MoPoTsyo
Patient Information Centre's
4th Annual Report

The Year 2008

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1 Introduction

This 2008 report is the 4th annual report on our operations in the 5th year of our existence. This is 4th time we report on our urban slum projects and the 2nd time we report on our community-based action for people with diabetes living in a rural area. There MoPoTsyo's new program is growing faster than in the urban area, where our challenges are now of a different nature. We look back on a year of stabilization in Phnom Penh but expansion in the countryside, with the rural program having received the focus of our attention.

At the end of 2008 our scope has started to cover hypertension as well. We keep looking for ways that better health outcomes can be obtained for less money. There are opportunities to reorganize the health financing of people with diabetes into more efficient streams. This is one of the challenges that MoPoTsyo plans to deal with in the coming years for both diabetes and hypertension in the areas where its interventions are implemented, as it expands both in terms of geographic coverage and in scope of action.

2 Our History in brief

MoPoTsyo Patient Information Centre was founded on August 8th, 2004 in order to empower people with a chronic disease, with information and skills on how to manage and control their disease and to make them share information among each other.

Initially we tried to achieve this goal with professional health staff, but after some time we realized that we were more effective with peer educators, so with people who have "the" chronic disease themselves. Next, we found that health staff less inclined to let knowledge and skills transit to the patient. Information transmission is especially relevant for people with diabetes. A short way of putting it is "Peers share information, health staff transmit it as far as they have to". Peer Education has become a strategy that helps us to achieve our main goal. Again later, peer education became "community-based peer education" as this strategic element again improved the outcomes.

In 2005 July, after completing our registration as NGO, we became operational in one down-town slum and one remote slum. Now, at the end of 2008, we are operational in 4 down-town slums and one remote slum, as well as in 5 rural operational districts. The first OD, Ang Roka, was almost completely screened for urine glucose. In 6 out of with 10 health center coverage areas, there is a qualified peer educator, while 3 have a peer educator who is still being trained, and we still have to identify one peer educator for one health center area, which was newly created. In the other 4 OD's we have only just started. 4 peer educators were identified, trained and passed the exam.

We focused initially on diabetes, which is in fact not one disease but a manifestation of many different diseases. We have only one real type 1 person as a registered

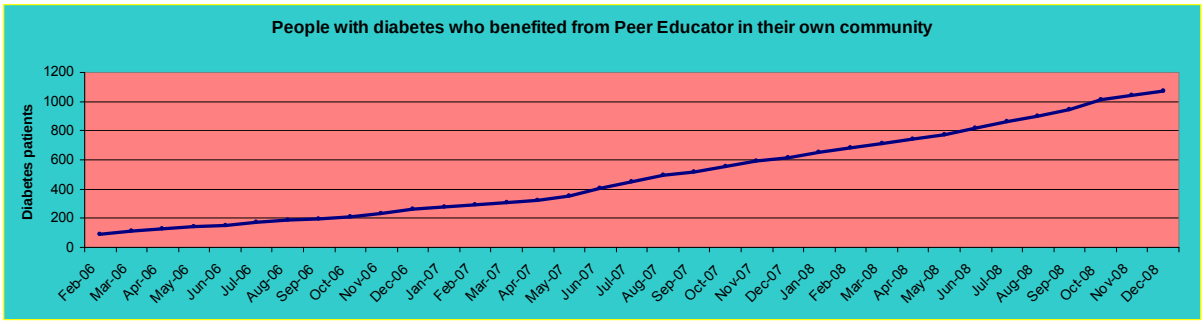
member. All other 1065 registered members are one of several kinds of type 2. It is striking that almost half of our registered diabetic membership is *not overweight*. If there is one lesson that is worth to be mentioned here it is that diabetes in Cambodia is not just a disease of the rich (many of whom are indeed overweight in this low-income country where many of the rich are "new-rich" who are not fully aware of the fitness-culture that is now normal in developed countries), but also very much a disease of poor people many of whom are not well nourished. One of major health challenges that Cambodian population faces at the moment is their overall preference for "overweight"-status as sign of wealth. We will only be able to make a dent into the coming epidemic if we succeed in changing this.

MoPoTsyo's peer educators do systematic detection ("screening[1]") of diabetes in their own community, using urine strips and of hypertension using blood pressure meters. It is the peer educators based at the grass roots who talk with the households, group leaders, village leaders and others. They assess any patient that they detect (screen in), counsel them and, if necessary, advise them to see a doctor. Regular evaluations have shown that the intervention delivers on its promises.

3 Our Diabetes interventions (projects)

The graph below shows the steady growth of MoPoTsyo's network since the start in June 2005.

Figure 1 Membership growth



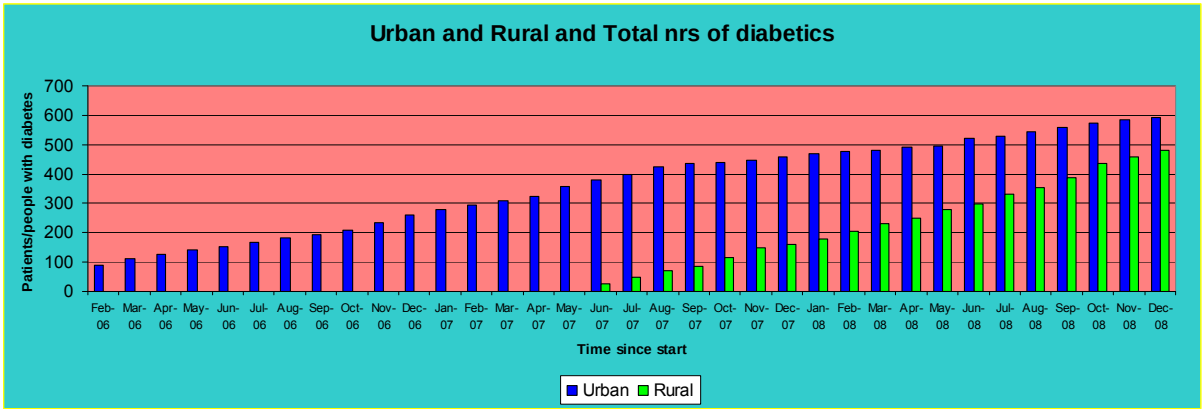
In fact, in most of the growth in 2008 is due to the rural network, as the urban slum network growth is kept steady as it switches from active to passive detection mode. The urban network concentrates on achieving managerial and financial sustainability. At the end of 2008, we copied the rural diabetes service model to an urban referral hospital, where there was no diabetes service or hypertension service. The urban people with diabetes take on more responsibilities and become less dependent on the NGO. It is almost financially sustainable at this cost level.

Over the past 18 months (July 2007 until December 2008), the rural network in Takeo has grown much more rapidly than the urban network, with 14 rural peer educator

[1] Urine strips fail to detect some diabetics, but the people missed in year 1, will be screened in later when they develop symptoms or when a second screening is organized. Using blood-glucose strips would increase the costs 15-fold and destroy the cost -effectiveness of the intervention. It is important to note here that almost half of Cambodian diabetics are NOT overweight (BMI <23), so focusing on so-called "risk groups" as done in the West would be a mistake in the Cambodian context.

candidates trained in the urban slums and now in rural areas within the same province. The rural intervention in the first OD serves as a model for the 4 other OD's inside Takeo province.

Figure 2 Urban and Rural membership growth



3.1 Urban

3.1.1 Achievements

The urban network of 5 peer educators has come under the management of one Diabetes Program Manager, who reports to the General Peer Program Manager. There are peer educators in 5 slum areas. In 2008 many households from around the Boeungkak lake were evicted and moved to places outside Phnom Penh. This affects our networks of Sras Chork (2005) and Boengkak2 (Jan 2006). Two of our peer educators will also have to move out of their areas when their time comes. We are adapting the intervention to the difficult circumstances and try to keep the patients in the follow-up system.

Key figures:

1. At the end of 2008 14512 (compared with 13340 at the end of 2007) urban adults had learned from MoPoTsyo how to use a urine strip to test themselves for high urine glucose. During 2008, only few urine strip screenings were added to a total of 14,512 at the end of December 2008;

2. While 457 diabetes patients had been detected at the end of 2007, the passive screening resulted in another 136 registrations of DM, making a total of 593 DM registered at the end of December 2008.

3. Per 31 December 2007 there were 316 (=69%) of them who knew they had diabetes; Per 31 December 2008, there were 435 (=73%) who knew they have diabetes. The rise is due to the shift from active to passive screening.

4. 111 urban diabetics did benefit from our equity fund.

5. With time the diabetics improve under our intervention and then the result is “maintained” . The first HbA1c is not really a baseline because the HbA1c is done after having applied lifestyle changes for a few weeks. An HbA1c can only be done at the clinic and patients only get to a clinic if it is necessary and that is after having tried lifestyle changes. The HbA1c values not real baseline values therefore. These HbA1c are taken among random samples of the patients, who represent the whole membership in the 5 slum areas.

Figure 3 First Urban HbA1c

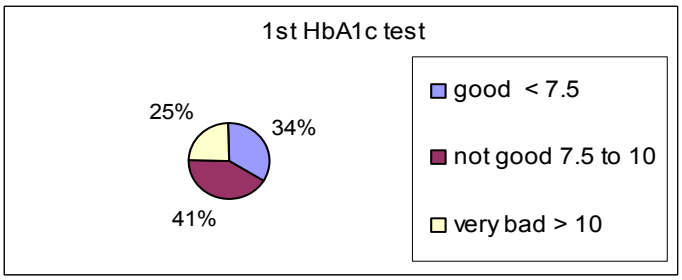


Figure 4 Urban HbA1c After Year 1

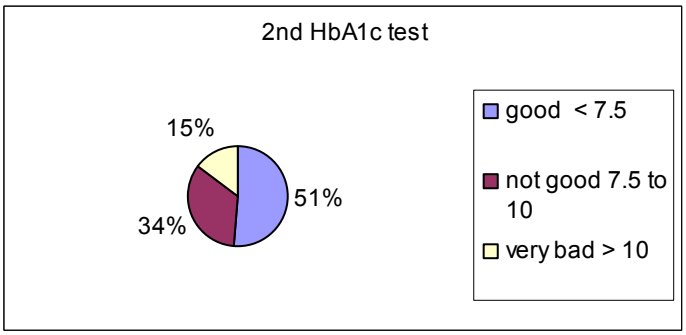
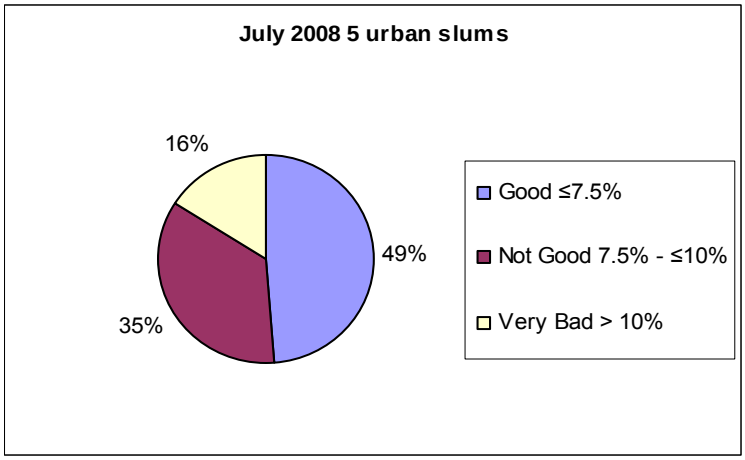


Figure 5 Urban HbA1c After Year 3



One has to put this 3 year result into a proper perspective:

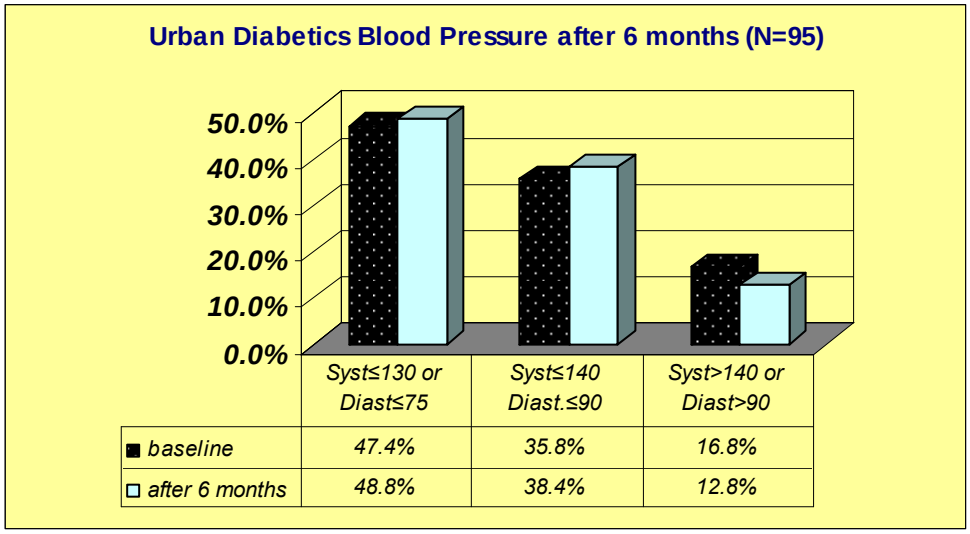
1) The population in the slums has many social problems to meet the challenges of daily survival. Some lost their houses and land because of evictions. Others are absent for long periods of time as migrant laborers. It is difficult in such circumstances for many to adhere to the lifestyle changes, especially food restrictions and regular medication.
2) For many, it remains difficult to meet the costs of medicine. If 3 out of 5 say their medicine regime is affordable, it means also that 2 out 5 have

difficulty with that. Poverty makes it difficult for people with diabetes to remain healthy, although they know what they have to do, often they cannot adhere to the treatment that they would like.

3) MoPoTsyo's peer educators continue to do active follow-up by visiting patients at home whatever patient's attitude towards their disease. The Peer Educators obtain evaluation results from patients who would have dropped out if they would have had to travel to a clinic regularly to be under its control. They remain enrolled and registered at MoPoTsyo and followed up because it requires no special effort on their part for this. Such "passive" patients are also more likely to have poor glucose control. We think that they are more or less passive members of the cohort that one does not find so often among the regular clientele of a clinic. They are the "defaulters" who drop out after just one or a few visits. Some of them are not convinced that they actually have diabetes and rely on traditional medicine, but they allow the Peer Educator to visit and will cooperate a bit. In MoPoTsyo's cohort those people remain included unless they move out, die, or say that they do not want to be followed up anymore. The Peer Educators try to continue to engage with these people and do not want to get rid of them, although they do influence the overall health outcome figures of the cohort.

6. Blood Pressure management has improved as well compared with baseline for urban diabetics who have been in the program for longer than six month.

Figure 6 Blood Pressure Urban area



7. 19 patients in the urban area are getting support from MoPoTsyo to pay for their insulin. In total 27 patients have been on insulin, but 8 can buy their own insulin.

8. MoPoTsyo loses annually a little more than 8% of its patients, in other words 26% of registered patients over 3 years are no longer being followed up by the program.. More than half of those patients are lost because they move out of the area where we work to another area, the other half consists of deaths and people who are no longer interested. Since mid 2007, each Peer

Educators fills and signs a monthly “stop-follow-up” forms so we keep track on who drops out and why.

We think that we could obtain better results if we could follow up people more actively (pay more to the peer educators), possibly also if we could lower prices of medication certain groups, to address some of the financial barriers that people have. At the moment, the challenge is to make the program sustainable, financially, so if anything we want to cut costs. There are different ways to do this. One way is by organizing diabetes service in a referral hospital for our registered members, instead of letting them attend the services at Kossamak National Hospital, which suddenly became very expensive towards the end of 2008. We already signed a contract with the Phnom Penh Operational District West to organize this and services will start in January 2009 for our diabetes and hypertension members.

3.1.2 Urban Plans for 2009 and future

Detection and Management of hypertension is likely to be cheaper than Diabetes. The costs of the hypertension patients may dilute the costs of diabetes patients. The priority in the urban slums is now to expand the scope of its activity from diabetes to include also people who have hypertension, likely a 1000 urban poor people in the areas where we are working already. We aim to improve the cost/benefit ratio of the peer educator in terms of outcomes in numbers of people as well as in the management and the efficiency of the organization.

In the long term, program may expand to include other types of chronic health problems.

3.2 The Rural Intervention

In mid 2007, we started our first rural program (Ang Roka OD in Takeo province). This is an operational district which has been contracted to the Swiss Red Cross and which has a relatively good public health service, but no diabetes or hypertension services as part of the regular public services provided at the health centers or referral hospital. MSF Belgium has been operating a Chronic Disease Care clinic (CDC) since 2003 at Takeo Provincial Hospital, where people with diabetes can get diabetes service as well as free medicine supplies. MSF B pulls out of Cambodia in July 2009. MoPoTsyo will be in a position to gradually take over the diabetes cohort but only as far as patients are residents of Takeo province. MoPoTsyo offers a different benefit package than the patients were used to under MSF Belgium. Many of the CDC from Ang Roka patients already switched to MoPoTsyo, although they maintain their name at the CDC.

3.2.1 Achievements

1. By now, Peer Educators are formally established in all 10 health center areas in Ang Roka, one more than originally planned.

2. 56,817 rural adults in Ang Roka learned from MoPoTsyo how to use a urine strip to test them selves for high urine glucose. These adults live in 16,234

households. 165 of the existing 191 villages were covered, so 86% of all villages in the OD were done in 18 months.

3. 474 diabetes patients were detected in the first 18 months of the program; It turns out that 1.40% of the urine strips that we hand becomes positive.

4. Only one third of them knew they have diabetes; this is the norm for rural Cambodia. It also means that there are many rural people with diabetes that are *not* found by us which comes as no surprise because we use urine strips for detection for reasons of cost effectiveness. As discussed above under the urban review, the false exclusions are not a problem as the missed cases will be detected in the years to come when they show urine glucose during a re-screening activity;

5. The spending on equity fund for the rural diabetics amounted to a total of USD 2470 in 18 months.

6. Diabetics who are at least 3 months into the program were tested randomly 2 times: A samples of 31 diabetics in two areas at the end of December 2007/early January 2008, showing that 53% had HbA1c ≤7.5, while 22% still had HbA1c>9. A sample of 133 diabetics in 7 areas in July 2008, showed that 69% had HbA1c ≤7.5 and 23%>9. The first sample is in fact too small to let itself be expressed in percentages, but after the evaluation of January 2009 a 3rd column will show the trend.

Table 1 Two times HbA1c in the Rural Area

	N=32	N=133
HbA1c	Dec-07	Jul-08
≤7.5	53%	69%
>7.5 & ≤9	25%	15%
>9	22%	16%

Figure 7 FBG in rural area Ang Roka OD among randomly selected patients

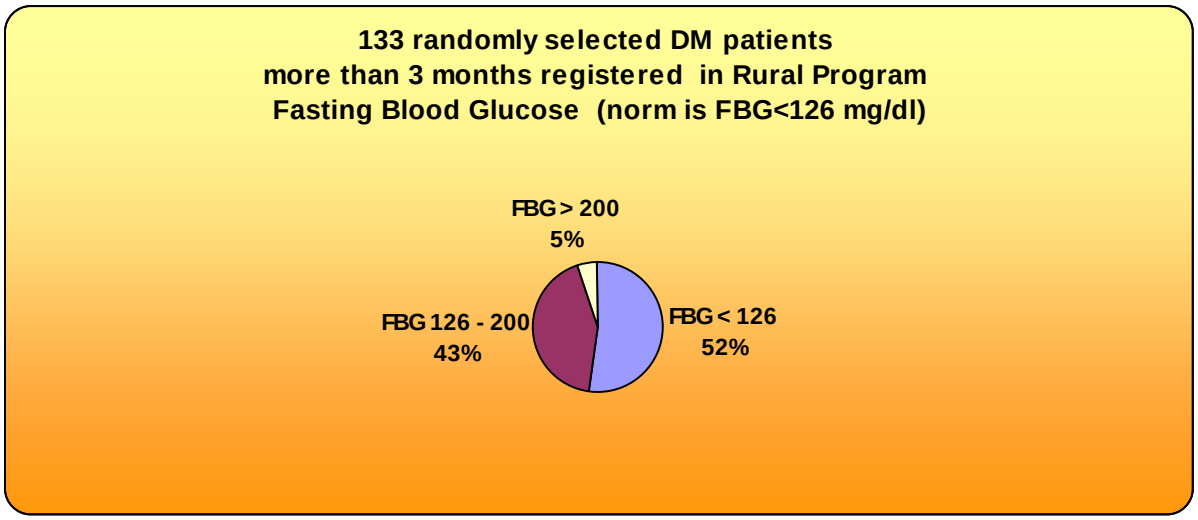
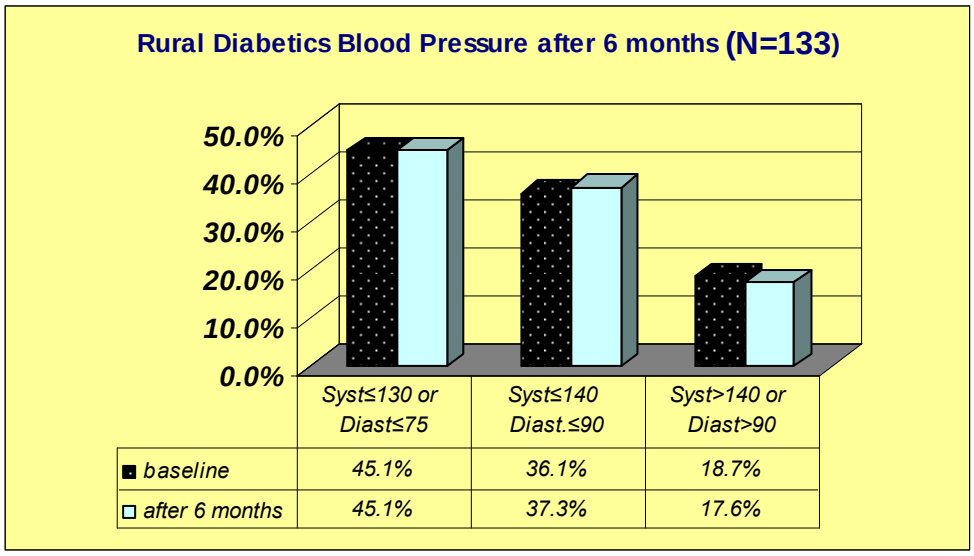


Figure 8 Blood pressure in rural area July 2008

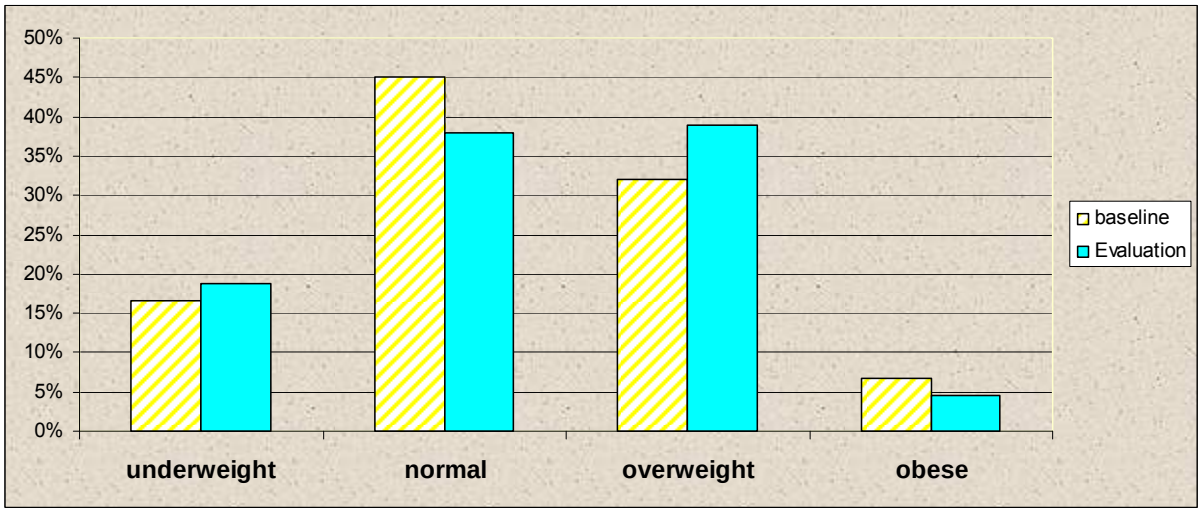


After the evaluation of July 2008, the lack of visible progress in blood pressure was addressed. We will learn from the evaluation in January 2009, if the extra effort produced good results or not. We plan to change our categorization of good blood pressure from "or" to "and". Only the last category will remain "or".

7. 18 patients in the rural area are on insulin at the end of 2008;

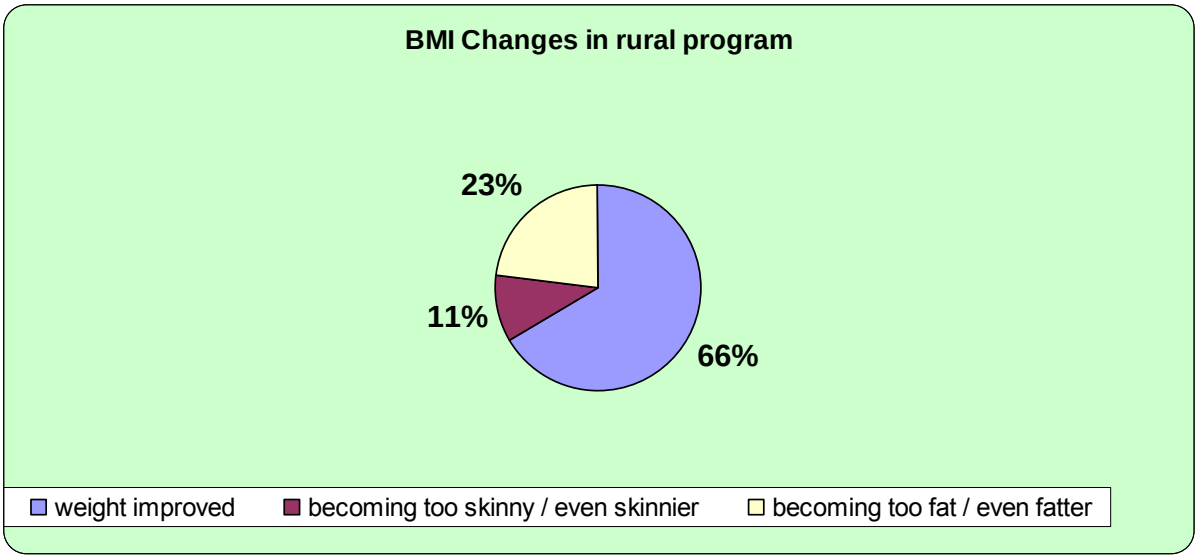
8. Also the BMI of the registered diabetes patients has improved when evaluated in July 2008 and compared with baseline weight.

Figure 9 Comparing July 2008 BMI with baseline



Less people are obese, shifting from obese to overweight. More people move from underweight to being normal. Of course some people move from normal to overweight. The graph below show how the people have been changing, giving the percentages of people whose weight changed more than 1 kg. The direction of the weight change took is shown in the graph:

Figure 10 BMI Changes in rural Ang Roka (133 randomly selected patients)



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The randomly selected patients in July 2008 reported to be spending USD 4.88 monthly as health related expenses. More than 90% of the patients say they are satisfied with their peer educator. The peer educator cannot hear it when they answer the question to the independent interviewer.

The 474 diabetes patients have received 876 medical consultations, which comes down to an average of almost 2 medical consultations per patient in the first 18 months, with about half patients needing no consultation at all and one patient coming almost every month. Some people really seem to like it to go and visit their doctor. What the figures show is that the peer educators can reduce the workload of the doctor enormously and make the use of everybody's time more efficient.

9. There were four diabetic pregnancies among the 474.

10. Almost 45% of the registered diabetics also has hypertension (more than 130/80 mm Hg);

The program is running according to plan and there were no big problems that manifested during the first 18 months.

3.2.2 Main Challenges

The rural government hospital doctors have not used the regular presence of our diabetes specialist contracted by MoPoTsyo to learn from him how to treat diabetes patients. In the other OD's, to which MoPoTsyo is replicating the new rural model, the government hospital doctors are interested and are present during consultations. It is not such a big problem if in the future Ang Roka Hospital cannot provide basic diabetes service to the diabetes patients from Ang Roka as long as the neighboring district hospitals have the service available. Distances are not very large. Also, once

doctors at Ang Roka RH will become interested we can consider providing a special training. But it is a pity the opportunity over the past 18 months was missed by them.

The Ministry of Health is not allowed by the Ministry of Economy and Finance to pay unofficial health staff. This is a bureaucratic hurdle that we need to take to free the way for a national roll out. It will take time.

3.3 The Urban and Rural networks compared

The two interventions are not exactly the same. We can spot 3 main differences:

A *first* important difference is that the urban slum networks reach mostly the poor urban diabetics, while the rural networks reach not just the poor but middle and some higher class people as well. In the rural villages the peer educators reach practically all people because nobody declines, while in urban areas rich people and some middle class are not interested because they can afford "a real doctor".

A *second* important difference is that a special incentive reimbursement system was carefully designed to make sure that remoteness should not be a factor limiting access to MoPoTsyo's benefits. This is necessary because transportation costs are much higher in rural areas.

A *third* important difference is that only 29% of the rural diabetics knew they have diabetes, while in urban slum areas this is 69%. This confirms what was already found in the diabetes surveys carried out in different areas in Cambodia as published in The Lancet in 2005.[2]

It is interesting that although the urban denominator is a slum population and the rural population is the general population in a contracted OD with a relatively good public service, the urban slum dwellers had better access to diagnosis than the rural population. Of course this better access also comes at a tremendous cost to people. One of the intervention's effects is that people have to spend less on their health than before they become member of MoPoTsyo.

3.4 Equity Fund

MoPoTsyo keeps its equity fund to assist the most needy temporarily in meeting some of the costs of their disease. We avoid that people start to see MoPoTsyo as "the chronic financial solution" to their own chronic problems. Equity fund support is in most cases a temporary matter. Without some financial support some people with diabetes cannot adhere to medicine treatment, although the medicines are not very expensive. We have now 10% of people out of a total of 1143 on permanent equity fund support. None are 100% supported.

The need for equity fund support decreases for most patients as they recover from a long period of hyperglycemia and become productive again. The equity fund should

[2] The Lancet November 2005, 366;1633-1639 "Diabetes and associated disorders in Cambodia: two epidemiological surveys" King H *et al*.

not substitute for support from relatives, even though they have already given up on their sick relative after spending on a lot of money on him or her. The community based peer educator is in a position to counsel the relatives on their role. The patient's physical recovery can help to restore and strengthen the family bond.

The sustainability of the equity fund support depends for a large part on the Cambodian government's willingness to support it.

3.5 Insurance

In theory at least health insurance has a financial interest in self-help groups like MoPoTsyo as they help reduce adverse selection on the side of the patients and reduce moral hazard on the side of the health service provider and reduce costs of disease to the insurer.

For this reason, MoPoTsyo cooperates with SKY, the health insurance project of GRET, in Ang Roka. At the end of 2008, there are 474 Diabetics registered with MoPoTsyo and among them there are 38 who are also insured at SKY. We will investigate why they are insured and the others are not.

MoPoTsyo and CAAFW, in north western Cambodia, are preparing a collaborative project in Thmar Pouk OD, to be financed by ICCO-KIA in The Netherlands for three years. It aims to create some cover of diabetes and or hypertension related costs by health insurance.

3.6 Revolving Drug Fund

During 2008 we established a small RDF for our patients, both in urban slum areas and in the rural area. Three private pharmacies have been contracted. Every patient receives a preprinted invoice, with the names of the medicines in khmer and English. The invoices are numbered to facilitate control and supervision. The pharmacy buys the medicines from MoPoTsyo and sells them to the patient with 15% profit. The Peer Educators and patients play a role in the monitoring of the distribution of the medicines.

3.7 The 2008 planned activities: a review

1. experiment with Primary Prevention of Chronic Disease among Community leaders and School teachers; DONE

2. Develop the MoPoTsyo's data base for decentralized use: DONE

3. Implement hypertension module in rural area: STARTED

4. strengthen the DPM's and GPM roles: DONE

5. find a more suitable office for HQ, training centre, drug stock, not far from Kossamak Hospital and organize the move; DONE

6. strengthen respect for GSP/GDP standards and expand our revolving drug fund system; DONE

7. prepare expansion of our program to :
    a. the other 4 OD's of Takeo province: DONE
    b. Thmar Pouk OD in Banteay Meanchey province: DONE
    c. Chhouk OD in Kampot province : NOT REALIZED YET

8. prepare 2008 World Diabetes Day with more formal and substantial consultation of the membership; NOT REALIZED

9. make film documentaries on aspects our work for different target groups including policy makers: NOT REALIZED

3.8 Our long term priorities (2009 and beyond)

1. Obtain funding from an insurance provider
2. Expand/Manage a fully GDP and GSP compliant Revolving Drug Fund;
3. Obtain equity funding to help the pre identified poor diabetics and hypertensives pay for their health care costs;
4. Conduct a Cost Utility Analysis (based on DALY's) to demonstrate the cost effectiveness of our intervention;
5. Implement a provincial model, which can be replicated later on in other provinces, as a next step towards a national roll out with a realistic cost and time frame
6. Get national political support for a roll out of the intervention;

4 Some of the lessons so far

We have come a long way since the organization was founded and the start of its first operations in July 2005. It has been fascinating to witness how the requirements of realities on the ground gradually shaped the intervention into what it has become now, sometimes quite different from the original design. We started private initiatives in urban slum areas where public services are very weak. We then used that experience to design the rural model in such a way that it could fit within a well functioning public health services system, the operational district in rural Ang Roka. Once we got that model smoothly functioning, we used this rural model in order to make adaptations to the urban model so that it fits with the urban public services, without being too dependent from it. By not being dependent on the public service during the creation of the model, you gain a lot of time and you are hindered by the drawbacks that characterize public service. However, once you have an effective model, you can implant it within a public service system for sustainability reasons.

There are a few findings that are worthwhile to enumerate:

1. Peer Educator networks consisting of community based peer educators is effective for diabetics in terms of:
    a. Finding new diabetes patients (who are not aware of it)
    b. Improving Health outcomes through lifestyle changes
    c. Transferring self management knowledge and skills
    d. Improving Quality of life (restored feeling of control)

e. Helping them to reduce health expenditure

2. Trained Patients are better in sharing information than trained health staff;

3. The interface between peer educator networks and the health service providers has a potential for friction but it has worked out fine;

4. Peer Educators reduce the workload of formally trained diabetes service providers;

5. Peer Educators can help to create a continuum-of-care by following up patients at home if they have not been showing up at their appointments;

6. Only 3% of diabetes patients drops out because of lack of interest. The overall drop out rate (moving out, death and labor migration) is less than 10% per year.

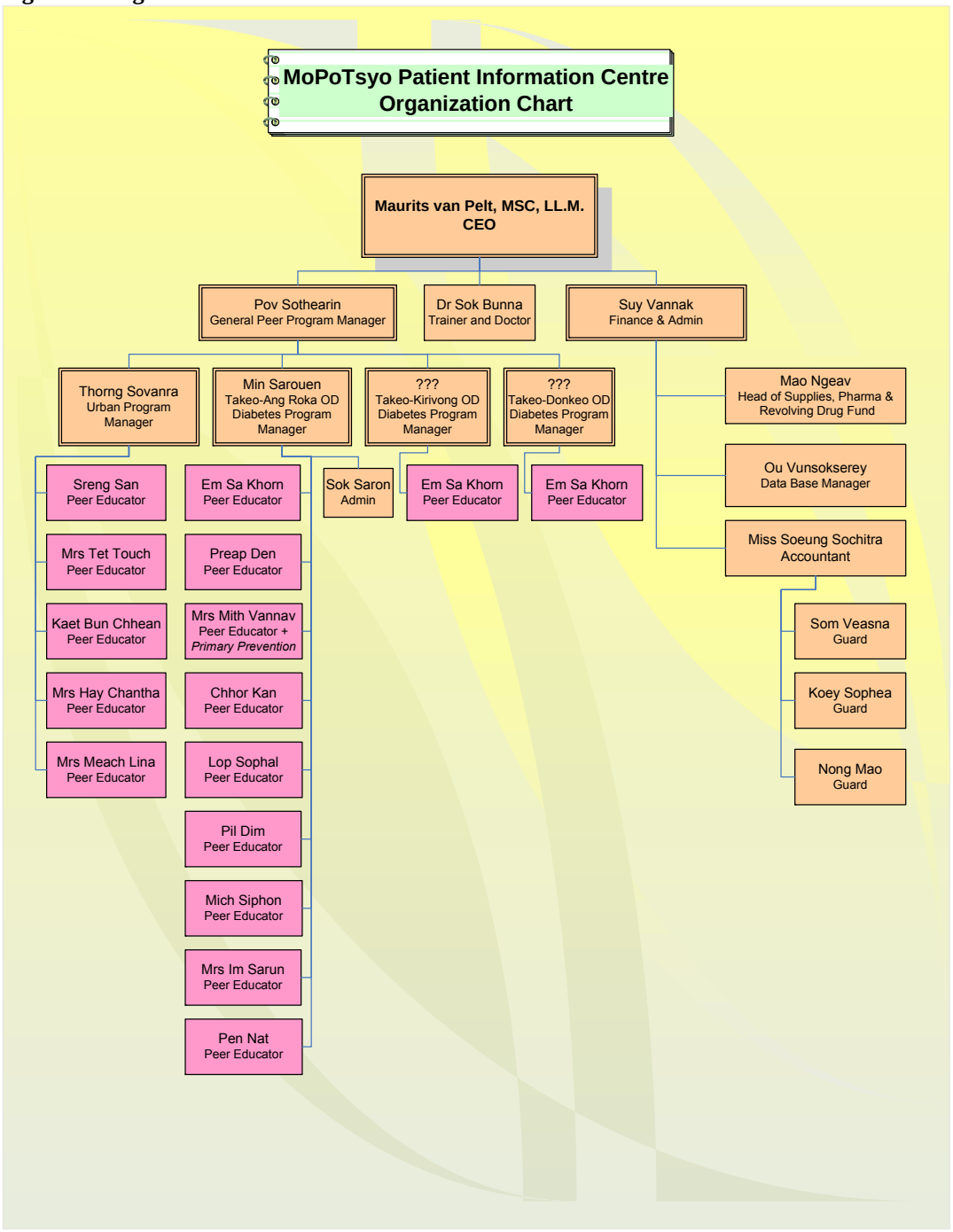
7. For quality and supervision Diabetes Peer Educators function as part of a network, led by a network manager;

8. Half of the diabetes population is overweight (BMI) >23.0, but one fifth is underweight (<18.5). Some people respond so strongly to the program that they overshoot their weight goals, going from underweight to overweight or from overweight to underweight.

9. By organizing services for remaining needs for services patients, instead of setting up a clinic with all services available at one location, which depends on patients traveling there, important cost savings for patients are made;

5 Organizational Chart and structure

Figure 11 Organizational Chart



This chart shows that we have put a Diabetes Program Manager at the head of each of the networks, with a General Manager overseeing each salaried DPM, as they lead their network of peer educators in an area. A part of the administration and finance will be decentralized to each of the networks over time to ensure that MoPoTsyo Headquarters does not become a micro manager. This decentralization process started in 2008 by training of local people in the networks to take on administrative tasks.

6 Various project Implementation issues

6.1 Cambodian Diabetic Food Pyramid

In 2008, the process for a third revision of the MoPoTsyo Food Pyramid was started. As a simple and clear collection of typical Cambodian food items, it remains a very popular and effective tool.

Figure 12 food pyramid version 1 and 2

In 2007, we decided to release it for use by others as well. From the evaluations we have learned that it is very much appreciated by our membership. It is meant to be kept on the wall of their home.

The pyramid has been distributed to all health centers in Phnom Penh Municipality upon request by the Municipal Health Department. It is now widely used and it works well.

6.2 Testing of Pharmaceuticals

We cooperate with the National Laboratory for Drug Quality Control to test the quality of the medicines that we recommend the registered patients to buy. We have contracts with pharmacies and health authorities to regulate our relationships and accountabilities.

6.3 Communication and conferences

Publications: We maintain our website with the latest news and progress on the growth of the network. There was some other publicity in 2008:

1) Magnum website, see
http://www.johnvink.com/story.php?title=Cambodia_Discovers_Diabetes

2) 5th Cambodian Diabetology Congress

3) Bangladesh ICDDRB-Dhaka Conference Future Health Systems

4) Vientiane Conference 9+10 october funded by EU at
http://www.povill.com/enjkw/emeetcont.aspx?id=18

5) Antwerp Tropical Institute Conference on Primary Health Care in 21st Century (24-26 Nov)

6) Diabetes Voice 2008 December issue article by Wim Wientjens at
www.diabetesvoice.org/files/attachments/2008_3_Wientjens.pdf

6.4 World Diabetes Day

MoPoTsyo had planned WDD but the walk, although well prepared like last year, was unexpectedly canceled by the Phnom Penh Mayor. The reasons behind this measure are unclear. It is disappointing for our membership to be denied the opportunity to walk for diabetes and to try to attract attention for a health problem that affects this generation and future generations including many of the civil servants themselves and their relatives.

7 Financing and Funding

We used funding from the following donors during 2008:

- AUSAID
- French Embassy Fonds Social du Développement
- Swiss Red Cross
- World Diabetes Foundation
- ICCO
- Het Maagdenhuis
- Anne Fransen Fonds
- Medecins Sans Frontieres Belgium
- Private donors

8 Audits & Costs

During 2008, the year 2007 was again audited by the same auditor Vanda Accounting & Auditing, like all preceding years.

Table 2 Cost trends

	Per Household				Per Population				Per Diabetes Patient			
	2008	2007	2006	2005	2008	2007	2006	2005	2008	2007	2006	2005
overall cost	$6	$7	$10	$7	$1	$1	$2	$2	$107	$97	$93	$120
urban area	$4	$8	$10	$7	$1	$2	$2	$2	$30	$62	$93	$120
rural area	$6	$6	-	-	$1	$1	-	-	$189	$196	-	-

We have been operational in 2005, 2006, 2007 and 2008. We can observe year-on-year trends in the cost per diabetes patient detected, stabilized and followed-up. It is the finding and training of patients which costs money, but once they are familiar with the program and have learned how to self manage, the costs go down. In the 3rd year cost in the urban project are about half of what they were initially in 2005 with the first 60 patients, and the 4th year just a quarter of the initial costs remain. Of course the rural program cost should descend sharply in the coming years.

Table 3 Costs year on year

	2005	2006	2007	2008
MoPoTsyo overall cost per DM-patient	$120	$93	$97	$107
urban area	**$120**	**$93**	**$62**	**$30**
rural area	-	-	$196	$189

Although the figure drops over time, the benefit package of 2007 for the patients is more elaborate than the benefit package of 2005 and we have grown in office staff. We are trying to manage the rapid growth of our organisation in the best way we can. Decentralization of certain responsibilities to the peer educator networks is a key element of our project strategy. Decentralization starts in the second project year. After two and half years decentralization is a fact and the network is supposed to be sustainable or almost sustainable and ready to be replicated to neighboring operational districts. In this way, we can involve the local health authorities in the network growth.

The start-up cost per patient (2007) in the rural areas ($ 196) seems higher than they were in the urban areas in 2005 ($120) because in the rural area:

1. there are more transport costs as distances are larger and also because the price of gasoline price itself has risen sharply;
2. peer educators detect proportionately per screened adults (1 in 112 adults) less than in the urban slums (1 in 35 adults), so the total costs are distributed over a smaller number of patients resulting in a higher overall cost average;
3. we also include all costs of medical diabetes service provided at the local hospital to “our patients”, which in the urban areas are provided through the subsidized public service; so the rural model is a relatively “more complete care model”, whereas the urban slum model is a “detection + education model”;

We will continue to follow the development of costs over time as we grow although these figures have to be interpreted with caution.

Figure 13 Year 2008 overview expenditure

MoPoTsyo Year 2008 (USD per 31-12-2008) year by year

project Area	Project Started	Individuals Screened				Households Screened				Population Benefited				Diabetic Registered				Project Cost			
		2008	2007	2006	2005	2008	2007	2006	2005	2008	2007	2006	2005	2008	2007	2006	2005	2008	2007	2006	2005
Urban																					
Srash Chork.**BI**	2005-Jun-01	895	1,449	1,616	1,761	184	280	395	685	1,234	1,959	2,476	2,720	46	29	51	40	$4,706	$7,091	$9,067	$4,469
Anlong Kangan	2005-Jul-01	-	559	2,166	718	-	176	692	320	-	956	2,502	1,209	24	39	69	20	$4,895	$7,489	$8,727	$2,722
Boeung Kak2.**B**	2006-Jan-01	-	657	1,723	-	-	127	439	-	-	711	2,013	-	23	46	79	-	$3,629	$7,264	$6,255	-
Boeung Salang	2007-Apr-01	-	1,204	-	-	-	338	-	-	-	1,758	-	-	7	50	-	-	$2,324	$3,372	-	-
Borei Kela.**BR**	2007-Apr-01	277	1,487	-	-	50	283	-	-	328	1,742	-	-	36	34	-	-	$2,175	$3,059	-	-
)tal Urban		**1,172**	**5,356**	**5,505**	**2,479**	**234**	**1,204**	**1,526**	**1,005**	**1,562**	**7,126**	**6,991**	**3,929**	**136**	**198**	**199**	**60**	**$17,729**	**$28,275**	**$24,049**	**$7,191**
		14,512				**3,969**				**19,608**				**593**				**$77,244**			
Rural																					
Kus.**ARA**	2008-Jan-01	5,877	-	-	-	1,797	-	-	-	8,839	-	-	-	59	-	-	-	$11,706	$2,914	-	-
Tram Kak.**ARB**	2007-Aug-01	4,536	1,405	-	-	1,490	421	-	-	7,161	1,738	-	-	45	23	-	-	$12,933	$3,294	-	-
Trampang Prin	2007-Sep-01	2,149	1,075	-	-	843	745	-	-	3,447	2,039	-	-	14	19	-	-	$6,676	$2,949	-	-
Ta Phem.**ARD**	2007-Jun-01	5,969	3,184	-	-	1,411	871	-	-	8,591	4,830	-	-	39	39	-	-	$14,261	$4,435	-	-
Ang Tasom.**AR**	2008-Jul-01	2,125	-	-	-	953	-	-	-	3,864	-	-	-	62	-	-	-	$11,383	$2,878	-	-
Prey Chour.**AR**	2008-Feb-01	3,036	-	-	-	727	-	-	-	4,884	-	-	-	16	-	-	-	$3,564	$2,731	-	-
Prey Sbat.**ARG**	2007-Jun-01	5,952	3,465	-	-	1,336	856	-	-	7,044	4,759	-	-	24	30	-	-	$10,267	$3,741	-	-
Ang Roka.**ARH**	2007-Jun-01	3,863	2,954	-	-	931	1,000	-	-	5,205	4,735	-	-	43	23	-	-	$11,234	$4,523	-	-
Trapang Andoe	2007-Aug-01	4,337	3,912	-	-	1,443	1,410	-	-	5,734	7,330	-	-	16	27	-	-	$9,664	$4,067	-	-
Romenh.**AVL**	2008-Oct-01	1,865	-	-	-	557	-	-	-	2,235	-	-	-	49	-	-	-	$8,296	-	-	-
Prey Sleuk.**AD**	2008-Oct-01	1,113	-	-	-	308	-	-	-	2,062	-	-	-	22	-	-	-	$4,150	-	-	-
otal Rural		40,822	**15,995**	**0**	**0**	11,796	**5,303**	**0**	**0**	59,066	**25,431**	**0**	**0**	**389**	**161**	**0**	**0**	$104,135	**$31,533**	**$0**	**$0**
		56,817				**17,099**				**84,497**				**550**				**$135,668**			
Subtotal by each year		41994	21,351	5,505	2,479	12,030	6,507	1,526	1,005	60,628	32,557	6,991	3,929	525	359	199	60	$121,864	$59,808	$24,049	$7,191
total 2 networks		**71,329**				**21,068**				**104,105**				**1,143**				**$212,912**			