THE THREAT OF CHRONIC DISEASE: PERSPECTIVE AND RECOMMENDATIONS OF A HEALTH CARE CIVIC GROUP

Dr Lee Kheng Hock

ABSTRACT

Effective treatment for chronic diseases are available and the burden that they impose on society can be reduced with resulting savings on health care costs as well as improvement in the quality of life of the patients and their families. The rapidly aging population of Singapore provides a further impetus for action because of the proportionate increase of the prevalence of chronic diseases with age. Steps have been taken in the form of restructuring of the health care system into two clusters, setting of national disease registries and development of clinical practice guidelines for doctors. Further improvements can be made and there is a need to adopt a systems approach to tackling the threat of chronic diseases based on the chronic care model. The Feedback Group on Health in 2005 worked with patients with chronic disease, community health care organizations to hear their views and perspectives on how chronic disease has affected patients and the actions that could be taken. Based on such feedback, the following recommendations were tabled for action by the Singapore community: the healthcare system in Singapore be organized towards more effective risk factor control and disease management; wider and more systematic use of information technology in the care of patients be done; each healthcare subsystem be encouraged to provide appropriate care through system design; healthcare providers and systems help patients and their families to help themselves; and more community resources towards disease management be made available.

INTRODUCTION

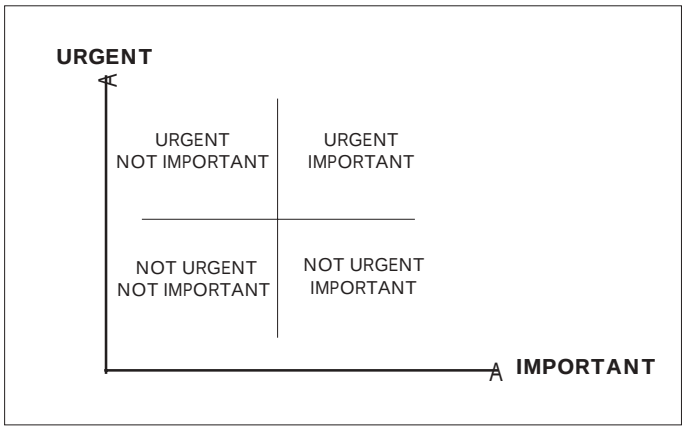
This paper is the culmination of the work of the Feedback Group on Health in 2005 on the subject how should be our strategy in Singapore against the threat of chronic disease in our community. Many patients and community organizations contributed to the information, views and perspectives in this report. It is hoped that the paper will help to highlight the tasks that need to done in the years to come in our efforts to reduce disease burden.

In 2004, the Feedback Group on Health provided a citizens' perspective on the white paper on Affordable Health Care. We are heartened that many positive initiatives are underway to ensure that health care will remain affordable to Singaporeans. However we feel that efforts to keep health care cost down must be balanced by initiatives to ensure that the quality of care remains high. More importantly we must prioritize our health care needs at a national level so that resources can be allocated appropriately.

The focus of the Feedback Group on Health on the nation's health agenda for 2005 is on the threat of chronic disease to Singapore. It is now clear that effective treatment for chronic diseases are available and the burden that they impose on society can be reduced with resulting savings on health care costs and improvement in the quality of life of the patients and their family. Disability from chronic diseases can be prevented resulting in increased economic productivity of the population. The rapidly aging population of Singapore provides a further impetus for action because of the proportionate increase of the prevalence of chronic diseases with age.

PRIORITIZING HEALTH CARE PROBLEMS

Resources for health care are limited. Demand for health care is unlimited. Prioritization and allocation of resources to areas of importance is therefore very important. A model for time management as proposed by Stephen Covey is essentially a system of prioritizing demands for the limited resource of time[1]. This can be adapted to help us prioritize health care problems.



We must recognize our tendency to prioritize problems by urgency rather than by importance. This results in the relative neglect of non-urgent but important problems, which have delayed but serious consequences. This in essence, is the very nature of chronic diseases and the reason why it does not receive the attention and the resources that it deserves.

LEE KHENG HOCK, Chairman, Feedback Group on Health, Feedback Unit

CHRONIC DISEASE AS A MAJOR PROBLEM

Chronic disease accounts for 60% of deaths in 2003 in Singapore. Ischaemic heart disease, strokes, and diabetes together accounts for half of these (31.2%). The other major cause of death is cancer (25.9%).

Prevention is better than cure. Controlling the risk factors of chronic disease by every Singaporean is therefore the important first step. For what we cannot prevent, good disease management programmes must be in place to reduce the disease burden and death. The concerted efforts of all stakeholders including the healthcare providers, community organizations, the patient and their family members are needed to achieve the best outcomes.

CONSEQUENCES OF POORLY MANAGED CHRONIC DISEASE

The threat of chronic disease is real. The consequences of poorly managed chronic diseases are well known and proven. These include:

- Heart attack
- Stroke
- Heart failure
- Kidney failure
- Blindness
- Amputation of limbs.

Such medical conditions translate in real terms into the following:

- Physical handicap
- Dependency
- Unemployment
- Hospitalisation
- Surgery and medical procedures
- Nursing home need
- Increased visits to clinics and emergency departments.

Advances in medicine have given us effective means to prevent such complications. Unfortunately, chronic diseases remains poorly managed in many countries including Singapore. Large proportions of people with chronic diseases are not receiving effective treatment and are unhappy with their care[2]. A survey in Singapore had shown that the situation is similar to other parts of the world. More than half (53.2%) of the known diabetics in Singapore have poorly controlled blood sugar and are therefore at high risk of developing complications in the near future[2]. Many people with chronic disease remain undiagnosed and therefore untreated. With each passing day, the cumulative damage of the chronic diseases brings them closer to the tragic outcome of complications. For diabetes alone, a survey had shown that as much as 62% of Singaporeans who have diabetes were not even aware of it[3].

The health systems of most countries, including Singapore, are designed for acute rather than chronic care. This often ends up with a passive uninformed patient interacting with an unprepared health provider system, resulting in frustration for all parties and a poor outcome[4]. This has to change as the world grows older and disease patterns change.

THE EFFECT OF A RAPIDLY AGEING POPULATION ON THE PREVALENCE OF CHRONIC DISEASE

By the year 2030, 27% of the population will be 60 years and older (Figure 1). Although ageing is not preventable, preventing the elderly from being frail as the result of chronic disease is eminently achievable. Disability such as blindness and immobility that can result from poorly managed chronic diseases. These complications have devastating consequences on people who may otherwise be independent and economically productive. Stress to family members and caregivers can be tremendous. Treatment of complications requires more health care resources. Well-managed chronic diseases not only saves money for the country, it also prevents a great deal of suffering and pain for the patient and their loved ones.

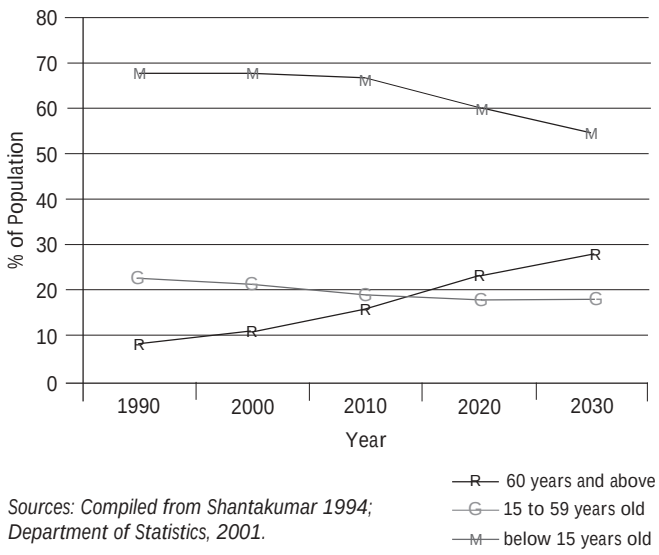
It is common knowledge that chronic diseases are more common in older people. However not many realize just how rapidly the prevalence of chronic diseases increases with age. If we consider three very common chronic diseases namely diabetes, hypertension and hyperlipidemia, we can see that it increases sharply from age 40 onwards. This is shown in figures 2 to 4.

The prevalence of diabetes in the 40 to 49 age group is 9.6%. In the 60 to 69 age group it jumps to 32.4%. That is more than a 3 fold increase. Considering that by 2030, 27% of Singapore's population will be more than 60 years old, we will have an "epidemic" of diabetes in the next 10 to 20 years.

Compound this with the prevalence of other chronic diseases such as hypertension which jumps from 22.7% to 64.3% in the corresponding age groups, the health of our country in the future is a matter of grave concern.

The impending increase in health care expenditure within the next 2 to 3 decades will be daunting. By 2030, it is projected that 27% of Singapore's population, or about 1 million people

Figure 1. Population Changes in Singapore (1990-2030)[5]

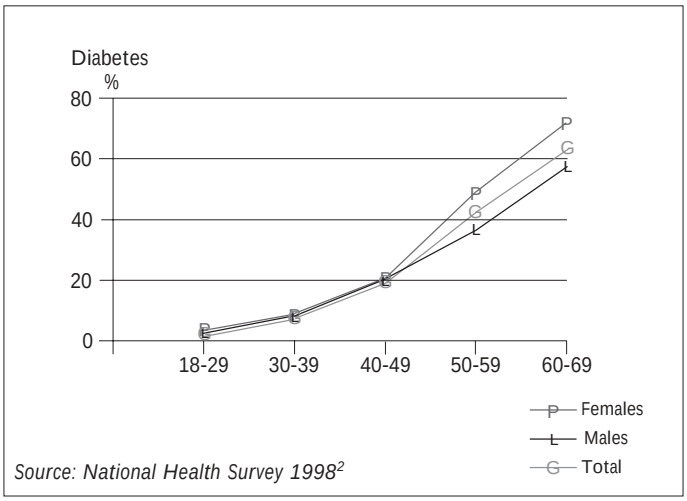


Sources: Compiled from Shantakumar 1994; Department of Statistics, 2001.

Figure 2. Age-specific prevalence (%) of hypertension among Singapor residents, 1998

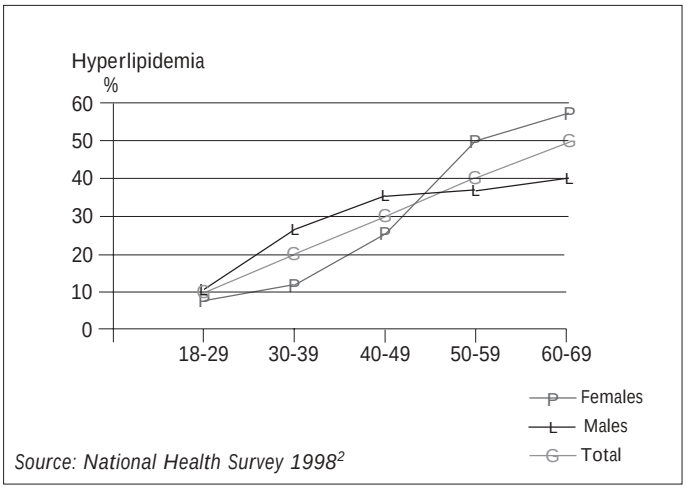
Source: National Health Survey 1998[2]

Figure 3. Age-specific prevalence (%) of diabetes mellitus among Singapor residents, 1998



Source: National Health Survey 1998[2]

Figure 4. Age-specific prevalence (%) of high total cholesterol among Singapor residents, 1998



Source: National Health Survey 1998[2]

will be more than 60 years old, of which about 320,000 will be stricken with diabetes if present trends continue. Studies have shown that the medical expenditure of people with diabetes is 2.4 times higher than those without diabetes[6]. Just with increasing prevalence of diabetes alone we can expect our nation's health expenditure to increase dramatically in the coming years. This rapid increase in health care expenditure will be compounded by similar trends of rapid increase in prevalence with age with other common chronic diseases such as hypertension and high cholesterol.

WHAT NEEDS TO BE DONE?

We need to work to put chronic disease as a priority for action on our national healthcare agenda and take steps towards the reduction of disease burden by paying attention to:

- Control risk factors for chronic disease
- Align the health system for disease management
- Promote unity for health involving all stakeholders.

CONTROL RISK FACTORS FOR CHRONIC DISEASE

Diabetes, hypertension, hyperlipidemia are now undisputed risk factors to heart attack, stroke, heart failure, kidney failure, blindness and amputation of limbs. Together these risk factors contribute to no less than 31% of all deaths in Singapore in 2003. Suffering and health expenses are huge burdens that could be reduced if we act now.

Figures 2 to 4 show the age-specific prevalence (%) of the key risk factors of diseases such as kidney failure, heart attack and stroke. The message needs to go out to every Singaporean to work on the reduction of these risk factors so that chronic disease has no chance to surface. Individuals and family members need to have more than just awareness. They need to develop skills in their daily life to control the risk factors. Healthcare providers need to hone their skills to communicate, educate, counsel and motivate their patients to learn the necessary skills and attitudes important for disease control.

ALIGN THE HEALTH SYSTEM FOR DISEASE MANAGEMENT

Increasing evidence from health services research points to the design of health care system as the primary determinant in improvements in chronic disease management[7]. Wagner et al (2002) has proposed a 6 point strategy that provides a good framework for aligning the health system for disease management[8]. We have studied it and find it to be a useful model. Studies that analyse the implementation of this model had shown that it improved the quality of care[9]. The implementing the chronic care model had also been shown to reduce health care cost[10]. We have adapted it and used it as a framework to do a situational analysis of our healthcare system with respect to disease management. The chronic care model is shown in Table 1.

Table 1. The 6-point strategy to align the health system for disease management

o **ORGANISATION OF HEALTH CARE SYSTEM** – (The structure, goals and values of provider organizations. Relationship with purchasers. Reimbursement environment).
o **USE OF INFORMATION TECHNOLOGY** – (Reminder system to help primary care teams comply to CPG. Feedback on quality achievements. Patient registries for planning individual and population based care).
o **DECISION SUPPORT** – (Integrating EBM guidelines into daily practice. Making use of guidelines practical).
o **HEALTH CARE DELIVERY SYSTEM DESIGN** – (Practice team approach. Integration for continuity of care. Planning of visits).
o **ENABLING SELF-MANAGEMENT BY PATIENTS AND THEIR FAMILIES** – (Teaching patients and families self management. Diet. Exercise. Medication. Self-monitoring. Problem solving).
o **COMMUNITY RESOURCES** – (Integrating health system with community resources. Self-help groups. Senior citizen centers. Home care services. Voluntary welfare organizations. Hospital outreach programmes).

SITUATIONAL ANALYSIS OF OUR HEALTHCARE SYSTEM FROM THE PROVIDERS' PERSPECTIVE FROM INFORMAL DISCUSSIONS AND FOCUS GROUPS

Pertinent comments from various healthcare providers on the Singapore healthcare system have been collated and grouped into the six strategies.

Organisation of health care

- Competition between the 2 public sector health care clusters have negative consequences
- The private sector primary care is under-utilised
- Integrated and co-ordinated care has not be actively developed in Singapore
- Ministry of Health should identify and merge functional areas where competition have failed to produce benefits.

Use of information technology (IT)

- The Electronic Medical Records Exchange (EMRX) initiated by the Ministry of Health in April 2004 is a good initiative.
- Private hospitals and group practices have their own silos of information systems.
- Use of information technology is mainly geared towards business and administrative function and not focused on clinical care.
- Adoption of information technology (IT) in clinics and clinical practice is still low.
- We can learn from the experiences in countries like Australia, United Kingdom and the United States. They have worked on the use of IT to manage medical records for following up the care of chronic diseases. In the United Kingdom, performance indicators have been set up to monitor the quality of care in disease management.
- An open source IT system could be considered. This would create a convergence of systems as an open source core system allays fears of dependency and at the same time allow flexibility for customization for individual needs. The advantages of synergy of efforts will facilitate system compatibility and more effective information technology systems to be developed to support disease management.
- Promotion of use of IT by providers and patients will speed up IT adoption. This IT promotion has been ongoing but lacks a concerted national effort to achieve results.

Support healthcare professionals

- There is a perception that ethics and professionalism of health care workers are being eroded with increasing commercialization of medicine.
- There is little incentive and support for healthcare workers to upgrade their skills and services.
- Doctors are distracted by fringe activities such as aesthetic medicine and multi-level marketing.
- The morale of healthcare workers is low.
- There is a need to empower doctors to practice good medicine.

Healthcare System Design

- Chronic disease management teams are ad-hoc and the care provided is fragmented.
- Vertical care integration between hospitals and primary care is inadequate.
- Horizontal care integration between providers at the same level is poor.
- Continuity of care of the patient as he moves between sectors and levels of heatlh care is severely lacking and this can be the cause of poor outcome.
- Follow-up and recall system is patchy.
- There is a need to restructure subsidy system to align provider behaviour for quality and not quantity.
- There is a need to align provider behaviour to provide care with quality and good outcome for the patient in mind. They should not be too focused on cost and financial outcome.
- There is a need to create a system that pays for quality and performance. The new contract in the United Kingdom for doctors shows the thinking along this direction. Under their system, providers are paid when they help their patients reach acceptable treatment goals.
- There is a need to limit the effects of destructive competition such as duplication of services, inefficient use of resources, excessive focus on bottom line and neglect of duty to the public. It has been observed that when competition between providers is intense, it creates disincentives to improve chronic care and incentives to focus on services that attract younger, healthier patients who are willing and able to pay[11].

Help patients and families

- Patients' knowledge of their own health status and disease condition is generally low.
- There are many patient education programmes available but their effectiveness may be limited. The focus appears to be on generating publicity and awareness. There is a need to

close the loop and help people translate awareness into action. There is need to structure patient education programmes towards skills building.

- Patients and their families are often very passive towards illnesses. Self-management and monitoring is not widespread.
- There is a need to provide incentives to patients and families e.g. more subsidy for showing the willingness to adhere to treatment strategies to control disease.
- There is a need to develop and organise more public education programme for chronic disease control. There is a need to go beyond mass education programmes on awareness to individual and family skills building to deal with self-care and lifestyle modifications needed to control chronic diseases.
- There is a need to engage and train care-givers and helpers in disease management.

Build community resources

- More health related Voluntary Welfare Organisations (VWO) had been developed and they are given a bigger role than in the past.
- There are many innovative programmes including initiatives such as Jurong Connect but many are still in the developmental stage.
- Communication is lacking between the VWOs and the health care providers, especially those in the private sector.
- There is a lack of integration of hospitals, primary care providers and VWOs.
- The efforts of the different VWOs are not well co-ordinated.
- VWOs should be encouraged to fill the service gaps for care of the chronic sick.
- VWOs in Singapore are not co-ordinated and do not work together – there is therefore scope to do so and in this way provide a more seamless service.

SITUATIONAL ANALYSIS OF OUR HEALTHCARE SYSTEM THROUGH IN-DEPTH INTERVIEWS WITH PATIENTS WITH CHRONIC DISEASE

In order to understand patient care from the users' perspective, we conducted a study of 46 patients with chronic diseases to understand their views and experiences as users of the healthcare system. It is clear that patients adapt to what is available and choose to stay in services which meet their needs and help them deal with their diseases.

Methodology

- 46 In-depth interviews (20-30 minutes) conducted with patients with chronic diseases, in the language respondents are comfortable with.
- For the purpose of subject selection, chronic diseases was defined as patients who need long term medication on a long term basis to prevent medical complications. Examples were high blood pressure, high cholesterol heart disease, asthma, diabetes and kidney disease.
- The subjects were interviewed using open ended questions centered along the following themes:
  - Choice of current healthcare providers
  - Satisfaction with and improvement desired of current healthcare providers
  - Role of government & other public organisations.

Patient distribution by healthcare service provider

The distribution of patients interviewed by the type of healthcare provider is shown in Figure 5.

Figure 5. Patients' Mix in in-depth Interviews

	Type of Healthcare Provider				
Age Group	Polyclinic	Private GP	Public Hospital	Private Specialist Outpatient	Total
45-54	6	3	7	3	19
55-59	7	8	5	7	27
Total	13	11	12	10	46

Interview results

Choice of provider – The reasons for choosing their providers have been summarised:

Polyclinic (Public Sector Primary Care)

- Cheaper medical fees
- Referral when discharged from hospital
- Familiarity with doctor
- Less language barrier/ unease due to doctor of different ethnicity/ different gender
- Close proximity to place of stay

Public Hospital

- Continue after major operation and admission
- Referral from primary care clinics
- More confidence in ability to diagnose problems
- Lack of confidence in other healthcare providers' expertise/ medicine carried
- Availability of certain specialized treatment
- Affordability

Private GP (Private Sector Primary Care)

- Company subsidy designates use of specific clinics
- Managed care designates use of specific clinics
- Recommendation by others
- Comfortable and familiarity with the doctor
- Improved outcome after seeing doctor
- Convenience due to proximity to place of residence
- More convenient operating hours
- Initial diagnosis made by the doctor

Private Hospital

- Switch from public hospital due to dissatisfaction with services (e.g. long waiting time).
- Recommendation from others.
- Lack of vacancy at public hospital.
- Limited range of specialised healthcare providers for the disease suffered.
- Convenience due to proximity to place of residence.

Dissatisfaction with their present healthcare providers

Polyclinic

- Low efficiency (e.g. long queue and waiting time).
- Lack of regular attending doctor.
- Skills of doctor perceived to be average.
- Insufficient attention from doctor (due to heavy workload of the doctor).
- Less thorough check-ups with no significant improvement of condition.
- Medicine dispensed is not effective.

Public Hospital

- Communication barrier.
- Lack of detailed explanation for medical condition.
- Lack of transparency between doctor and patient.
- Long queue & waiting time.
- Bad attitude of frontline staff.
- Limited range of medication available at the dispensary.

Private GP

- Lack of layman & detailed explanation of medical progress.
- Inadequate allaying of patients' fears.
- Limited range of medication available at the dispensary.

Private Hospital

- High costs.

SUGGESTIONS GIVEN BY PATIENTS WITH CHRONIC ILLNESSES

- Help provide transport for hospital and clinic visits.
- Special arrangements to help patients with no family support.
- Home visits for special cases.
- Extend clinic operating hours.
- Affordable medical insurance for chronic diseases.
- Allow the use of Medisave to pay for outpatient treatment of chronic diseases.
- Job placement for patients with chronic diseases who are still able to work.
- Better explanation by doctors of the patients' chronic medical problems.
- Ensure that there are enough well trained doctors to help patients with chronic diseases.
- Better health education programmes customized to patients' age, educational level and language/dialect.
- Emergency hotline for help.
- Educate patients on available resources.
- Empower social workers through increased support given by care givers and families.
- Community education to inculcate understanding and support for people with chronic diseases.

COMMUNITY ORGANISATIONS (VOLUNTARY WELFARE ORGANISATIONS' PERSPECTIVE)

Community resources and services provided by voluntary welfare organizations is an important component of chronic care. The feedback group sought the views of some key health related voluntary welfare organizations (VWO). The main concern is the lack of integration and communication with the health care providers at all levels and sectors. Some feedback received from such voluntary groups were:

- Too much attention is focused on those who are already ill and have developed complications.
- Comparatively little attention is given to the apparently well but who are at risk of developing disease.
- There is a need for greater emphasis on prevention and education.
- There is insufficient communication and co-ordination between the hospitals, the primary care providers and the VWOs
- There is a tendency for the system to manage patients in parts. This results in poor continuity of care.
- The media could be better used in promoting better care of chronic diseases.
- The information gap and discontinuity of medical records hinders continuing care.
- The cost of drugs of chronic care is too high compared to neighboring countries.
- Discharge planning and training of care givers are inadequate.
- There is too much destructive competition between care providers.
- Primary care in Singapore is not adequately developed to play its role in chronic care.

RECOMMENDATIONS

The following are recommendations based on the information we have collated and our analysis of the threat of chronic disease in Singapore. The purpose of these recommendations are to stimulate further thoughts on how we could work together to counter the threat of chronic disease; how we can align the healthcare system for disease management; and how to promote the unity of health amongst the stakeholders towards disease management. We understand that steps had been taken in this area in the form of restructuring of the health care system into two clusters, setting of national disease registries and development of clinical practice guidelines for doctors[12]. We believe that there are many more areas where improvements can be made and there is a need to adopt a systems approach to tackling the threat of chronic diseases based on the chronic care model.

(1) We recommend that we re-organise the healthcare system in Singapore towards more effective risk factor control and disease management. Considerations are:

- Merger of all government polyclinics into an integrated primary care system that is independent of the present healthcare clusters. The present healthcare clusters are hospital driven with emphasis on rapid turnover of patients. The majority of care in chronic disease takes place in the primary care setting[13]. Re-tooling the heath care system to prepare for the rapid increase in prevalence of chronic disease would need a shift of focus back to primary care and radical re-organisation of the primary healthcare system[4].
- Engage the private sector primary care to increase the capacity to manage the impending increase in chronic disease prevalence.
- Integrate and co-ordinate care between the trinity of hospital-primary care – community organisations
- Integrate and co-ordinate care within the hospitals, primary care providers and community organisations

(2) We recommend a wider and more systematic use of information technology (IT) in the care of patients. Suggestions for action are:

- Define outcome and timeline for IT initiatives.
- Adopt both a top-down and bottom-up approach simultaneously.
- Provide incentives for computerization of clinical care.
- Actively push information and data to the point of care at the primary care clinics.
- Learn from countries with working models of successful IT implementation.
- Adopt an open source system.
- Develop a common medical IT system standard for the whole country.
- Consider developing voluntary registries of patients with important chronic diseases such as diabetes, hypertension and hyperlipidemia.
- Use IT to ensure the continuity of medical records.
- Consider developing a patient held electronic medical records (a digital version of the health booklet).
- Use IT to collect and monitor data of chronic disease in Singapore.
- Develop IT enhanced disease management programmes that have the capability to monitor quality and outcome indicators.
- Promote use of IT by providers and patients.

(3) We recommend greater system support for healthcare professionals. Areas to focus greater attention on are:

- Improve the ethics and professionalism of health care workers.
- Provide incentives and upgrading of skills and services that improves chronic care.
- Implement disincentives for fringe activities such as aesthetics and multi-level marketing.
- Empower doctors to focus on their core duty and practice evidence based medicine.
- Implement disincentives for episodic care that hinders good chronic care.

(4) We recommend that we encourage each healthcare subsystem to provide appropriate care through system design. Areas to consider are:

- Restructure subsidy system to align provider behaviour towards quality and not quantity of care.
- Pay for quality and performance indicators.
- Increase co-operation between care providers and limit destructive competition.

(5) We recommend that healthcare providers and systems help patients and their families to help themselves. Strategies to consider are:

- Promote the concept of self responsibility and adherence to treatment.
- More support for families with elderly chronic sick.
- Education programmes to explain disease to patients and their family.
- Provide assistance in bringing patients to clinics and hospitals.
- Incentives (such as more subsidy) for patients who adhere to treatment and reach treatment goals.
- Teach patient skills to participate in the management of their own conditions.
- Subsidise equipment that help patients monitor their own conditions.
- Organise public education programme for chronic disease control.
- Train care-givers and helpers.

(6) We recommend that we build community resources towards disease management. Areas to consider are:

- Create a nation-wide platform for healthcare related VWOs (Voluntary Welfare Organizations) to co-ordinate activities and work together
- Consider using the local Community Development Councils as platforms to co-ordinate the efforts of VWOs and healthcare providers in managing chronic diseases.
- Improve links between community VWOs and health care providers
- Encourage VWOs to provide more programmes that help the chronic sick.

CONCLUSIONS

The SARS outbreak had shown us that adopting a transparent and objective approach to tackling difficult problems is highly effective especially when we succeed in rallying healthcare providers from all levels and sectors to work on a common cause. We believe that the threat of chronic disease to Singapore is insidious but much more serious than the SARS outbreak. We should similarly adopt a transparent, objective and systematic

approach to deal with the threat posed by chronic diseases. The chronic care model is a good framework to analyse the effectiveness of health care systems in managing chronic diseases. It can also be used as a framework to develop solutions. Our concern is that while chronic disease is overwhelmingly important to our community and to the individual, it is by nature non-urgent, until the situation turns critical. The tendency to do the expedient is the greatest problem that we must overcome and we can only hope that our call for action will be heeded in time.

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