outcomes in tandem with controlling associated costs.





## **Dr. Stella George**

*Senior Medical Director*  
Aetna International

Dr. George is the Head of Care Management (Americas) and is responsible for the delivery of all of our care management programs through her team's global clinical operations. She is responsible for driving the care management strategy. She has oversight on the clinical program design which is focused on developing member-centric innovative programs focused on increasing member engagement and improving health outcomes. Prior to joining Aetna International, Dr. George was the head of a medical department for a leading third party administrator (TPA) in United Arab Emirates with operations in eight countries in Middle East and Asia. Stella received her degree in Medicine and Surgery (MBBS) from the University of Bombay – India and obtained her post graduate Diploma in Public Health (DPH) from University of Bombay – India. She has practiced medicine in Mumbai and is a trained Leprologist. She has worked with Non-governmental organization (NGO) in India focused on leprosy early detection, treatment and prevention as part of the National Leprosy Eradication program. She received her Master's in Business Administration (MBA) from the University of Strathclyde – UK.



## **Dr. Mitesh Patel**

*Medical Director*  
Aetna International

As Medical Director for Aetna International, Dr. Patel provides guidance, support, and medical leadership for care management activities in Europe. Dr. Patel also manages Aetna International's emergency evacuation program, helping to ensure appropriate health care delivery for our members around the globe. Dr. Patel graduated from King's College University, London and also has a Healthcare Management degree from Imperial College, London. He is also a practicing physician in Emergency Medicine.



## **Dr. Lori Steitz**

*Senior Medical Director*  
Aetna International

As Senior Medical Director for Aetna International, Dr. Lori Steitz provides guidance, support, and medical leadership for all care management activities around the globe. Lori drives medical policy, and actively participates in strategic planning and program and product development in concurrence with changing markets and technologies. Lori also manages Aetna International's emergency evacuation program, helping to ensure appropriate health care delivery for our members around the globe. Prior to joining Aetna in 2009, Lori practiced primary and urgent care medicine and public health in the U.S. and a number of international settings, including Kosovo, Thailand, and Nepal. Lori is certified by the American Board of Family Medicine and has special certification in Travel Medicine and Aeromedical Evacuation. Lori graduated from Haverford College, and holds an M.P.H. from Boston University and an M.D. from SUNY Downstate.

**Aetna International whitepapers:**

2016 Volume I: Cancer in the developed world

2017 Volume I: Globesity: Tackling the world's obesity pandemic

2017 Volume II: Striking the right balance: Global caesarean delivery rates in an era of controversy

2017 Volume III: Expatriate mental health: Breaking the silence and ending the stigma

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